Oct 15, 97

Dear Dr Haley

What yn all are trying to do is crucial, I feel, to future care of minor species. You may use the enclosed material in any manner you see fit.

I was going to write a book on canine care. However, some people confuse concern and informative advices as "practicing veterinarian medicine without a license". I have never encouraged people to treat their own animal, always recommend they go to their veterinarian but there are times when a veterinarian is just too far away. There's a very good vet. in Tx named Dr. Joyner. However, by the time I could get a critically ill canary to him, the canary would be dead or too far gone to save. Makes the owner and vet feel bad. Time is of the essence in treating a sick/emergency type problem. I live 30 mins from my vet. A sow needing a section has that 30 mins to make it or break it. Literally. I learned to do my own sections because no vet I contacted would even consider doing one (in the 70's). I hope this info will help others who are unsure or hesitant about treating minor species that much can be done for them and they are as dear to their owners as the pet dog, cat, bird etc. that comes to their clinic. I wish courses in treating exotics were required in veterinarian schools. I wish that only truly "exotic" animals were so classed. If this material can help change this, my 22 yr of blood sweat and tears will have been worth it.

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Sincerely yours for better canine (guinea pigs)

Sally M Winkler

97N-0217

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(Comments by me)

REVIEW - POST OPERATIVE ANALGESIA in Rabbits & Rodents

by Paul A Flecknell MA, Vet MB PhD DLAS MRCVS. (Director of Comparative Biology Centre; Medical School of University of Newcastle upon Tyne. Reprint requests the author at Comparative Biology Centre at the Medical School, University of Newcastle upon Tyne, Framlington Place, Newcastle upon Tyne NE2 4HH, England

Over the past 10 yrs there have been many improvements in the standards of post operative care for rodents & rabbits. It is difficult for most persons to evaluate the level of pain present in rodents & rabbits.

Anthropomorphic criteria (comparing to similar pain in people following a like procedure) is not necessarily humane & can cause (1) inappropriate pain therapy for some animals. Differences in anatomy of animals & variable response of different strains & ages of rodents makes a change in how pain is evaluated mandatory. Use of the Barclay, Herbert, Poole Disturbance Index[2] (15) & observations by the author[3] (16) on post operative rats has led to the conclusion that changes in food & water consumption after (2) surgery, body weight & spontaneous motor activity (6) 5 is a reliable indicator of effectiveness of pain control. Results can be applied to determine the most effective drugs, dosages route of administration & duration of therapy.

The success of any surgical intervention is determined by careful procedural technique & minimal tissue trauma & high standards of intra operative & post operative nursing care to minimise pain & distress post operatively

Post operative analgesia (pain control) is part of this patient management.

How the individual animal reacts to the particular analgesic determines the dosage to give - see Table 1.

Also proper use of lidocaine (short acting) or preferably bupivacaine to block nerve trunks or infiltrate muscle & sub q tissue during closure & can provide 4-12 hr analgesia & preclude the need for other systemic pain relievers.

The problem some research workers have of not using analgesia due to fears of the side effects, especially opioids, is not a real problem in rodents unless repeated high doses are used. With the availability of nubain®, Buprenex®, Stadol this problem can be circumvented. Use of opioids in rodents & rabbits after brain surgery has not caused any problems in the area of assessment due to depression of respiration, increased intra cranial pressure, constipation or urinary retention (inability to pee). ©6

All researchers must utilize those drugs that will not interfere with experimental protocals but a review of the literature will provide answers to these questions. "Using pain to immobilize an animal following surgery is inhumane".

Any surgical procedure (minor or otherwise) will cause varying degrees of metabolic & endocrine changes (stress) that will last a few days to weeks.

From his own experiences Dr Flecknell has concluded that administration of pain medication on a regular schedule produces optimal response & recovery time(s)

As examples - superficial surgery - vein cannulation = 12-24 hrs analgesic therapy. invasive surgery - exploratory abdominal surgery = 24-48 hrs analgesic therapy. Orthopedic & chest = 3-4 days but most pain requirement (highest dose) will be post op = eg 24-48 hrs & decreasing dosage & administration after this.

One must also be aware that an abnormal reaction to the medication by that particular animal (esp opioids) can cause effects resembling pain & lead to an incorrect increase of dosage

Losing post operative analgesia in smaller animals is more labor intensive - requires special care & housing & frequent dosing q3-4 hrs & opioids - less frequently & other pain meds. Use of pain med. in the drinking water can possibly overcome. This has been researched by P. K istler University of Bern, Zurich (1) 24

He concludes theres still a lot of room for improvement in post-op pain relief in laboratory rodents & rabbits (2) 8

Comments by Sally in Winkler

My own observations have been very close to his & I firmly believe in using analgesics in the canny post operatively. I commend his statement that use of pain to immobilize an animal post op is inhumane! Call it "anthropomorphizing" if you like but I can tell when a canny is in pain. From text (1) & - many times people are denied pain medication even tho ordered by well meaning but wrong care givers who try to interpret the patients degree of pain. This causes problems in the rapidity of recovery of patients - medical or surgical. The best example really is children - why anyone ever assumes children do not feel pain same as adults is about as logical as assuming animals don't feel pain. Many care givers in Pediatrics are

super reluctant to give pain medication to children. Fear of causing addiction is unfounded.

b. Intake of food water & level of activity in canies is an excellent indicator of degree & presence of pain. Canies having pain don't eat or drink; they face a corner, ruffle their hair & die. Crying milky tears is also indicative of pain, along w teeth grinding & "crying", a low constant moaning sound.

c His findings of lack of problems in rodents & rabbits from administering opioids is not surprising to me.

d. The use of pain medication - post op - on a routine schedule for humans is known as "snowing". Lack of pain intervention can lead to shock, sometimes irreversible!

e. His conclusion about need for improved pain relief post op in animals is well founded. I was impressed by the lack of references in the use of pain medication in the canny (guinea pig to researchers) & the fact that mice get gall stones (normal or induced?) & rats can get pancreatitis. I feel for them. I had both & the relief of pain is imperative!

The dosages of tylenol used for the rat & mouse are quite high (1/5 tablet 65mg) considering the average person takes only one or two Tylenol tablets for pain q 4h. 325-650 mg & infants up to 3 mos 40 mg

I cannot vouch for the effectiveness of NSAIDS motrin® advil® Ibuprofen Nuprin Rufen etc since I don't use them for canies. Likewise Demerol morphine Nubain Talwin Buprenex Fluxin & Stadol. I don't have access to many of these & haven't found a need to use them since what I use works quite well.

For mild pain &/or fever I dropperful Tylenol® elixir

(roughly 40 mg) or 2-3 drops Tylenol® Infant Drops works quite well & can be repeated every 4-6 hrs.
Here's a trivia fact for you: 44 companies produce products incorporating acetaminophen - either alone or & another drug (pain cough cold meds, etc)!
Moderate to severe pain post operatively can be controlled by using Ketaset® 0.2cc S.Q. q4-8 hrs. usually one injection is all that's required followed by use of Torbugesic (dilute 1cc in 100cc or 0.1 in 9.9cc sterile fluid) give 0.2-0.6cc q4-8 hrs. Works well. Can use Torbutrol (more dilute form of same drug) undiluted - 0.2-0.4cc S.Q. in neck.
Robinul dilute. 1cc in 100 cc - give 0.2 cc repeat x 1 in 30 minutes if necessary, reduces secretions - relaxes gut.
Dpanthenol dilute 1:100 (1cc, 250mg in 100cc sterile solution) give 0.2cc q4-8 hrs along & Torbugesic for severe abdominal pain & colic - pain from kidney / bladder stones, bloody urine
Elixir Phenobarbital 15 mg / tsp 3-15 drops q 4-6 hrs for sedation - more frequently for seizures eg q 1-2 hrs. x 1 Use Ketaset, too, for seizures
Elixir Donnatal 2-15 drops q 4-6 hrs for abdominal pain suspected ulcers - diarrhea
Elixir Benadryl 12.5mg/tsp 1 drop to 1cc - per size - repeat in 4-6 hrs PRN Works very well for itching & reactions to drugs including Ivermectin® (rare)
Cough syrups with dextromethorphan can be used 1/4 - 1cc q 4-6 hrs eg Robitussin DM®
Lidocaine 1% - Bupivacaine etc for injection around operative area - also for eye surgery & directly on eye if ulceration present to decrease pain
Xylocaine viscous (jelly) rub on broken teeth - surface wounds that are excessively painful, incision.
I have no doubt that Demerol, morphine, codeine & Talwin would work well in the camp. Nubain & Stadol I'd be reluctant to try (haven't been impressed with their track record in people - perhaps they're more effective in animals

Buprenex in not familiar to at all so can't say. He's apparently used it successfully and it's longer acting than many of the others

I would not use aspirin or NSAIDS (motrin ibuprofen etc) at all in the canny for two reasons; 1. When stressed they tend to develop ulcers &/or bleeding in the GI tract. 2 they have a high incidence of abnormally dilated stomachs & rupture of the stomach is not infrequent in canies. ASA/NSAIDS could precipitate & aggravate such problems. Canies also tend to have liver & kidney problems & ASA & NSAIDS would aggravate these conditions. Small, infrequent doses of acetaminophen, however, should not cause problems & so far has it. I haven't used Tylenol® in rabbits but don't see where it would harm them.

Since all drugs are detoxified in the liver & most are excreted via the urine (few thru gut) maintaining fluid intake is critical & must be achieved by oral feeding or subq injection. Salted lettuce is a good way to increase desire to drink. Use of acepromazine orally (3 mg / 1 cc - give 5 drops to 1 cc) or by injection (0.2 - 0.6 cc) is effective in improving appetite & taking the edge off pain. Valium 5 mg / 15 cc (1-5 drops orally) is effective for seizures & seems to dull pain - works well with Torbugesic. Pyridium a urinary antiseptic (phenazopyridine) — 1/2 100 mg tablet - crushed & put in 50 cc H2O & 10 cc propylene glycol - works well in urinary tract problems of the canny. Use 5-15 drops q 6-8 hrs - no longer than 2 days. give when starting treatment & Torbugesic, D panthenol

Always remember canies can react adversely and do to drugs especially injectible forms & have adrenalin (epinephrine) handy in case it is needed.

Atropine is the "universal" antidote over

use for any suspected poisoning - dilute
1cc / 9cc give 1/4 - 1/2 cc & repeat every 1-4 hrs
as needed (stop if pupils dilate). Have saved
canes reacting to pesticides using atropine

Comments On Development of Options to Encourage Animal Drugs Approved for Minor Species and Minor Uses: FDA 21C FR Chapter 1: [Docket No. 97N-0217] . Agency: Food and Drug Administration, HHS.

I read about this filing in LABORATORY ANIMAL and found therein the number to call. I was appalled to hear no veterinarians have submitted any suggestions for guinea pigs (herein referred to as Cavies) and bet there have been few, if any suggestions for rats, mice, hamsters, gerbils, hedge hogs, tropical fish eg., the "Exotics" of veterinarian practice. Since Cavies as pets have been "domesticated" since the 16th Century in Europe and even before this in South America and since the 1700's in America, I would think an "Exotic" label is neither desired nor necessary.

In terms of veterinarian care, they may as well be "exotic". The number of veterinarians who would even consider treating a Cavy in 1975, the year I first began breeding, showing, studying genetics of , illnesses and methods of treatment, was less than five percent (5%). Today, MAYBE ten percent (10%) of veterinarians are comfortable with and will treat Cavies. Not a very encouraging average.

Drug wise, the Cavy certainly is a "minor species". To my knowledge, the only drug approved for use in the Cavy is Vitamin C. While this works wonders for treating scurvy (it still occurs, even today, to Cavies with unknowledgeable owners) and in generally boosting the immune system to help the Cavy overcome illnesses, it does not cure or prevent deaths from pneumonia (most common problem found in Cavies, all ages), or alone in treating urinary tract stones, or in any number of bacterial infections to which the Cavy is prone. Nor can it cure acute diarrhea, torsion/colic of the gut and/or stomach, bezoars, bad teeth and resultant abscesses in the mouth from same. It will not cure Pododermatitis (bumblefoot), Cavy clap (venereal diseases), or infestations with lice, mites, demodectic mange mites or fungal skin infections. I routinely use 100mg. Per Cavy for three days during acute illness, then taper to 50mg. for duration of illness with no problems. Some people have reported an increase in diarrhea/loose stools at higher dosages but this can be remedied using Kaopectate and/or Bene Bac or similar type product.

Many veterinarians will not use drugs as extra label therapeutics in Cavies as allowed via AMDUCA of 1994. They want proof of efficacy and safety and a list of credentials behind ones' name to support the claims. I can't say I blame them. Americans are suit happy.

My only credentials are 27 years experience as a Registered Nurse specializing in Pediatrics, ICU, Pre-mature Nursery, respiratory disease and communicable diseases. Then I moved on to adult Med-Surg, Urology, Obstetrics, Gyne, Oncology etc. My love of Cavies left me bereft when they died and determined to do something for my animals since no one else would. This isn't quite true. Since 1975, I have found several veterinarians who would work with me (once they realized I was serious) and together we learned to treat and save Cavies usually considered hopeless. By trial and error we found what would and would not work

Over the pasr 22 yrs. I have found regimens that work in Cavies. I routinely submitted dead Cavies for necropsy throughout this period because I wanted to know why they died. I've always been one who has to have answers. Specimens for culture and sensitivity (aerobic and anerobic), of infected areas have been routinely submitted and the findings were asounding. The organisms cultured are frequently gram negative. "Pneumonias" were actually cancers. I can no longer afford to do this type testing on a large scale since I have to live on a fixed income and it just doesn't spread far enough. I've also had to cut back on the number of animals I can keep, both for financial and physical reasons. At one time I ran a herd of over 500 Cavies.

1 "New" drugs for the animals I listed previously are not my major concern. We need approval of currently tried and true drugs not listed for use in the minor species. A good example is the drug SELETOC. It was formulated for use in small animals for seleniuim deficiency (down in the hind quarters, frequently misdiagnosed in Cavies and probably in rabbits too.) It worked quite well, was less painful than MUSE, easier to give (less diluting required), ~~worked quite well~~. It is gone. Withdrawn by the manufacturer. Why? Probably because there wasn't enough income from sales. Another example is Chloromycetin palmitate. This drug is very effective for treating Cavies, readily accepted (they'll drink a whole bottle if you let them!), does not have the harmful side effects seen in people, and has been unavailable in the U.S. since the 80's (or before). I have to get my supply from Mexico. Soon as something effective is found, it's off the market.

I have prayed for years that some company would produce a vaccine for use in Cavies to prevent Pneumonia. Owners would vaccinate their Cavies if it were available. Death from pneumonia is very traumatic to Cavy owners, especially pet only owners. Us "hardened" fanciers are used to losses. Not so, the pet owner. A streptococcal vaccine would be a welcome addition, also. "Lump throat", cervical lymphadenitis, is one of the major, if not the major affliction that a Cavy owner will encounter. I believe it leads to septicemia and/or smoldering infections that are evidenced later as pneumonia, sterility in sows or abortions. It is endemic in most, if not all herds, in the U.S.

People in the 90's are greatly interested in preventative care for themselves and their pets. Many areas offer pet care insurance but I have no idea how well subscribed to it is. The feeling that a Cavy owner will not spend a reasonable amount of money to save a beloved pet is false. This applies to mice, rats, hamsters etc. I know people who have spent hundreds of dollars on Cavies, only to have them die. I have been contacted by veterinarians at owners requests for advice on treatment. Some follow said advice, others want "credentials". When I can't say, DVM, they're not interested. The Cavy is the loser.

Most veterinarians seem to be unaware that a Cavy in pain that is not provided with relief is a dead Cavy. Even if the condition is critical, judicious use of pain relievers can make the difference in whether the cavy lives or dies. Use of Ketaset, 0.2cc will not kill a critically ill cavy. Crying milky tears, emitting a low, continuous moan and tooth grinding are all signs of pain in the cavy, as of course, refusal to eat or drink.

B. I cannot address meat residues of drugs. I don't treat anything used for food. The only way I can see for determining tissue levels would be research: taking samples of tissue to examine for presence or absence of the specific drug. I have been utilizing the section 522 of Act 21 USC 3601 for the past 22 years. So have others.

C. I feel the drugs listed in my article That None Shall Die- Cavy Care (enclosed), have passed the necessary safety and effectiveness studies via trial and error methodology. After review, I hope these drugs will be approved so that cavies everywhere will at least have a fighting chance at survival.

D. I don't see why expert panels' opinions supporting drug approvals for minor species/uses shouldn't be utilized. On manufacturing standards, companies need to realize smaller species need more purified, stabilized and/or dilutable solutions due to the smallness of the subjects. Propylene glycol, a frequently used diluent for drugs, is extremely painful to a cavy. It produces "hot" shots amd can cause prolonged pain, necrosis and sloughing in smaller animals. Baytril and Nuflor are two such products. What is worse, Nuflor cannot be diluted down to acceptable, safe injectable portions for use on cavies. It congeals and becomes useless

E. Owners of small, minor species would participate in field trials, especially if the medications were available free or ar reduced cost. It is very difficult for some persons to justify spending $50.00 for an injection, with no guarantees, on an animal that costs $10-20 to replace but at the same time has inestimable value to that person as a pet. This is an overwhelming choice when the person has children to feed, clothe and the usual escalating costs of daily living to consider.

F. I definitely feel lesser restrictions should be applied for drugs to be used in non-food species. Before I began raising cavies, I raised hamsters, mice, rats, gerbils, reptiles, birds (small scale only) had a neat obese rat

G. I rescued from a lab. Named him Fat Albert, He was a real delight.. I have owned and treated dogs, cats, goats, chickens, ducks (my own and with advise and consent of my veterinarian) and worked for two years as a veterinarian assistant. I found that most of the drugs I use on cavies work quite well on the mentioned species. I raised, showed and judged Tropical Fish for 10 years, at one time maintaining over 100 aquariums.

H. I raised egglayers, livebearers and most species of Cichlids, including South American, African and American. I loved the "odd balls" such as mud skippers, archer fish, eels, catfish. Lung fish etc. I have raised frogs

I. (poor pets and very prone to red leg), toads, poison arrow frogs, geckos and many other smaller lizards. I had a caimen that outgrew me and went to the University of Denver for "psychological studies", whatever they may have been! He was hooked on cavy placentas. I love turtles and actively rescue injured ones and treat or take to my veterinarian (crushed shells are the major problem, of course).

J Cooperation in an INAD new investigational end user field operator education program aimed at end users could be implemented by contacting members of the numerous animal groups listed on the Internet and in specialist magazines such as CRITTERS, TROPICAL FISH HOBBYIST, and publications for dog cat, rat, mouse,hamster, Cavy (American Cavy Breeder Association, Inc.), Rabbit (American Rabbit Breeders Association, Inc.), ferret, etc. There are MANY such organizations out there. Commercial tropical fish breeders

K. (mainly in Fla., Tx.) would probably participate.

I have no idea what public master files are. Do you have any on Cavies?

D. I don't know why sponsors would be unwilling to accept safety and efficacy studies of new drugs as long as good study protocals were followed- control groups, length of treatment, morbidity etc.

I am unfamiliar with NRSP-7 programs so therefore cannot comment.

I don't see why philanthropic, public interest and other not for profit organizations should not be encouraged to sponsor research and development of new animal drugs for minor species/uses. The major problem is most such groups want a "high" profile, recognition of donations or publicity favorable to the group as a minimum for the "concern". I suppose, with the right public relations campaign, this could be achieved. If I ever win the Lottery(ha, ha) I will establish a Cavy Research site specifically to preserve all the known genetic mutants of the Cavy and for research for the Cavies' benefit. It's a shame that a species that has given so much for man has had little research done for it's own good. If this type research is out there, it's a well kept secret.

The only other method, other than the new animal drug approval process and extra label uses as proposed , is the old trial and error method that I've used for 22 yrs. I've found it works well.I only regret that I didn't know enough to save those Cavies that today could be cured readily.

E. Medicated Feed. Should be allowed for non-feed animals. As a consumer of hormone and/or implant treated animals - well, do we know the long term effects of ingesting the proposed items? Do those of us who have allergies (I am one) have a potential problem. Why should we make cows "flood the fields with milk" when we already know that genetic programs increase milk production naturally and safely (I assume).

I am enclosing several articles I have written over the years. They are self explanatory. People who love their minor species are desperate for any information they can get. Many have turned to "alternative medicine" for answers. In the article "One Guinea Pig's Story" by Josh Alan, you can feel the frustration and pain he endured over "Cheerio". He has a listing for a person who uses Homeopathy and he swears by the recommendations. Veterinarians who are turning to this field might want to contact this person. I personally shudder when I see some of the "health and nutrition" products available in stores. Many of them are not safe and are down right hazardous. More education is essential. Of course, most people using these products don't bother to read the warnings listed, either.

What I have seen per necropsy reports and personal observations leads me to believe our Cavies are "acquiring" the same diseases as man. If a cavy drops dead on the show table, the owner says "he/she probably had a heart attack". They're probably right! Evidence of heart, major vessel, liver, kidney and eye problems are becoming more prevalent. Diabetes is much more common than most think. The more we in breed and line breed, the more problems become evident. Unfortunately, they go unrecognized by most owners because they do not have their animals necropsied. One can look and surmise but the path vet proves the definitive diagnosis. My awareness of Selenium deficiency came about because of necropsy results.

I have based the treatments I use on common sense, supportive care, definitive treatment where possible (removal of bladder stones, bezoars, caeserian sections where indicated) and use of preventive measures at all times. Cavies are very like horses, gut wise. They get colic, bloating, torsions due to improper feeding but mainly due to lack of roughage. Prevention is worth a pound of cure.

I had one veterinarian tell me you can't use Gentamycin on Cavies, it causes renal failure. Then I read an article by a veterinarian stating the recommended dosage is 22mg/kg. No wonder they develop renal failure. I use 1 mg. per kg. Per Cavy for three days on, three days off, then repeat if necessary. The major problem in treating Cavies is the three T's - treating too late, for too long with too much. Animals are individual in their needs same as people. A dosage that works for me may harm someone else. Same is true of Cavies. Why use more if less works. I dilute according to strength and hazards of the drug I'm using - at a ratio of 1: 10 for milder drugs and 1: 100 for stronger drugs and at a dosage appropriate for a newborn or preemie infant.

I was very upset to hear that New York State has or is planning to pass a law that rabbits and cavies must be immunized against rabies before they can be shown. Can they do this? There is no approved vaccine for these

with viable live young. This drives me nuts because I don't know what is at work. The genetic factors at work have not been identified, to my knowledge. Something bad is hooked onto that Satin gene (coat sheen from hollow hair shafts).

Cervical lymphadenitis is called "Lump Throat" by fanciers and is common in herds across the U.S. The normal course is for a cavy to get a "lump" under the chin, develop resistance to the bug (usually Strep), ripen the site and break and drain it by scratching the area. Many owners never even know their animal has been affected.
My herd is currently quarantined voluntarily by myself because of "Lump Throat". This particular organism, Streptococcus zooepidemicus, is unreal. I have had major losses over the past one and one-half years from this organism. It is nasty. During this period of time they have been treated with every ~~susceptible~~ antibiotic more than once. Drugs used include Baytril, Gentamycin, Chloromycetin alone and in combination. The only drugs not sensitive to this organism are Streptomycin (which I've never used in Cavies) and ALL forms of sulfa.
Treating and lancing the sites has horrible resulots. Over one-half of the cavies I & D'd died. One quarter apparently got well, only to have recurrences one to three months later. The other one quarter developed multiple abscesses after surgery. I've had abscesses appear in the eye, on top of head, in the groin, along the flank, three to four in the cervical area, of course right over the carotids where they can't be lanced, behind the ears, in front of the ears, in the lung, spleen, ovaries, uterus, behind the bladder . The cavies continue to eat and drink, breed, deliver and drive me nuts. Some individuals, kept in the same area, NEVER got lump throat. They even shared a common watering system (Lixit). The affected animals are not the same Breeds nor are they highly inbred. I can't see how they could all be immune deficient but what is left

My survivors are now on Tetracycline for life. It is the only drug the bug is sensitive to that I have not used. I've included the C & S reports redone since I moved back to Tx. My vet felt the organism had to be Pasturella.
A repeat culture showed Strep. Canis, then another one showed Strep zoo, still and with the same drug sensitivities. I expected to see resistance to the drugs used. Can you shed any light on this problem? Of the offspring delivered, most develop lumps, whether it was the mother or father who had the abscess (s). The lumps would become evident during time of treatment or at weaning age. Which means what? If I had any brains, I'd put them all down, but they're happy and otherwise normal. I just can't kill them. A couple of them have spontaneously drained their lump. Maybe this will work. They have been on Tetracycline in the water for the past month, three days on, three off, then three on. Have to add Sweet and Low to water so they'll drink it. If they survive and "loose" their lumps, will they be cured? Any guesses

Respectfully submitted

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Problems Concerning Feed, Bedding and Use of Pesticides
in the Care of Cavia porcellus

This article is dedicated to Nancy Peyton and the MidSouth Florida Cavy Fanciers Assn and all the cavies who have been lost in recurrent "Epidemics" throughout the U.S.A.

In spite of the many years of usage of the cavy as a research animal, very little is known about the actual requirements of many nutrients, supplements, vitamins, minerals etc, and the long term effects of many items in use for their care.

When I started raising cavies twenty years ago, veterinarians would not treat them. Few would admit they actually didn't know much about them. So was born the idea that the Cavy was a delicate, difficult to treat species. One that was too inexpensive to bother treating. Just kill it and buy another.

This form of thinking still exists in the laboratory animal breeding and use field. To those of us who love and cherish our pets, this attitude is unacceptable. Whether our animal is a show or breeding one, it should have the right to timely, knowledgeable veterinary care at a somewhat affordable cost.

While in Denver, Co., I searched until I found a veterinarian who would work with me in finding out what could and could not be used, how to use it, what problem the cavy(ices) had, who was likely to live, how to tell etc. It has been a long hard road. I cannot begin to estimate the cost in hard cash, blood, sweat,tears,and lost cavies. Many died, that more could live. I mourn many of them still. If I knew then what I know now, they could have been saved.

In the mid-seventies, a pathological veterinarian sent his report on a post mortem and told me my cavy had a nutritional problem. I called him. No way, I said. They get every thing they need and extra vitamin C in the water. Doesn't matter, he said. They are Selenium deficient. I knew nothing about Selenium deficiency. He told me suckling newborns are frequently born Selenium deficient and have problems like white muscle wasting disease in dogs. The sows end up deficient,too, since the Selenium is taken by the offspring leaving her with very low levels and even none, in some cases. I researched Selenium. What he said made sense, finally. He also recommended the use of wheat bran with wheat germ added , every week to twice weekly, as a preventative since it was easier to prevent than to treat and when levels got too low, the result was death-despite treatment.

Since this time in the seventies, I have been leery of claims that any one food could supply everything the cavy needs. It just

isn't so. EVERY pathological veterinarian I have ever consulted has said cavies require fresh vegetable matter for continued good health and reproduction, regardless of whatever else they are being fed. I have found this to be very true. Vegetables provide "intrinsic" really unknown value above and beyond the obvious vitamins and minerals present.

Now we come to feed, bedding, pesticides, etc. I have been concerned for some time about the unbelievably high incidence of cancers of various types (some that have not even been reported in cavies) seen in cavies on whom post mortem exams were done. (by a path. lab, of course.) Along with that goes the very high incidence of liposis (fatty deposits) in the liver, extremely frequent occurrence of stones in the bladder and kidneys of cavies all across the country, the incidence of "toxemia" liver in boars (only sows should have the pale, yellow, friable liver caused by pregnancy toxemia), the recurrence, frequent in some areas more than others, of "down in the hindquarters" (Selenium deficiency until proven otherwise!), and more frequent "episodic" or "epidemic" losses of cavies all across the country.

What is allowed to be present in our food and in our animals' feed is enough to make every American sit up and take notice. This doesn't even touch on, either, the problems facing our water supplies. After a week of research on the possibility of acute and chronic Aflatoxicosis in the Cavy, I have come to several grim conclusions. We don't really know what we are eating, let alone our animals. Review of random pathological reports, notes of mine at autopsy on the same animal, reports from Fanciers from across the country (including their pathology reports from their Veterinarians) has been an eye opener. Findings I assumed were correct and "normal" may not be. If one does not look for a problem, it will not be found!

I feel the problems and confusion arise for the following reasons: 1. Cavies are very prone to pneumonia and nearly every Cavy alive today has had a cold and/or chest congestion at some time in its life. 2. There are many things which happen to cavies that are not explainable, such as sudden death. Cavy is fine the night before, dead in the morning. 3. When a sow dies, it is too common a practice to just figure she had pregnancy toxemia especially if she has the typical liver findings. Other things cause this, too, as you will see. I had one sow, about one year old, that died post partem and had minimal liver changes. I assumed toxemia was the cause. Imagine my surprise when the path report came back "Squamous cell cancer of the trachea, esophagus and lung that had metastasized from ? (can't remember where and the path reports are lost). 4. If we question the content of food and feedstuffs for animals we are assured every thing is just fine (even though an independent analysis by a private lab may show that everything "is not fine"!). 5. WE don't want to believe our habitat is contaminated, perhaps already beyond

repair (shades of SILENT SPRING!). 6. Research on the Cavy for the Cavy is NOT being done! 7. Signs and symptoms of deficiency or excess of vitamins and minerals are usually the same. How many of us can afford to have even one blood test done to find out if the problem is Vitamin A or D deficiency or excess, let alone test ten or twenty or more Cavies? 8. Some of the accepted findings on post mortem exam, gross and microscopic, are deceiving and there are other causes of death in the cavy than just toxemia, kidney disease from old age, pneumonia, and fatty liver. 9. Findings must be examined in a different light, consistent with the presence of "unknown" factors possibly being in the food and water of our Cavies. 1. What is considered safe for us and even our children may well not be safe for our Cavies. They are the equivalent of a large size premature infant in size and this must be kept in mind when "allowable" limits are set for additives and especially toxins and poisons.

Aflatoxicosis is a condition caused by toxins produced by a mold called Aspergillus. Two strains are capable of being toxic: A. flavus and A. parasiticus. This does not mean all things that have these molds present are poisonous. The right conditions are required for the toxins to be produced. Aspergillus can produce its toxins in the crops in the field, after harvest while being stored or during the processing of the grain into pelleted or other types of feed. Use of the proper fungicides during storage is supposed to prevent the development of the mold spores and/or control and inhibit their further development. Whether these fungicides actually kill the spores was never stated. The "cide" in fungicide implies that they do. If this is the case, why do legal allowable limits have to be set by the U.S.D.A. for amounts allowed in food? The right conditions for growth of this mold are dry, hot weather. Guess what we've had a lot of these many past summers! The years 1983, 1988, 1990, 1991, 1992 were all bad ones for our (Texas) area. The corn crop in 1988 was positive for aflatoxins in all growing areas,even the "corn belt" (IA, IO, IN, KS, MI, MN, MO, NE, OH, SD, WI.) where the corn had never tested positive before. Most animal feed that is pelleted uses grain from the states listed above that are in the corn belt.

Aflatoxins cause many problems which I'll briefly review. They foul up the immune system: animals afflicted with Aflatoxicosis do not develop immunity to the substances they are immunized with; eg. a horse given equine encephalitis vaccine will have no antibodies to the disease and will likely get it. The problem occurs at a time when it is missed because the feed contains the aflatoxins but the animal does not have symptoms yet of the condition. Aflatoxins inhibit liver function eg. protein synthesis. Low level Aflatoxin insult causes, in escalatin order; inhibited enzyme systems, impaired immune systems, decreased growth rate, acute fatal liver disease or chronic liver disease with deformed fetuses and cancer of the liver. Mature animals are more effective toxin modifiers and eliminators of Aflatoxins but

residuals are found in meat (low level) and liver (high). (Now all you liver haters have a good reason not to eat it.) Aflatoxin B1 is the most potent cancer producing agent known for the liver of the rat. DO NOT FEED PEANUTS TO RATS, CAVIES or FLYING SQUIRRELS (unless they are "Ball park" peanuts. These are lowest to negative for Aflatoxins. Perhaps due to the roasting process?

(or just being from a clean source? would seem to me that if roasting will rid peanuts of Aflatoxin then all grains could be treated this way and there wouldn't be a problem. And it would have been instituted already, wouldn't it?)

The young, newly weaned, pregnant and lactating breeding male are most susceptible to this toxin (basically most of our herd animals). If the female lives to deliver, after being poisoned, the offspring will have severe deformities. Here the Cavy is different. Most severely affected fetuses are resorbed by the sow. The pregnant sow suddenly, one day, is no longer pregnant. Ever happen to your Cavies? This is true of any non-viable condition present in the fetus, whether congenital (genetic) or from environmental causes (poisons, molds, bacteria, viruses etc.)

Any animal that eats grain, including man, can develop Aflatoxicosis, the severity and outcome being dependant on species, sex, age, nutritional status, length of time ingested and the amount of toxin in the food. "Moldy corn toxicosis", "poultry hemorrhagic syndrome disease" and "Aspergillus toxicosis" are synonyms for Aflatoxicosis. The toxin is excreted in milk and suckling young are very susceptible to poisoning in this manner. This poison has the liver as its target organ

Aflatoxins can occur on hay, pastures, fodder, in cereals, in grains used to manufacture meals or pelleted animal diets. Some diets (pellets, etc.), especially those containing grain or nuts may contain several toxigenic species of molds and can produce several different toxins which tends to confuse the diagnosis. The most commonly affected crops are corn, soybeans, peanuts (groundnuts) and cottonseed. There are twenty known toxins produced from molds, and sixteen of them occur in the U.S.A.

Mycotoxins can produce acute or chronic problems affecting nearly all body systems. Aflatoxin B1 is a potent carcinogen, ochratoxin A is a mutagen (genetic mutations), and trichothecene is teratogenic (causes severe fetal deformities).

Treatment is usually ineffective. Some animals live, some are just stunted and others die. Some will live if the source is removed and the dose ingested isn't too high. Since toxigenic

molds are everywhere (they are ubiquitous) care should be taken to prevent damage and mold spoilage of cereals, peanuts and fodder (silage and hay) through correct harvesting and proper storage procedures. Molds require high relative humidity but temperature requirements vary widely.

In chronic or low dosage form the liver may not be pronounced but will show enlargement. There may be edema of the gall bladder, bile staining and increased firmness. There is overgrowth and scarring of the bile ductules. The gut may be inflamed and the kidneys may show atrophy and inflammation. Prolonged feeding can cause liver fibrosis and colangio and hepatocellular carcinoma (cancer of the liver and bile ducts).

The first sign of trouble may be the finding of dead "healthy" animals (Cavies). Other animals go off feed, are not thrifty, have ruffled coats, refuse to eat, become weak and die. A CONCURRENT PNEUMONIA THAT RESPONDS POORLY TO TREATMENT IS A GIVEN! (Does this happen to Cavies? You bet!)

In chickens, turkey poults, ducklings and pheasant chicks (somewhat less incidence in this species) the symptoms are staggering, convulsions and hyperextension of the head (throws it backward). The suggested treatment-- user of mold inhibitors in the feed, (8-Hydroxyquinolone, propionic acid, thiabendazole (I thought this was a sheep wormer), gentian violet. Remove any suspect feed. Give a high quality protein diet and increased levels of both water and fat soluble vitamins. (Selenium possibly could help inactivate these toxins. It is worth a try.) There is NO treatment listed for animals other than poultry!

Aspergillus species are found naturally in the soil. When crops are damaged by insects or the plants are weakened by drought, the spores of the fungi are carried in the dust to the growing plant. The spores penetrate the damaged plant, usually corn, through the skin and silk. The toxin is produced in the kernel of the corn.

In swine there are symptoms like those seen in cavies, eg. weight loss, decreased feeding, and toxic hepatitis. On post mortem, a swollen orange, yellow or tan liver is seen (toxemia liver of cavy sows?). Liver enzyme test are elevated. The feeding of cadmium to young hogs prevented severe liver damage (don't run out and get cadmium to give your cavies!). Microscopic liver changes include fatty infiltration, interlobular fibrosis, periportal lymphocytic infiltration, bile duct hyperplasia (these changes have all been seen on path reports of sudden death cavies). Jaundice is present in acute poisoning.

Steers exposed to aflatoxin (amount not stated) suffered fifty per cent mortality and fifty percent condemnation of liver for jaundice at slaughter. They also had dark urine, rectal prolapse lethargy, depression, staggering and straw colored fluid in the

chest and abdominal cavities. (Guess what I've also seen in cavies).

Adult cows aborted third trimester fetuses, or aborted and died and all adults eventually aborted and died after eating moldy peanuts for four days. Young calves fed Aflatoxins developed acute symptoms with sudden loss of appetite, apathy, tetany, and death in two day;s. Older calves became depressed, had loss of appetite, colic, followed by circling and unsteadiness. Post mortem showed severe chronic damage to the liver with fibrosis. Chickens develop fatty livers BUT if they are exposed to Aflatoxin and ochratoxin A at the same time, the fatty liver does not occur and makes the diagnosis difficult. AF B1, the toxin found in peanuts has been suspected as the cause of liver cancer in some African populations (people) but there is a question because the Hepatitis B virus is also present (there's no doubt in my mind!)

Aflatoxins first gained notice in the early 1960's. An initial level of 30 ppb (parts per billion) for all products was set. In 1969 it was revised downward to 20 ppb for all foods, including animals, and 0.5 ppb in milk was instituted in 1989. Also in 1989, the FDA (Food and Drug Administration) started regulating Aflatoxin under Sec. 402 (a) (1) of the Federal Food, Drug, and Cosmetics Act. (This is the adulteration of food section). The reasoning for this was twofold. The Agency believes contamination can be controlled by appropriate storage conditions and as an added substance, the Agency only needs to prove that Aflatoxins may render food injurious to health. (There's really a question???)

In late 1990, several horse deaths were investigated and Fusarium moniliform and F. proliferatum (molds) were found to be contaminants in all corn screening sampled. The CVM recommends not feeding corn screening to horses. Instead, replace it with oats, barley, or other grains

Even though Vomitoxin (guess what it does) is found on wheat, especially winter wheat, its use is allowed in animal feeds if the levels are less than 4 ppm, not more than 1% of the food used in the swine diet or pet foods nor more than 50% of that used in other animal diets. These levels are enforced.

Ochratoxin A, a kidney affecting mycotoxin caused by species of Aspergillus and Penicillium, is a more potent fetus deformer than Aflatoxin B1. All samples tested from 1989-1992 were free of this contaminant. (I wonder if the "good growth" of other Aflatoxins during this period somehow inhibited the reproduction of Ochratoxin A. Such phenomenon are not unknown.)

Zaralenone is a non-steroidal metabolite that acts like estrogen. Feeding contaminated moldy corn to swine caused reproductive

problems with conception, ovulation, implantation, fetal development and viability of newborns. (This would happen in Cavies, too.) Since it is not frequently found, levels will be determined (for addition of contaminated feed to foodstuffs being fed) on a case by case basis.

Gossypol (What a name! Great for a ROCK GROUP, eh?) affects cottonseed and may provide resistance to the plant. (Get Dat Boll Weevil!). However, it can cause heart, breeding, lung and liver problems especially in young ruminants and non-ruminant species of animals. It has caused poisoning in mature dairy cattle and deaths. Animals poisoned by Gossypol must have livers and kidneys removed and destroyed before rendering. The livers of sheep, swine, and rainbow trout contained the highest levels of Gossypol. (Must have been captive raised trout.)

Since the presence of naturally occurring toxins in feed is regulated by many factors, the main role of Government Agencies is in monitoring and minimizing the adverse effects. This includes continued surveillance for and provision of guidelines on the increasing number of these natural toxins.

References:

Naturally occurring Toxins in Feedstuff: Center for Veterinary Medicine Perspective. William D. Price, Randall G. Lovell, and Daniel G McChaney; Division of Animal Feeds, Center for Veterinary Medicine, F.D.A., Rockville, M D 20855. Journal of Animal Science, 1993, 71: 2556-2562. This article was forwarded to me after a request to my Senator for information about the allowance of Aflatoxins in feed. The request "got lost" and even though I sent my request letter in January of 1994, I did not receive this article until August of this year(1995

There are more references. No time to list. In part II I'll go into correlating the data foud in cavies vs that found in other animals and present "case histories" for back up. I've hardly scratched the surface of this complex and troubling problem. I will also address the question, "How can I protect my cavies and myself from environmental toxins and poisons."

Continuation from September Issue:

That None Shall Die: Epidemics

By: Sally Winkler

We come to water. All cavies drink water (there are a few exceptions). I'd dearly love to know how cavies in England did B.C. pelleted feed (which is now in use). Do have more problems, or less since many have also gone to using water rather than relying on mashes, root veggies, and other foodstuffs as the sole water source? How safe is the water supply in our country? Not very, if half of what is reported is true. Levels of chemicals that are "safe" for human consumption (and I have grave doubts about these allowed safety levels for many contaminants), could very easily be causing some of the weird epidemics across the country. Isn't it amazing that Canada, a "socialized medicine" state , requires complete ;abeling of all animal food as to **ANY** contaminants, chemicals (pesticides, aflatoxins, pcb's, etc) on the packages; and it is policed;, that pet owners were warned not to buy American dog food because of unacceptable levels of aflatoxins in the feed. Isn't it even more amazing we all sit on our duff's and don't even check our local water supplies, write or call our Congressmen demanding an end to these toxic chemicals we spray, pour, dip, mist, dust, and pollute our streams and feed supplies with? There has to be a natural enemy for fire ants in South America. Are we doing anything to find it and use it to end one of the worst scourges ever to hit the temperate states. I doubt it. No company would be able to produce it and make money. Meanwhile, animals, some people unfortunate to be allergic to them, and suckling die. The total is unknown. It is ridiculous. Can you believe that many Vet schools do not know what can be used to treat lice and mites in the cavy, even though bird, cavy, and rabbit breeders have been wsing Ivermectin safely for over ten years! Can you believe a research cavy was euthanized because the authors were unsure what effects treating the cavy would have on their research - can you believe this? They apparently haven't heard of ivermectin, either.

There is more than adequate research and documentation on this product. But since the company has not spent another X billion dollars on research of it's "use and effectiveness" specifically in the small animal population, they will not advocate it's use and many vets will not either. I can understand why. Some fool will have "a happening" while using Ivermectin and they could be sued. I say it has been trial tested quite adequately by General John Q Public. It's use should be advocated and encouraged. It's certainly better and safer than anything else on the market. **AND** there is a lot of published studies on the safety and efficacy of this product. It even cures demodectic mange (when used with Levamisole) in the cavy.

Now for the "biggie" - - -**HERD MANAGEMENT.** This area of care is bandied about, sometimes practiced (even to detrimental excess) and not totally understood by all. Total Care; this is herd management. The food they eat, the water they drink, the supplements they receive (or don't), the cage cleanliness (or lack), the frequency these things are done and the quality of products used. You cannot produce a superior cavy without the rifht care. You want a cavy that is hardy, healthy, alert, and happy. How do you achieve this? Proper care (Herd Management). Decide how ou are going to raise your cavies and do it. Don't keep changing methods and materials. Housing can be anything from a cardboard box, changed twice weekly, to wire bottomed cages, considered by some as cruel. A cavy must be able to see. They frighten easily. How would you feel if this huge "thing" SWOOPED" DOWN ON YOU FROM ABOVE! THEY ARE PREY to birds, carnivores, snakes, and God knows what else in the wild. Cavies housed separately in closed spaces become depressed or violent. They are "herd" animals and live in groups of ten or more (don't know how many Boars this includes. Probably depends on the space). They are vegetarians. One of their main foods is supposed to be Alfalfa. This is interesting, since Alfalfa contains saponins that destroy red blood cells and interfere with Vit. E use in te body (but not in humans, since they are not absorbed in the gut). Either the cavies gut works the same way or they can neutralize the saponins. I bring this up because of the listed ingredients for Alfalfa: rich in saponins, and contain Vit. A, B1, B6, B12, C, E, K1, biotin, niacin, folic acid, calcuim, potassium, phosphorus, magnesium, zinc, dozens of amino acidsm and 15-23% protein (in dried alfalfa meal).

There is no B12 added to cavy food. The items from "C on to amino acids" are crucial for good health in the cavy. The actual "required protein", as far as I'm concerned is not known. Until studies are done on wild and domestic cavies, other than laboratory stock, we'll never know. They eat grasses, thistles, plus what??? It makes sense for them to have large litters since they are "prey" animals. They may eat small amounts of items like onion and probably eat garlic leaves. I have seen mine (after the fact) eat "poisonous plants such as Mother-in Laws Tongue" and "Ivy" with n apparent ill effects. Aloe, which is supposed to be "good", they will not eat. (I don't either since I'm allergic to it). They are obviously smart enough to eat what they can "instinctively" handle. I'd love to feed a group "free choice" minerals, salts, etc., and see what they really eat.

Size is dependant, to some degree, on cage size. The bigger the cage, the greater the growth. Behavior is also dependent on size of housing. Crowded cavies will fight, cannibalize their young, fail to thrive and be more prne to disease.

Cavies kept in super clean conditions and never exposed to other cavies outside their "area" will have no resistance to most diseases. All cavies "carry specific" organisms in their nose and throat. So do people, and all other animals. Everything, including including rocks and dirt (it also harbors parasites) "carry" something. Not everything causes disease. Disease producing organisms will not cause disease in your cavy if it has immunity. How does it get this immunity? /by exposure and subsequent development of antibodies. If it is never exposed, it has **NO immunity**. "Germ free" animals cannot survive in the real world. They have no immunity to common organisms!

To prevent the production of flies, cages must be cleaned every week, without fail; in hot weather / or with wet conditions cages must be cleaned often enough to keep the bedding reasonably dry over most of the cage area. Pests such as roaches and flies spread infection. They must be kept under control. Constantly spraying to achieve this is hazardous to you and your cavies. The propellants used in spray solutions and the "stabilizers" remove the available oxygen from the area being sprayed! **NEVER SPRAY** any chemical in an enclosed area; always have good air circulation via open windows and fans. I'm sure reports of deaths from spraying of things such as "cat" flea, lice sprays, ets., have not been from the chemical but rather from lack of oxygen. The only "safe" product (other than Ivermectin) on the market is Pyrethrins. These are short acting, derived from Chrysanthems, and unfortunately, related to ragweed/goldenrod. Severe reactions can occur in people and cavies that have allergies (yes, Virginia, cavies have allergies, too). Most products safe for use on cats are safe to use on cavies. **READ DIRECTIONS FIRST; NOT AFTER DISASTER HAS HAPPENED! " FOLLOW THE DIRECTIONS!"**

Well; there isn't going to be enough room in this isssue, "again", to finish this article. So look for some more on thie topic "EPIDEMICS" in following publications.

"A note from the Editor"

"PLEASE", send me some articles for the Newspaper! You can either mail them to me, Connie Rougeau, at 6410 Ray Willey Rd., Vidor, Texas 77662 or you can fax it to me at, 1-(409)-745-4167. I need your help to make this publication more interesting and successful.

Thanks!
Connie Rougeau - Editor


BEST IN SHOW - OPEN CATT
96

This is what we do when having fun. Ian the Judge + upper st photo at Phoenix AZ State

Playing the Arizona Game...

SWEEPSTAKES SAVVY

When state association members exhibited at Saguaro State's January show, a new set of numbers started for the 1996 Arizona State Sweepstakes Program which runs from the first of the year through December 31. And a differenct criteria for tallying those numbers officially went into effect.

In September of 1995, state members, responding to an association ballot, voted to change distribution of year-end awards from a total number of animals shown by breed to a system of total breed points accumulated over the year.

The number of awards distributed in the old program was according to baseline numbers of animals shown in each breed. Miss that level and no breed awards were handed out.

The new system of total breed points should have a net effect of increasing the number of awards presented to exhibitors within some breeds.

Another change is perhaps less evident. While the number of animals shown is still at the heart of the system, a stronger emphasis will be on competition within breeds for points. This could increase the number of animals shown in each breed by class as exhibitors strive for those points.

ARIZONA AWARDS CATEGORIES
By Total Breed Point Accumulation

OPEN RABBIT & CAVY

500 - 2,000	Class B Award 1st Place
2,001 - 4,000	Class B Awards 1st and 2nd Place
4,001 - 6,000	Class A Award 1st Place Class B Award 2nd Place 3rd Place Award
6,001 - 8,000	Class A Award 1st and 2nd Place Awards 3rd and 4th Place
8,001 - 10,000	Class A Award 1st and 2nd Place Awards 3rd through 5th Place
10,000+	Class A Award 1st and 2nd Place Awards 3rd through 6th Place

YOUTH RABBIT & CAVY
Awards the same as above for one-half the required accumulated breed points.

Approximate Value of Awards

Class A	$ 20.00
Class B	$ 15.00
2nd Place	$ 12.50
3rd Place	$ 8.00
4th Place	$ 6.00
5th Place	$ 5.00
6th Place	$ 4.00

The value of awards in any given year is based on the total amount of show tax received by the state association. This show tax is paid at $ .10 per animals shown by clubs sponsoring shows.

Inner Workings

Taking Best of Breed and Best Opposite Breed with your animal is a worthy accomplishment. however, winning BOB or BOSB doesn't always assure you come out on top in accrual of sweepstakes points. Winning in a large class can benefit your standing more.

Assume ten animals are shown in a breed. Best of Breed would net 20 points. If you don't take down Best in Breed but four or more of the ten animals ar in one class, a first place will garner more points than Best of Breed.

BREED POINT ACCUMULATION

1st Place -	6 x number in class
2nd Place-	4 x number in class
3rd Place-	3 x number in class
4th Place-	2 x number in class
5th Place-	1 x number in class
Best of Breed-	2 x number in breed
Best Opposite Breed-	1 x number in breed

State members also must show their breed in a minimum of three state sanctioned shows to be eligible for sweepstakes standings.

A New Challenge

A growing issue across the country is two or more exhibitors showing in a cooperative or partnership. Cooperatives can show animals in two shows, in two cities, the same day and earn points under one name in national breed sweepstakes competition.

The Arizona State Rabbit and Cavy Breeders Association has only temporarily addressed this issue. Sweepstakes categories are currently tied to membership in the state association. The state has single, couple (husband and wife) and youth memberships.

Exhibitors have been advised to enter animals according to state membership. Only those three categories will be recognized in the Arizona Sweepstake Program until the board of directors review the issue and propose changes to the membership for a vote.

ENCHANTING CAVIES

What is delightful, talkative, warm, fuzzy and possibly the easiest pet to own? A cavy (pronounced kay-vee), also known as a guinea pig. You don't have to walk it, worry about it eating the household furnishings or getting evicted from an apartment because of its vocalizations.

Cavies require the same basic care as all living creatures: food, water, proper caging and tender loving care. In return, like many other pets, they give you non-critical acceptance, hours of pleasure and a variety of unique characteristics.

Historical accounts of the cavy are somewhat muddled, since a running debate remains over how it got the popular name—guinea pig. Cavies originated in South America near the Andes as grass dwellers, marshy area dwellers or rocky site dwellers. The word "guinea" supposedly derived from the cost of a cavy in the 1700s of one guinea, a British coin, and the word "pig" from sounds the animal makes that resemble a pig's squeal.

By Sally M. Winkler

Cavy ownership promises lasting, unconditional friendship.

A vegetarian animal that swims, cavies are related to the chinchilla and the capybara or water hog. Twelve to 17 species and subspecies in the *Caviidae* family are reported. The most commonly known species are *C. cobaya* or *porcellus*, our pet cavies; *C. aperea*, which possess distinctive, upright ears; *C. cutleri*, which some authorities say is the same as *C. porcellus*; and *C. rufescens*, which is ticked over the entire body. In the wild, cavies live in groups and are very social animals, with a head boar, a group of sows and their young traveling in herds. Their main predators are snakes, birds of prey and man.

Cavy maturation takes 68 days to 72 days from conception to birth; they are born fully furred with open eyes. Sows normally have two to four young, but litters of five to six are fairly common.

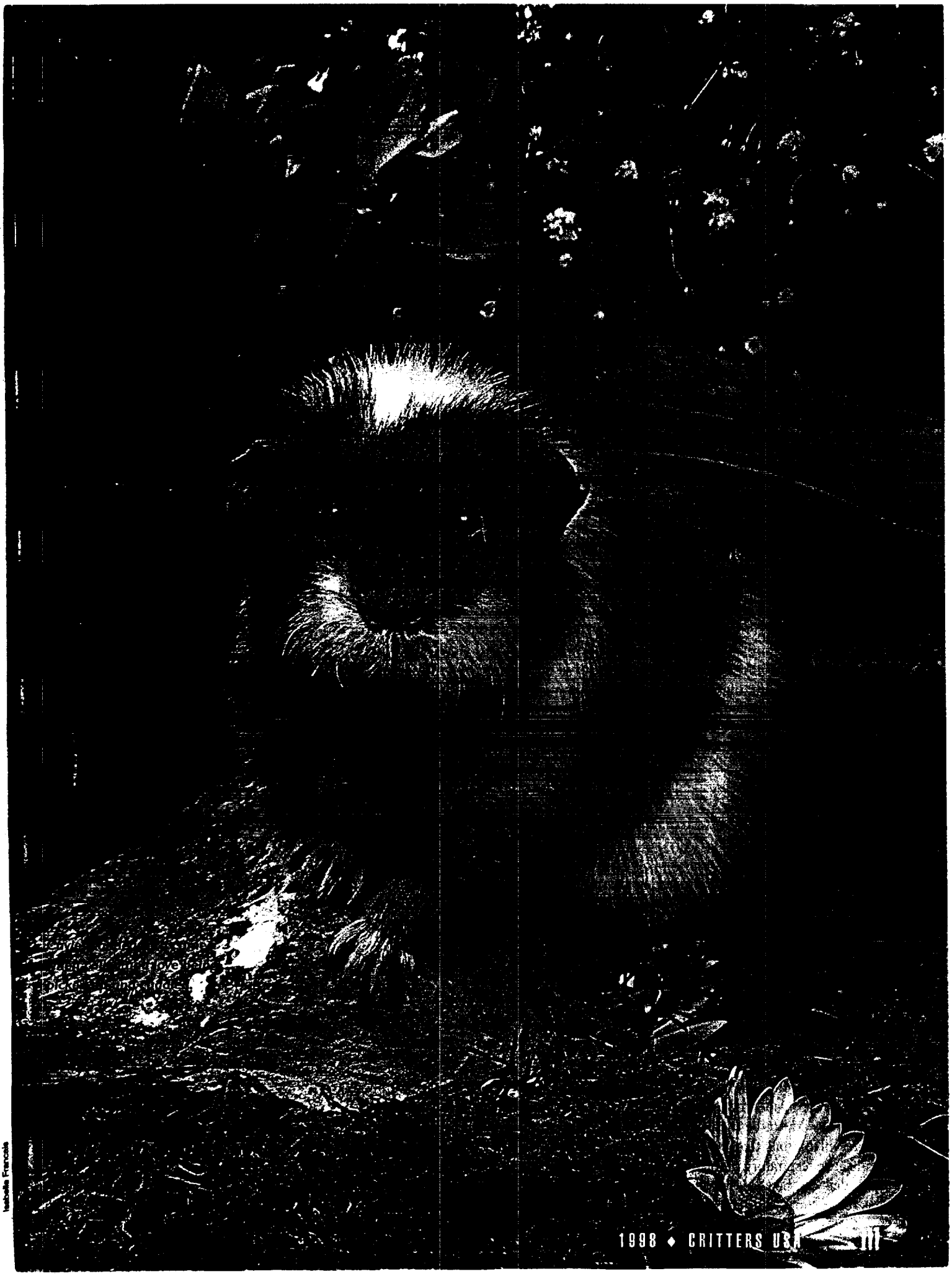
Males and females make equally good pets. Cavies are generally healthy, long-lived critters. It is not unusual for one to reach 5 to 8 years of age or more. When purchasing a cavy, check for signs of good health. Make sure the animal is active, firm in flesh, bright-eyed and glossy-coated. A crusting nose, front legs or eyes are warning signs indicating a sick animal or one with a vitamin C deficiency.

HOMEY HOUSING

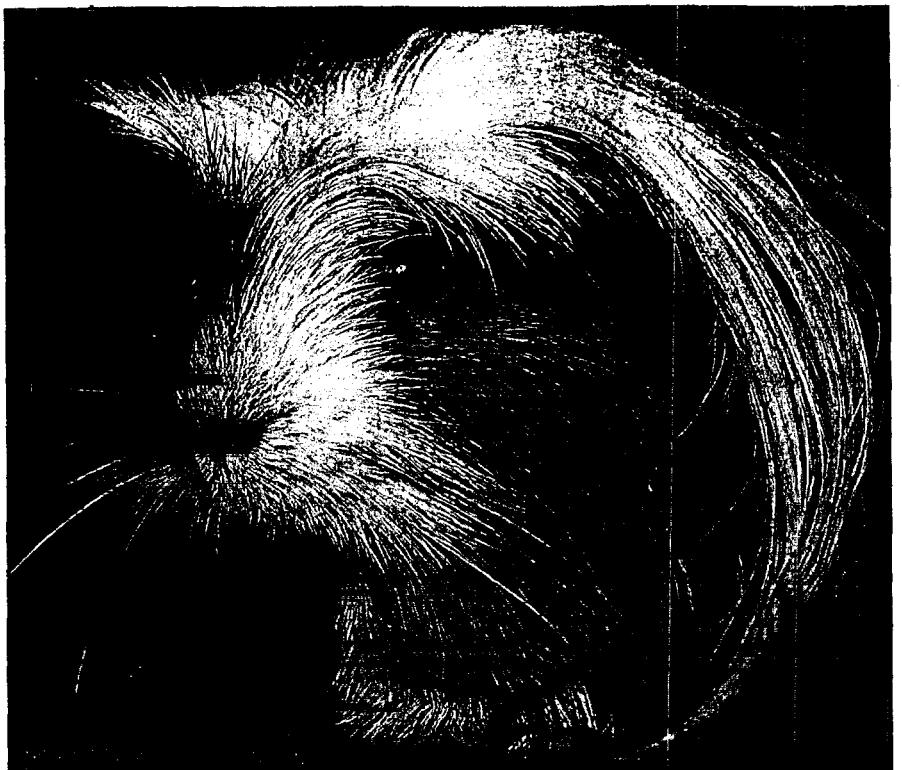
If you select a cavy for a pet, be sure to purchase the necessary products and foods to maintain the health and happiness of your new friend. Numerous styles and types of cavy cages are available. Ease of cleaning, safety and good ventilation are necessary features in cavy accommodations. Two or more cavies of the same sex can be kept in a cage, but allow at least 2 square feet per cavy. Your cage can be as simple as a Plexiglas or glass aquarium—never less than 10 gallons per cavy—or as elaborate as a castle. Cages with wire bottoms should be avoided unless equipped with resting boards or hay bedding. The risk of a young cavy breaking or catching a leg is increased with improper housing.

Full growth potential cannot be achieved in an enclosed, solid-walled, poorly ventilated cage. This is an invitation to respiratory problems from ammonia build-up and abnormal behavior from lack of sighting (the ability to

Isabelle François



Isabelle Francais



Bathing cavies can be fun, but longhaired cavies sometimes require more frequent trips to the tub.

Isabelle Francais

GUINEA PIG GEAR

Make sure you have the following items for your pet guinea pig.

- ☐ Cage—2 square feet per cavy or Plexiglas aquarium never less than 10 gallons
- ☐ Bedding
- ☐ Hanging water bottle
- ☐ Bottle brush
- ☐ Food bowls, ceramic crocks or hanging wire-type feeders
- ☐ Fresh fruits and vegetables
- ☐ Fresh grass, alfalfa cubes, hay, bran flakes and oat bran
- ☐ Vitamin C
- ☐ Cat shampoo without carbaryl
- ☐ Nail clippers
- ☐ Styptic pencil

see and interact with other cavies or people). Cavies kept in dark enclosed cages become neurotic, tend to fight and fear being handled. If your cavy is not exposed to sunlight, the area needs to be well-lit, preferably with plant or full-spectrum fluorescence. Do not leave your cavy's cage in an area where direct sunlight hits the cage, unless there is adequate shaded space available. Cavies do sunbathe; however, excessive heat will kill them.

If your cavy will live in a home with other pets, be sure the cage is tamper-proof. Good door latches, secure tops and a stable base for the cage are necessary. For every case where a dog or cat loves the cavy, there is an equally horrible story about how it did not. Do not leave your cavy loose without supervision. Cavies, ferrets and rabbits should not be left in the same area.

Appropriate bedding for cavies ranges from torn-up newspapers, pelleted newspaper and quality pine shavings and slivers of wood; aspen curls are excellent. Cedar should not be used, as it contains more volatile oils than most woods and can cause respiratory problems. Corncob products can be used; however, they can be rough on the animals' feet and can lead to a problem called "bumblefoot." Cages should be cleaned every three to seven days. If you smell ammonia, cage cleaning is overdue.

APPROPRIATE ACCESSORIES

Cavies prefer water bottles that hang from their cage walls. Several brands and sizes are available, but a plastic 8- to 16-oz. bottle works well for one cavy. Never use glass bottles.

Make sure water bottles have the ball-valve-type sipper tubes. Cavies love to play with the tips and spit into them. Clean the bottle daily or every other day. Brush the sipper tube when cleaning and use a bottle brush.

Food can be offered in bowls, ceramic crocks and hanging wire-type feeders. Do not use plastic feeders, as cavies love to chew plastic. They will eat food bowls and stacking tubs.

Keep food bowls in the middle of the cage rather than in a corner to help prevent their use for elimination.

CAVY COMESTIBLES

Fresh vegetables generally provide necessary vitamins and minerals. Cavies can eat their weight in fresh vegetables and fruits, but the first time you offer something, they may ignore it. Offer an item two or three days in a row. Cavies have very definite likes and dislikes. They resist changing food and have been known to nearly starve because the food in the bowl was "bad" for whatever reason. If a cavy refuses food, throw it away and get new, fresh food—preferably a different kind.

One cavy may love apples, another won't touch them. Most cavies will eat watermelon, fresh grass, hay and banana leaves the first time they are offered. Most love carrots, parsley, kale, corn on the cob, pears, cantaloupe, peaches, grapes, sweet potatoes, cilantro, beets (but not the tops), Swiss chard, spinach, tomatoes (but never any of the green plant parts), green beans, cucumbers and more. Never feed rotting or moldy foodstuffs. If it is good enough for you to eat, it's OK for your cavy.

Vitamins are optional, except for vitamin C. Cavies must have a daily added source of vitamin C. Lack of vitamin C causes scurvy, a very painful, totally preventable disease.

Always keep vitamin C cool and dry, and do not contaminate it with chlorinated water. If you can smell the chlorine in your water, the levels are too high. Owners with one or a few cavies should use filtered spring water or distilled water for their pets.

Cavies have long intestinal tracts and need bulk in their diet. Give fresh grass

(excellent for keeping their teeth ground down to normal size), hay, bran flakes and oat bran.

Beware of house plants. If they are within the cavy's reach, they will be eaten. If it is green and growing, they consider it theirs. Some house plants—such as cretins, poinsettias, palms, lilies and other bulb plants—are poisonous.

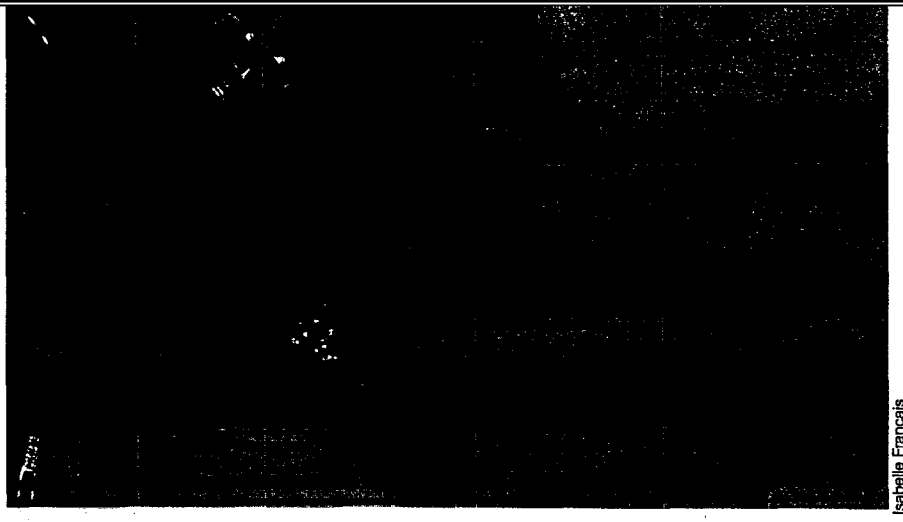
Behavior

When first handled, a cavy may seem frightened and want to get away. This is a normal reaction from a cavy that has not been handled much, if at all. It shouldn't take more than a few hours to tame your new pet. When you come to the cage, it will actively seek your company, talk to you and want to be held. At first, especially if small children are involved, place the cavy on a folded towel on your lap. Always supervise small children with a new pet until you know they understand how to hold the cavy safely. Remember, the cavy has a narrow chest area, and most people of all ages tend to grasp more tightly than may be safe.

Your cavy will learn to come when called and will love being picked up and cuddled. Cavies are "trainable" and will jump hurdles, sit up and beg, run mazes and race. Never let your cavy run around unattended on the floor. It will chew on curtains, cloth, fiberglass and electrical cords.

A cavy's vocabulary is quite distinctive. If you think you have a bird in the house at 3 a.m., your cavy is singing. Consider yourself fortunate—not all cavies can chirp. The call does not seem to be a learned trait.

A nocturnal pet, a cavy takes frequent naps and sleeps with its eyes open. Always talk to your cavy when you go toward its cage, as sudden movement can frighten it.



Isabelle Francais

Grooming

Bathing can be a fun activity. Bathe the cavy with a shampoo safe for cats, and do not use shampoos with carbaryl. Many cavies love to be bathed, but don't overdo it; once a month is quite adequate. Longhaired cavies sometimes require more frequent bathing.

Trim your cavy's toenails every month. Overgrown nails can cause foot pad problems and make it difficult to walk normally. Remember, there are four toes on the front foot and three on the rear. On dark-nailed cavies, slowly slide the toe nail clipper forward until you feel it catch, then clip. On white-nailed cavies, the blood line is visible—cut below this. Routine trimming keeps the "blood line" shorter. If you cut a nail too short and it bleeds, don't panic—it will not bleed to death. Apply firm pressure for three to five minutes, then apply a styptic pencil.

Check your cavy's teeth monthly. They have four incisors, two upper and two lower, that are quite visible. They also have four upper molars on each side and four lower molars just behind the empty space behind the incisors.

Cavies normally chew from side to side. This action normally prevents tooth overgrowth. Overgrowth of rear molars is a grave problem. You won't know there is a problem until your cavy starts slobbering (wetness under the chin), has difficulty chewing a carrot or simply stops eating and loses weight. The molars can send spikes into the cheeks, causing pain and infection. Your cavy may smell bad about the mouth. If you can look into the mouth with a bright light, you may see the tongue being "tied" by overgrowths, masses of food and hair in the pouches at the rear and between the teeth and cheeks at the mouth. Should this occur, seek veterinary assistance immediately. Avoid teeth problems by providing hay, fresh grass and alfalfa cubes daily or two to three times a week.

Cavies are wonderful, loving pets to own. Before purchasing your pet cavy, make sure you are prepared to provide a happy and healthy environment. ❦

Sally M. Winkler has raised cavies since 1975, closely studying their behavior and interactions.

THAT NONE SHALL DIE

CAVY CARE

Before your cavy becomes ill find a veterinarian in your area who is familiar with cavies and willing to treat them. Some vets are very reluctant to treat cavies, hamsters, mice, etc, because they have very little experience in doing so. The following advice is meant as a guide to cavy care. I've used these medications over a 10 year period with excellent results. No guarantees of curability are implied. Always consult your veterinarian. Take him a copy of this if he is unfamiliar with cavies. Go meet with your vet and discuss your cavy's care, his hours of availability, etc, before problems occur.

Any cavy very ill -- bad pneumonia, diarrhia, etc, -- should be treated with three antibiotics daily for 3 days. Then wait 3 days. If your cavy is not a lot better, repeat treatment for 3 more days. Get Chloromycetin eye ointment and gentamycin eye ointment from your vet to keep on hand; also a tube of Panalog for wounds. Keep Probiocin or (Benebac by Borden) on hand (paste form of lactobacillus). Use 1 to 2 drop size globs daily if diarrhia occurs. Always remove crusts from wounds and any around eyes, in corner, etc, before applying ointment. Use peroxide 3% on purulent sites before applying ointment unless areas are very deep. Do not use in eyes. Washing areas (except eyes) with dilluted Betadine solution (10%) is helpful. Remove scabs from bite wounds and clean area before applying ointment, otherwise they will not heal. For severely bitten cavies treat with D5GD and Bactrim daily for three days. Flush wounds with Betadine/3% hydrogen peroxide mix (1/3 Betadine, 2/3 hydrogen peroxide). Repeat daily until healed.

The following is a list of problems and treatments that I have used and have worked for me.

You must realize that some cavies, despite the best of care, will not respond to treatment.

I use neck only for injections. Use of leg may result in nerve damage and subsequent chewing off of toes by cavy; it's not worth the risk!

I refrigerate all medications, but especially those in syringes and in brown bottles. Shake all liquids well before using. Do not contaminate needles. Always place cover back over needles. If a needle breaks or clogs, I discard it and use new needle. Protect all medications from direct light, freezing, and temperatures over 80 degrees. Wash hands well between animals when treating. When clothes become contaminated, change before handling or feeding other animals. Isolate sick cavies. Use heating pad on low for any cavy shivering or feeling cold to the touch, having difficult labor, or critically ill, e.g. pneumonia. NEVER put cavy on heating pad without having area available to allow it to get off the heat. In other words, put the heating pad under only about 1/2 the box. They can die very quickly from excess heat. If cavy is not active, turn from side to belly to side every 2 to 4 hours. If cavy sounds wet, position with head slightly downward, as long

as this does not increase respiratory distress.

Force feed any sick cavy not eating readily on its own -- use Nutrical (hi protein vitamin gel for cats). Mix 1 to 2 drops with water, baby food carrots, sugar or karo syrup, vitamin C, pureed lettuce, small amount of spinach, and pinch of salt mixed well. Have mixture liquid enough to draw up into dropper readily; refrigerate mixture. Feed 1 to 2 droppersful every 2 hours until cavy readily eats on its own. Many owners swear by mom's chicken soup and various other home remedies. Stimuwate for cats and dogs can also be used, and it is already in liquid form and is very palatable. Also available from your vet is Pedi Stat -- a balanced stress formula with fats, carbohydrates, and proteins -- I feel is the best supplement. Use the supplement containing iron. Use a "whiffy" Alupent inhaler sprayed in front of face on any cavy c pneumonia or respiratory difficulty before feeding.

A word on vitamins -- be sure they are really cavy vitamins. They must contain balanced proportions for cavies to obtain proper benefit, and to prevent an overdosage of fat soluble vitamins (A, D, E, & K). They must contain vitamin E, pantothenic acid, biotin, choline, folic acid, and inositol. Check your vitamin preparation for listing of ingredients. Always increase vitamin C to 50 mg/cavy or more daily when ill. I suspect many cavies are borderline deficient in the essential amino acids, vitamin C, selenium, and vitamin E, and stress throws them over the line. Also calcium-phosphorus ratio is very important. Imbalance can cause paralysis type disorders. Well formulated commercial cavy food pellets should contain the proper calcium-phosphorus ratio, as do rabbit pellets. Unmedicated rabbit pellets may be fed along with vitamin supplements, rather than cavy pellets. If a cavy refuses to eat its normal feed -- suspect the feed -- their senses of smell and taste are acute. Too much salt, moldy feed, ect. will cause refusal to eat. Change brands or discard moldy feed.

I force fluids on all cavies being treated. Make sure they are drinking plenty of water; give extra lettuce, carrots, celery, etc. Give spinach for iron to cavies with pale gums, feet and/or eyelids (inside area), sows that have bled a lot during delivery, and to pregnant sows. Also give as much carrot as a pregnant sow will eat, plus kale and cabbage! Give fresh grass that has had no herbicide, pesticide, or dog excrement applied on or near it, along with good quality hay every other day. Give bran-wheat germ mix 2 times weekly. Mix 1 cup bran and 1 tbsp wheat germ; add warm water, just enough to make mix moist. You can put powdered or liquid vitamins in the mix. This prevents selenium E deficiency. Believe me, it is easier to prevent than treat -- if it goes too far before treatment is begun, the cavy will not survive. Be wary of using grass near heavily traveled roads, due to the possibility of lead poisoning (do not use colored newspaper section in your cages because cavys will invariably eat the paper, ~~which may contain lead~~). (however slick sections may be colored) now use soy ink in newspaper

Any cavy not walking with free stride, hopping instead of walking and/or dragging hind leg or legs, "down in hindquarters", not eating enthusiastically and seems sore when hind legs and/or rump are touched (sometimes body in general is sore) I treat immediately for selenium deficiency (see section 30 ESE use). As it progresses the cavy will be unable to walk, will slobber from the mouth, be reluctant to eat, and eventually be unable to swallow, twitch in legs when handled, and sometimes belly will appear bluish (discolored) as if bleeding under the skin. The sure sign though is tightening or "cording" of the muscle in thigh. It feels very tight and cavy has a great deal of pain when area is palpated. The muscle or tendon involved is in mid thigh running

from the knee to the pelvis. One or both thighs may be involved. The pain from this condition can be so severe the cavy will chew off one or more toes on the foot of the thigh involved. This condition is much more prevalent than one realizes, and most people think their cavy is deficient in vitamin C. However, giving 50 mg. or more daily of vitamin C directly in the mouth will cure vitamin C deficiency within 3 days. If your cavy is selenium deficient, you do not have 3 days. Initial treatment should be with injectable ~~BSE~~ (~~for~~ for ~~horses~~ cows 0.2 cc daily for 3 days (undiluted.) then switch to Bose oral schedule).

NOW FOR A LIST OF MEDICATIONS:

1. Acepromazine Atropine -- I mix equal parts Keta acep. 0.2 cc atropine 1 5cc mix ↖ diluted 1:100 using 0.2 to 0.4 cc along with Ketaset. Offsets side effects of Ketaset and produces amnesia for surgical procedures. I DO NOT give Acepromazine to pregnant sows until after babies are born. It will kill the babies. Do not give too much. Repeat Ketaset rather than Acepromazine. Very potent drug related to Thorazine family. Do not give in leg. Can also be used for sedation and pain control and appetite stimulation.

2. Albon Sulfa dimethasone 250 mg/1 tsp. -- I give 3 to 5 drops orally each day for 3 days, give double dose on the first day. I use it for colds, pneumonia, diarrhea. If no improvement after first three days, change antibiotics. Good for bladder infections. Can be given 7-10 days in a row without much risk of side effects and must be used for this length of time if treating coccidiosis.

3. Amikacin -- This drug is a broad spectrum antibiotic and very potent. Because it is very painful to inject and can cause acute allergic reactions I only give it orally. Reserve for cases unresponsive to other antibiotics. I give only one drop orally, once a day, for 5 days. This is a "people" drug, only available by prescription, and I dilute it 1:100.

4. Atropine "Universal" antidote -- I use as treatment for overdose from pesticides, suspected poisoning, such as from molds in food, any cavy not able to walk properly - sudden onset staggering gait, slobbering from mouth. May be some form of poisoning. I give 0.1 to 0.2 cc in neck, repeat every 30 minutes for 2 to 3 doses. If effective, I observe for recurrence of symptoms and repeat dose every four hours if needed. Cavies can be easily overdosed with this drug. Used with anesthesia to prevent excess salivation. Stop using when pupils dilate + sluggish

5. Bacid -- A form of lactobacillus for replacing intestinal flora in cavies treated with antibiotics. Bacid, Bene-Bac, Start Bac, ect., are all brand names for basically the same thing. You can achieve the same result by giving a dropperful of acidophilus milk, buttermilk, etc. Cavies treated with antibiotics should receive extra vitamin supplements, especially 'B' complex

(Chloromycetin Palmitate interferes with absorption and utilization of 'B' vitamins). If a good balanced vitamin preparation is used, these problems should be avoided. It is easier to prevent a vitamin deficiency then to treat one.

6. BactroVet -- same as Albon.

7. Bactrim suspension (pediatric) -- available on prescription only. Same as Tribrissen (which comes in oral tablet form or injectable from vet). Must obtain from people pharmacy. One of must have drugs for cavy pharmacy. Is a combination of Sulfa diazine and Trimethoprim. Only sulfa preparation to which organisms, on repeated cultures, are not resistant. I give 1 to 10 drops daily for 3 to 10 days until symptoms have been gone for 1 day and do not exceed 10 days. I use for colds, pneumonia, diarrhea when cavy is first noted to have symptoms. I do not use on pregnant sows since it can cause malformations and/or abortions. Use double dose 1st time

8. Bag Balm ointment for cow udders -- great for sore feet, scaly skin, mastitis and bite wounds. Rub in well. Not toxic, but I do not use in eyes.

9. CalDEX MP injection -- (available from farm supply, used to treat cows) - concentrated Dextrose Calcium with Magnesium and Phosphorus. In emergency, I give 0.2 cc slowly in neck and massage site; have at room temperature or warm up before use. I use it for seizures, heat stress, toxic sows, laboring sows having lack of good contractions, show shock (cavy keels over, gasping respiration, running-in-place, then dies). May not save, but worth a try. Should be diluted 1/2 cc to 10 cc D5W, D5RL, etc and then give 1 cc in crown. Painful by injection. If able to give orally, use 5 drops in 50 cc of water and give 5 to 10 drops.

10. Cal Dex Solution -- (Diluted as above) I give 1 cc orally every 30 minutes until problem gone. Used for pregnant sows having labor difficulties, cavies that are heat stressed, show shock, any cavy having twitching of extremities, antidote to tetracycline poisoning. (If unable to drink, I use Cal Dex MP injection described previously). Prefer Calphosan better buffered soln. mix same way. Have used up to 10 cc on severely hypocalcemic sow. She went on to deliver normally 2 wks later

11. Captan Dust -- antifungal powder. Used for ringworm or fungal infections. I mix one tablespoon to one pint of water. Dip or saturate cavy with solution. It works well. (Unfortunately, it is being pulled off the market.) May need to use weekly for up to three weeks to kill all spores. I always shake very well, as it does not go into suspension readily. I wear gloves, and apply with cotton balls to affected areas. I avoid getting it in cavy's eyes, nose, or mouth. If problem areas are on the cavys face, I put ointment in eyes and apply carefully with Q-tips. Use people antifungals topically a Fungisan

DO NOT USE

12. Chloromycetin Palmitate 125 mg/1 tsp. -- I use 1 to 4 drops for newborns to Juniors, 5 to 8 drops for Intermediates, and 1 dropperful (15 drops) for Seniors. I give orally once daily for infection for 3 days - drug of choice for eye infections starting with swollen, reddened tissue around eye causing bulging of tissue and usually a yellowish discharge from eyes. Probably caused by Chlamydial type organism, and/or Strep. or Staph. I also treat this condition with D5GD injection for 3 days and Erythromycin opthalmic ointment applied to both eyes (untreated eye frequently becomes involved about the time original eye clears up). Stop for three days; repeat again. Check cavy for pallor about feet, lips (inside), and inside eye lids. If pallor occurs or

Still in PDR Ripple available from Mexico much cheaper

cavy is listless, do not continue use. Cavys love Chloromycetin Palmitate and will drink a whole bottle. DO NOT overdose. This drug is the drug of choice for most cavy problems and cultures have not shown resistance to this drug. Depletes stores of B complex. This complex plus vitamin C 50 mg. per day should be given while on this drug. I buy B complex, in paste form (for horses) at any feed store. Use small drop daily. Safe to use on p.g. sows!

13. Chloromycetin succinate -- 800 mg/ 50 cc D5W injection. I give 0.2 cc for severe infections once daily for 3 days; stop for 3 days, then repeat for additional 3 days. If not better after first 2 to 3 days, may need to change to different antibiotic. Painful to inject. One of the best drugs to use on cavies. Has not caused malformed babies or abortions, to my knowledge, making it the drug of choice in pregnant sows. This drug can cause aplastic anemia, but this is very rare in cavies.

14. Dexamethasone straight -- use to reduce fever, for swelling and painful joints if obvious infection not present. I always give antibiotics when Dexa used if infection present or suspected. Improves appetite, but extra vitamins, especially "B" complex group, should be tried first. Check with your vet. Dosage 0.2cc SQ

15. D5G - Dextrose 5% with Gentamycin -- antibiotic for infections, pneumonia, severe colds with crusty eyes and nose, etc. Use for pregnant sows and save D5GD for boars, babies, non- pregnant sows, and those pregnant sows so ill they will probably die without intensive treatment. Do not give Dexamethasone or Terramycin/Tetracycline to pregnant sows. These drugs cause deformities and abortions in cavies. Use 1 cc in neck daily for 3 days. The mix I use is Gentamycin 100 mg in 100 cc D5W = 1 mg/cc. Can give 2cc once a day for 3 days in large cavies (porkers). Stop for 3 days. Repeat for 3 days. Treatment of choice for sows about 4-6 wks pg who get listless, stop drinking/eating look funky. They are detaching a placenta. Treatment = sow goes to term + delivers

16. D5GD - Dextrose 5% with Gentamycin 100 mg - Dexamethasone 6 mg per 100 cc. Use 1.0 cc twice daily for three days in severe infections, e.g. colds, pneumonia, diarrhea, wasting disease (cavy gets skinny overnight; can occur in all ages, however, it is more prevalent in older animals). Stop 3 days; repeat for 3 days. I use 0.1 cc for babies, 0.25 cc for Juniors and 0.5 cc for Intermediates. The medication can be given once a day, unless critically ill, then give ~~half~~ the dosage two times a day. Do not use on pregnant sows.

17. D5RL, D5W, D5/0.45NS etc. Fluids for replacement - I use this on cavies not eating (unable or unwilling to swallow) critically ill and post surgery. Give 3 to 5 cc in neck 2 - 4 times daily until fluid intake by mouth adequate (about 3 oz per day). Dehydration evidenced by sunken eye balls, loose skin, boney over rump, give 5 to 10 cc for "show shock". Do not inject fluids or medications in neck near ears or too close to shoulders, use crown. Hold finger over site where needle removed to prevent fluid from running back out. If cavy sounds "wet" when breathing, hold or decrease amount of fluids given since fluid overload may be occuring. See Lasix (for wet breathing). A critically ill cavy showing severe dehydration will require 50 to 100 cc. of fluids subq as initial dose to be followed by minimum of 10 to 20 cc. every 6 hours until drinking. Watch for fluid overload (wet sounding breathing). To inject this amount of fluid I use 50 cc. syringe, 20 ga., 1 inch needle. I insert needle very carefully and hold finger over injection site when needle is withdrawn. One can also use a slow drip IV set up. If cavy is very ill restraint is not a problem!

[redacted]

propylene glycol. Mixing with propylene glycol increases stability and sweetens solution. This equals 5 mg/cc. I give 1 to 8 drops for Juniors and Intermediates and 1 cc for Seniors 2 lbs and over (15 drops = 1 cc). Flagyl cannot be stored in syringes -- solution reacts with metal in needles. An oral suspension is available from a people pharmacy, ~~by prescription~~. in Mexico

24. Interferon -- (pet inteferon or horse inteferon) I dilute horse 1:100, and give 1/2 to 1 cc, 2 to 3 times daily for cavies critcally ill, especially if viral infection is suspected. May not be obtainable due to heavy demand for human usage for AIDS. Has worked on cavies I considered hopeless. Obtainable by prescription only from your vet.

25. Ivermectin -- Zimecterin 1.87% paste horse wormer - Keeps cavies free of lice and mites, including burrowing mange mites (sometimes). I use flat headed toothpick; use small glob on rounded end; hold cavy and open mouth by pressing near juncture of jaw. I apply paste to inside of mouth -- on tongue, etc. Dosage must be repeated in 7 to 10 days. Treat all cavies from newborns on up. Usually effective for minimum of two months. It will not cure chewing lice, fleas, ticks, or ringworm. If the cavy develops "mites" with Ivermectin treatment, it probably has ringworm (see Tinactin - Lotrimin cream), or a fungal infection. Ivermectin should also prevent heart worms if used routinely. I use Ivomec pour on cattle 1 drop crown rump x 3 wks weekly

26. Ketaset -- (100 mg/1 cc) I use this for anesthesia 0.2 cc per pound; usually 0.2 to 0.4 cc is adequate and will last 1 to 2 hours. Ointment must be put in eyes (or artificial tears), so eyes do not dry out. Amount of anesthesia required will increase if fly spray has been used in area where cavies are located (includes no pest strips, etc). I never give injections in leg. I may repeat dosage in 20 minutes, using 1/2 initial dose, if necessary for adequate response (I have had to use as much as 1 cc per animal) Repeating keta in short time period usually requires ½ dosage for same initial effect
NOTE: Medication labeled "AAK" includes both Ketaset, Acepromazine and Atropine. (ACEP/ATR-this is equal parts ACEP/ATR)

27. Lasix (Furosemide) -- I use for wet breathing (lung congestion) and suspected heart failure. Also use in sows having pregnancy toxemia symptoms. I give 0.2 cc daily of solution made by diluting 0.1cc Lasix (Disal) to 0.2 cc to 3 cc or 2 cc per 30 cc sterile solution, until symptoms resolved.

28. Levamisole -- I use for improving resistance to disease - cavies that are chronically ill, lose weight, have frequent colds, etc. This drug is an immune stimulant. I use in cavies having demodectic mange (these cavies are immune deficent). I mix one tsp. powder in 30 cc propylene glycol and 30 cc water. Shake well; keep refrigerated. I give orally as follows: 1/4 cc to juniors, 1/2 cc to intermediates, and 1 cc to seniors. Give for one week only, then stop. May be repeated in 30 days. Sometimes reverses wasting disease! esp if not from bad teeth

29. Mycostatin suspension -- aka Nystatin "Swish and swallow" preparation for people. Can be used very effectively on cavies having galded bottom from urinary infection (usually caused by fungal overgrowth from antibiotic treatment) and in some cavies, where antibiotics have not worked, cavy does not appear greatly ill, but refuses to eat. Must be obtained from people pharmacy by prescription only. Can also use Monistat vaginal cream or Desitin on galded areas, topically

30. Neosnephrine nose drops gtts 1/4 % -- I use on cavies with colds, crusty nose. Drop in - have cavy blow nose. Cavy with blocked nose will not eat. I always use it on cavies with pneumonia. Can use 3 to 4 times daily.

31. Oxytocin -- Posterior occipital pitocin (POP) "Oxy" - Used to induce labor

and to clean sow out if placentas retained. Also used to control excessive bleeding with delivery, and to let down milk. I give 0.2 to 0.4 cc every 30 minutes until sow delivers and placentas are out (1 placenta for each baby). I give no more than 3 injections total if sow is having labor difficulties. Twins have two placentas joined together. Sow does not have to eat placentas post delivery if Oxy has been given. Some sows choke on the cord while eating placentas. A hemostat (forcep) kelly type inserted carefully into mouth to pull it out will save her, plus CPR if not breathing and color blue.

32. Oxy-Cal -- Mixture of 1 cc Oxytocin 9 cc Calphosan - Used for sows in labor especially if contractions weak or labor prolonged. Improves muscle tone in uterus. I give 1 cc every 30 minutes until delivery completed. One should never induce a cavy unless one is prepared to have a caeserian section performed in case of difficulties due to abnormal presentations, failure to split symphysis pubis (boney pelvic area) or dilitation of the cervix os, or just plain lack of contractions strong enough to effect delivery. The latter is frequent in older sow, with boggy uterus, i.e. those lacking muscle tone from repeated deliveries or rupture of uterus due to prolonged labor. Such sows either push very hard and nothing happens and are in great pain, or they quit pushing and sides go flabby. May pass some bright blood. Gentle digital exam produces severe pain. This is an emergency situation. A caeserian section is required immediately. You have basically 30 minutes from the time your realize a Caeserian is necessary until actual removal of the babies. Unless your vet is very close, you are in big trouble! Sometimes a sow will deliver 1 or 2 babies and quit. Repeated injections of Oxy-Cal do not help and can be harmful in this situation. Giving more often than every 30 minutes and in higher doses will friquently stop labor -- why? who knows. Sows whose cervix clamps down on the baby during delivery or whose cervix does not dilate can be given Estrogen Ciprionate Propionate (ECP) 0.2 cc of solution diluted 1/2 cc ECP to 20 cc sterile D5W by injection. See article on Caeserian Section this publication. The uterus must be "prepped" with oxy before giving ECP. Consult your veterinarian if a Caeserian is necessary. Do not attempt an episiotomy (cutting perineal area to widen space for delivery) it will tear up into the vagina very readily, and these areas will require repair and suturing. It is safer to section the sow.

33. Palosein -- Antiinflamitory I give .05cc once a week for swollen joints and arthritis type pain. E effective, B is usually has selenium deficiency

~~34. Paregoric~~ -- ~~May~~ be obtained by prescription only. Give 1 to 3 drops up to 4 times a day for diarrhea. Tastes bad but effective. Also works to relieve pain. all market

35. Parepectolin suspension -- for diarrhea (~~contains paregoric~~) can be obtained at pharmacy by signing for it here in Texas, but I can get only 1 bottle every 6 months or so. I give 1/2 to 1 cc after each stool, or every 4 to 6 hours ~~up to 4 times per day.~~ ~~More~~ effective than Kaopectate. May ~~require prescription in some states.~~ only Kaopectate available

36. Phenobarbital in D5W -- Use for sedation if proceedure requires, i.e., removal of ear tag, tooth cutting, etc that cannot be safely done because of cavy fighting too much. I use 0.2 to 0.5 cc (2 mg per 0.3cc) depending on size of cavy. Use 60 mg (1 grain) per 10 cc D5W. Prescription drug only. Can be given orally. Phenobarbital elixir 15 mg per tsp. I give 3 to 10 drops depending on size. Useful for treating cavies having seizures from

burrowing mites (demodectic mange). And they do have seizures from this condition.

37. Primatene Mist (etc) -- Used for congestion and pneumonia. Cavy sits hunched, fur ruffled, rapid shallow abdominal respiration; wheezing often heard (sometimes so tight in chest nothing heard, so it is called "silent over night pneumonia"). These cavies, on recall, usually act dull, not active or eating well day or so before death. Spray in face to open airways and allow to breathe. They will not eat when they have respiratory difficulty. Bronkosol or Alupent preferable to use but require prescription. Over the counter products such as Primatine Mist, Bronkaid Mist, etc., are usually epinephrine products and safety for use on babies is questionable. Also causes increased and irregular heart rate. Epinephrine is unstable and should be protected from heat and light. Primatine Mist's effective action is about 20 minutes vs 5 to 6 hours for Bronkosol and Alupent. Contraindicated, when Keto has been used

38. Propylene Glycol -- Works to prevent pregnancy toxemia by decreasing stress on liver. I use 1 tablespoon per gallon of water. May add vitamins to water. Does not treat toxemia, but may forestall same. I use on sows with history of labor difficulties, if overly heavy (fat), or pregnant and not doing well. Nonspecific e.g. not eating as well, appearing dull, or inactive. Continue through rest of gestation, daily. Use as vehicle for mixing drugs to provide stability of solution.

39. Robinul -- smooth muscle relaxant used in conjunction with Ketaset (Ketamine HCl), and/or AA/AAK -- to relax gut when doing Caeserian Section or other abdominal surgery. I dilute 1 cc per 100 cc sterile D5W, and give 0.2 cc. May repeat times 1 in 30 minutes if necessary. Dpanthenol - as described previously, should work - I have not, as yet, used it for this purpose.

40. Similac/Gerbers -- infant formula. Mix as directed on can. Use to foster feed babies. Keep baby parallel to flat surface with head elevated. Give as much as baby will eat at one feeding (usually 1 to 5 droppers full). If baby coughs, chokes, or milk comes out of nose, immediately stop feeding, hold baby with head down and rump up, tap sharply each side of rib cage, and suction out nose and throat. A 3 cc syringe cover works nicely. This means baby has aspirated milk and should be treated for pneumonia. These babies usually die. It is much better for mama to nurse them. This supplement can also be used for making "milksop." Pour over crumbled pices of bread (whole grain) in shallow dish, heat slightly and serve. Can use regular cows milk just as well. Whatever you start with stick to it - they don't switch readily!

41. Sulmet, Sulfa Nox etc -- Liquid sulfa preparation used for herd treatment. 1 tablespoon per gallon of water; add sweet-N-low. I do not add vitamins or other medications. Change every 24 hours. I use for 3 days, off 3 days, on 3 days, off 3 days, on 3 days for course of treatment. Drug of choice for coccidiosis and should be used for 10 days. If no improvement after first 3 days or worse after 1 to 2 days treatment, I change antibiotics. NOTE: culture reports to date have shown resistance to all forms of sulfa except Bactrim (Tribrissen).

42. Terramycin Opthalmic -- I use for pink eye, crusty yellowish discharge and pink tinting to white of eye. I treat both eyes even when only one is involved. Always soften crusts on infected eyes by wiping gently with cloth or paper towel dipped in warm water, boric acid, etc. Be sure lids separate to get medication into eye. Prolonged crusting of eyelids together can leave

your cavy blind. Gentocin durafilm also good to use. But I use ointment for 3 days, then I go to the Gentoocin Durafilm to treat an eye ulser, which results from a scratch on the cornea. Special drop formulation that coats eye and stays on. Use every 12 hours. For eye ulcers use q 2h for 24-48°

43. Tetracycline or Terramycin powder for herd treatment -- I mix 1 tablespoon powder in 1 gallon water add sweet-N-low, do not add vitamins or other antibiotics to water. Change every 24 hours or before if water turns brownish-red in color or changes color at all (unstable and light sensitive). Becomes poisonous when color changes, but remains drug of choice for "Arizona Crud" also known as "screaming shitties". Cavy will be fine one day, slightly down and off feed next, may notice clear mucousy discharge with gas bubbles, strings of mucous, including bloody material from rectal area - then profuse liquid stools - literally runs out of cavy in a stream when picked up. Not very contagious, but highly fatal. Must treat when first suspected. I give fluids under the skin, at least 50 cc D5RL as these animals are usually found dehydrated at more than 1/2 to 2/3 body weight. Either better or dead within 24 hours. You may have to use injectable Tetracycline or Terramycin if cavy can not swallow. Herd treatment is used when epidemic has hit and preventive treatment is desired for the rest of herd. Remember cultures show all other disease organisms resistant to these drugs. Would be interesting to use neo 20 for this. 8 drops to 8 oz (1 drop to 8 oz) give 1-2 drops IX

44. Tetracycline Syrup 125 mg/1 tsp. -- Give 5 to 7 mg/day per pound. Do Not Exceed 15 mg total dose/day regardless of size. I give 1 to 5 drops daily for 3 days. May treat 3 days on and 3 days off. Symptoms of Tetracycline toxicity: sudden onset twitching followed by collapse and death. Can happen in cavies not getting excess amounts. I give Cal Dex MP injection 0.2 cc every 30 minutes until symptoms are gone, plus 3 to 10 cc fluid in neck, depending on size. e.g. junior vs adult. STOP Tetracycline. Only indication for use is "Arizona Crud" and bladder infection. This is reportedly no longer manufactured for pediatric use per my pharmacist this month 10/97

45. Tinactin cream or ointment -- Used to treat ringworm and other fungal infections. Rub into areas of crusting. Remove scabs first, continue use for 2 - 3 days after cured. Safe to use on pregnant sows. Condition is transmissable to humans (ringworm) and highly contagious. Scrub cages with chlorox water. Washing cavy & Betadine + using oint prefered & using propylene Don't use guinea. on pg sows.

46. Tribrissen -- same as Bactrim, but in tablet and injectable form only. Available only from your vet. I use injectable form for any cavy having cold, pneumonia, diarrhea, ect. having difficulty or refusing to swallow.

47. Torbugesic -- pain medication, controlled substance, available only from your vet. Dilute 1 cc to 100 cc D5W or NS. I give 0.2 to 0.4 cc every 4 to 8 hours for pain control. Especially valuable for relieving pain due to colic from kidney, ureter, or bladder stones. Allows relaxation of tissue so stone can be passed. I use with Dpanthenol. These cavies will need supplemental fluid injections, use of an inhaler (Alupent), and generous feeding of greens until eating well. You can try forcing fluids orally, but you must get at least 3 oz. (90 cc) intake daily.

48. Triple Antibiotic Eye Ointment (Neosporin) -- or skin type ointment - Use for wounds, crusty eyes etc. (Burrows Welcome brand for skin safe to use in eyes, has unicorn on box). with Lidocaine (esp for eye ulcers)

49. Vitamin "C" Powder 1000 mg per 1/4 tsp -- I use in water or make

concentrated solution for individual dosing. I give 25 ~~50~~ mg per day per cavy, Increase vitamin C to ~~50 mg~~ 150 mg per day, and all other vitamins at first sign of illness. Change water daily.

50. Vitamin "K" straight 10 mg / 1 cc -- I drop one drop directly on bleeding site (toe nail, ear rip, etc). Stops bleeding immediately.

51. Vitamin "K" (Aquamephyton) 20 mg/ 100 cc D5W -- I give 0.2 to 0.4 cc for excessive bleeding. May repeat in 30 minutes to 1 hour and again 4 to 6 hours later if necessary. Avoid using too much; it can cause episodes like strokes with sudden death, especially if given undiluted. Prescription only or from your veterinarian.

52. Xylocaine 1% - local anesthetic (Lidocaine is same thing). Inject before minor surgery eg. for boils, cysts, wound suturing. NEVER inject Lidocaine or Xylocaine with adrenalin (or epinephrine, same thing) in legs. It could cause loss of limb due to spasms of veins/arteries and/or neuritis with resultant chewing off of toes due to pain. Never inject ketaset acepromazine, phenergan, sparine, thorazine, DepoMedrol or any very acidic or super concentrated solutions in a cavy's leg.

CONDITIONS:

Most cavies are the victum of the three "T's" -- treated too late, with too much, for too long.

1. Abortion -- I treat all sows that abort, have dead babies and/or babies in distress in utero, cloudy to yellow-green fluid in sac, cheesey yellow matter on coat, etc, old bloody fluid passed by sow and/or mummified fetus. I use D5GD daily for 3 days and Chloromycetin palmitate 1 dropper full for 3 days. I give babies born in distress 0.05 cc D5GD and feed sugar water. Give fluids 1/2 to 1 cc subcutaneous soon after birth (D5W, D5RL, D51/2NS, etc.). Increases survival rate of such babies. When feeding newborns use sugar water only at first. If they choke and aspirate milk they will usually die. Babies that have fluid come back through the nose are aspirating. Use suction over nose to remove as much fluid as possible; can use straw, infant rubber bulb nose aspirator with narrow tip, cover from 3 cc disposable plastic type syringe, etc. to suction fluid from nose. Hold firmly by hind legs with fingers around neck, swing gently toward floor and back upward. This forces fluid into nasal passages for easy removal. These babies usually die despite intensive care, but it is worth effort to try. Most of these babies are preemie and have aspirated in utero before birth. They resemble newborn

infants with hyaline membrane disease. When feeding, hold baby on table covered with towel. Put tip of narrow tipped eye dropper (39 cents at WalMart) just between baby's lips and squeeze dropper for 1 drop to go in baby's mouth. Remove dropper and let baby swallow. Repeat one drop at a time. As baby becomes accustomed to dropper feeding, it will begin too suck on the dropper, so all you have to do is keep positive pressure (gentle, continuous squeeze) on dropper bulb. Some will take food from tip, others will require putting dropper into mouth about half way. Use soft plastic droppers.

"Lump Throat"

2. Abscesses -- Swelling under chin of cavy. Can occur in testicle area of boars (pudendal area--under penis actually "pubic" area), and the breast area of sows and boars, and any other area where lymph nodes are present, including internally. I treat for 3 days with Chloromycetin Palmitate 1 cc daily, use less for juniors and intermediates. When site becomes fluccuant (soft in center) cut hair away from area, prep with alcohol, betadine etc. Hold lump firmly on either side and make stab wound with scalpel. (carefully!). I never cut horizontally -- if the jugular is hit the cavy will bleed to death. I put mine to sleep to insure cooperation. Two people can do this, though, without anesthesia. Express pus - some blood will probably come out. Try to get core out (same as boil). Use non luer lok syringe. Fill with mixture of 3% peroxide and Betadine using equal parts of each. Insert tip of syringe into hole and flush area. It will boil and bubble out. Express rest of solution. Fill hole with Panalog. Keep cavy on antibiotics for 3 more days. If discharge is liquid, cheesey, and foul odored, change to Bactrim, Tribrissen (injectable) or Chloromycetin Palmitate, and D5GD or 3 days. Isolate cavy. This problem is endemic in all herds. Infection confers immunity for varying period of time (same as strep throat in people). Check other animals for lumps freequently. No need to treat entire herd, and certainly no reason to kill cavy. I have never lost one from lump throat. Many cavies have this and "cure" their own by scratching site when it is ripe and opening it to drain. You may have a cavy "slobbering" when in fact it has opened an abscess. My choice is to let the disease run its course, treat those that develop lumps and leave rest alone. Some are already immune. When you acquire new animals, always check frequently for signs of any problems and treat accordingly. Remember, each cavy has its own normal bugs (bacteria and viruses). It may not get sick, but others with no immunity may. Frequent observation and prompt treatment can forstall more serious problems. DO NOT needle aspirate lumps in the cavy. One must open the abcess and flush same, or it will not heal properly.

Long term treatment of the cavy with antibiotics -- using any one drug over five consecutive days -- has always met with disaster in my experience; hence my direction of three days on and three days off routine, and use of more than one antibiotic at a time. Usually it is not accepted as good practice to treat until you have cultured the organism and then can use the proper antibiotic. However, if you wait to do this with a cavy, it will be dead by the time the organism has been identified. They are like infants, they get sick rapidly and either get better or die rapidly.

Micotil I NEVER EVER use penicillin, synthetic penicillins (including Ampicillin, CeClor, Keflex) Lincomycin, Spectinomycin, Carbenicillin or Erythromycin (oral or injectable) on the cavy, or injectable Amikacin. Different strains of cavies react variously to certain drugs. Those safe in one cavy may cause problems in lines I suspect are immune deficient. I have seen acute fatal

anaphylactic shock in cavies and hamsters given Procaine Penicillin and/or combiotic and Aqueous Penicillin. I have heard cavies have been treated with Penicillin (Ampcillin) and given yogurt at the same time and survived. I have thought about trying it while using D5GD, Tetracycline or Chloromycetin Palmitate at the same time. I have since tried it with fatal results. Lincomycin causes lysis (dissolving) of the gut. The use of these listed drugs are just not worth the risk involved. The only exception would be a cavy dying anyhow, and on this cavy maybe try one injection of Penicillin while having adrenalin at the ready. The reactions I refer to as acute anaphylaxsis were characterized by lack of respiration, convulsions and death, sometimes before the needle could be removed when injecting the Penicillin. I used CeClor once. Every cavy treated with one dose was dead within 12 hours; same results occur with Amoxicillin. One cavy had acute reaction to Denaguard -- red swollen tongue, caughing, whezing, etc.

3. Agression, excessive -- This problem has been reported in some strains of cavies. Boars will suddenly go berserk, attacking and killing sows or other cage mates. These cavies should be euthanized, or at minimum, caged separately. This is thought to be inherited and due to excessive inbreeding. Do not use these cavies for breeding.

4. Arthritis -- Cavies reportedly get this. Hovever, I would treat for selenium deficency and see if there was any improvement (may take 4 to 6 weeks). If there is no improvement, see your vet. The cavy will probably need Palosein, Banamine or Dexamethasone.

5. Bacterial Infection -- Usual cause of pneumonia, diarrhea, purulent discharge from eyes, vaginal area, etc. See listed condition for treatment.

6. Behavior -- The normal action and interaction of the genus Cavidae. These methods of expression can be quite complex and too lengthy to detail in this article.

7. Bladder Infection -- A common problem in the cavy, especially in sows. Evidenced by "dirty drawers." Wetness and soiling about the vent area. There may be signs of infected urine, urine may appear bloody or purulent. The skin around the area appears galded (burned, raw or reddened). I treat by washing the affected area well with warm soapy water, rince well and dry before applying ~~Desitin~~ ointment. I treat with Bactrim 1 to 5 drops twice a day for 5 days. This condition frequently becomes chronic and requires treatment as described above when ever it recurs. If it does not respond to Bactrim, I treat with Flagyl oral suspension 1/2 dropperfull twice a day for 5 days. Cavies with this problem should never be deprived of water and should be given greens freely, especially parsley. Sometimes treatment with Mycostatin oral suspension will help clear this up. I use 1/2 dropperfull twice a day for 5 days. Can be used with Bactrim and/or Flagyl. also switch to distilled water & use 100 mg vit c daily or more Lotrimin oint/cream a triple antibiotic oint

8. Boils -- Same as abscesses. wont bother

Best = Boil Ease available at Wal Mart & the OTC

9. Bumblefoot -- Apply Bag Balm to foot/feet. Apply ~~Panalog~~ ointment to area and bandage. Change dressing daily. Do not get too tight or circulation will be cut off. Be sure to check foot daily while dressing is in place. I treat with DSGD 1 cc and Bactrim for 3 days. If not greatly improved stop Bactrim and give Chloromycetin palmitate for 3 days. I give D5GD 2 times a week for 2 weeks after foot/feet are better. Leave dressing off as soon as swelling goes

down and foot/feet less tender. Keep on towels, change daily. No wire and no shavings. Donot probe foot or forcefully remove skin, break boils, etc. Causes more trouble and great bleeding. Even worst cases will be healed within 2 weeks if treated properly. Keep nails trimmed short. Condition is very painful at first. For safety and cavy's sake, cavy should be sedated for first day or two for dressing changes. This condition is systemic (like blood poisoning) and if not treated long enough, can lead to abcesses and localization internally in various organs.

10. Cancer -- The incidence of the various forms of cancer is reportedly very low in the cavy. It has been my experience that the icidence is much higher than reported. I have seen everything from cancer of the eye to cancer of the bile ducts. Ages range from 3 months to elderly (5 to 6 years). Squamous cell carcinoma can be removed without appreciable decrease in life span. Some forms of cancer appear to run in strains. Cancer of the bladder, lung, esophagus are infrequent. Cancer of the liver is common. Wasting disease has been linked with lymphoma. Cavies also get leukemia. Until more post mortem exams have been done on older cavies (including pathology) the true incidence will not be known.

11. Colds -- Cavies get colds. They will sneeze, cough, have runny eyes, congestion, and feel miserable, just like big people do. Treat symptomatically with 1/4 % Neosynephrine nose drops (infant type), 1 to 10 drops of Vicks Day Care Daytime Cold Medicine (which contains acetaminophen) cough syrup orally, or 1 to 5 drops Tylenol oral syspension if cavy has fever (normal temperature 102.5). May give these 2 to 3 times a day. After giving these meds, rub Vicks VapoRub on nose. Pamper just like you would a small child or infant. Force fluids and give plenty of greens and vitamin C, 50 mg per day, for 3 days.

12. Congestive Heart Failure - Older cavies have developed this problem. Consult your veterinarian. The cavy will have to be digitalized and treated with Lasix. This will probably have to be done the rest of the cavy's life unless it succumbs to a heart attack or stroke. Symptoms include wet sounding breathing, shortness of breath, loss of stamina, and bluish coloration about nose and, often, the feet. Remember these symptoms also occur with pneumonia. Pregnant sows, espcially those having proloned, difficult labor, pseudocyesis (excess abdominal fluid), and those in pre-eclampsia or true eclampsia (toxemia) will also exhibit these symptoms. In the milder form, delivery of the babies resolves the problem. In the others, treatment with Lasix will be necessary.

13. Crusty eyes -- Small amount of white flecks or spots in corners of eyes indicate infestation with mites. I Treat with Ivermectin. Ivomec Pour-On Yellowish to greenish discharge with swelling and induration (red and puffy lids) indicates bacterial infection (pink eye). Yellowish color usually Strep or Staph; greenish color Pseudomonas. For yellow discharge treat with Erythromycin eye ointment 2 to 3 times daily, for up to 1 week or until cured. For green discharge use Gentamycin eye ointment 2 to 3 times daily, for up to 1 week or until cured. Use of other eye ointments will generally result in a prolonged course of the disease -- up to 2 weeks. Failure to show improvement after 3 days indicates resistant organism or, more likely, infection with Chlamydia. This should be treated with oral Flagyl, a Chloromycetin palmitate.

14. Cysts -- Abnormal firm swelling under the skin can be found anywhere on body, but most common along back. This can be surgically removed with excellent results. Not infrequently is composed of gooey black flecked material in massive amounts

15. Diarrhea -- Abnormally loose bowel movements. Can be minor problem or life threatening. Treat by increasing fluids orally, if they will swallow, if not, give D5RL subq, amount according to weigh loss. Give Paregoric 1 to 5 drops every 4 hours until diarrhea under control. Or use ~~Parepectolin~~ 1/2 to 1 dropper full 3 to 4 times a day. Use Dicosol 1 drop / lb give 1-2 drops 4 this

16. Dominance -- Usually refers to behavior of sow with disposition like a buzz saw (not nice). Such sows, when placed in breeding will fight everything, including the boar. A good dominant boar can handle such a sow. Never place them with young, insecure boars. Always observe and remove boar if he cannot handle sow, unless you want a dead boar or ruined future breeder. Dominance is a normal form of behavior when exhibited by a boar. It is normal for one sow to be dominant when with several sows, but not to the point of being witchy.

17. Dying cavy -- As much as it hurts, there comes a time when your cavy will die. When this happens, you must let them go. It is perfectly normal to mourn their death, the same as you would a relative.

18. Electrolyte Imbalance -- This problem occurs in cavies that have been stressed, ill, or abused, e.g. those having been denied food and/or water or having been exposed to excess heat or cold. These cavies will be found in their cage, flaccid (limp), with or without continuous tremors (shaking) of muscles. Treatment is immediate injection of 50 cc (more or less depending on size) of D5RL. Also plan to provide continuing supportive care, and treat for pneumonia.

19. Eye Ulcers -- Symptoms are squinting, sensitivity to light, swelling of the lids, and pain. One can usually see an area on the eye that is "fuzzy," white or gray or may be horizontal line. Very painful condition, may have to sedate cavy to treat eye for the first day or two. Need to keep area moist with antibiotics or treatment will fail. I use an ointment such as Gentamycin, Chloromycetin, or Erythromycin at least ~~4 times daily for 3 days~~ q 2-4 hr 29-48 hr. One can then put Gentacin Durafilm drops in eye 2 to 3 times daily until eye is completely clear, up tp 2 weeks. Cover cage to protect cavy from direct light. Use of topical anesthetic such as Lidocaine 1% (with out vasoconstrictors such as epinephrine) helps to relieve pain. One must also apply Atropine ointment daily for 5 days. See your vet. Cavies with this condition must be pampered, as they frequently refuse to eat because of the pain.

20. EMERGENCIES IN THE CAVY In order of prevalence:

a. Abuse -- usually unintentional, but more common than one suspects. These cavies are found dying, dehydrated, "running in place," and gasping. See electrolyte imbalance for treatment. (I have heard of people placing unwanted cavies in the direct sunlight to kill them. Other people simply do not feed and water. Unreal, right?)

b. Pneumonia -- the number one killer of cavies. Can be "silent" form, or more usual obvious type with crusty eyes, dehydration, noisy breathing,

inability or refusal to swallow. See pneumonia for treatment.

c. Starvation -- this problem is more common than thought. Any cavy showing sudden weight loss or one noted to not be eating should have the teath examined immediately. This requires anesthesia to allow one to inspect the posterior teeth for tongue tying. Simply looking at, and trimming the incisors (front teeth) will not correct the problem if the rear teeth are involved. Overgrown teeth must be cut back. Repeated cuttings will be necessary for the life of the cavy since the teeth are continuously growing. Feeding hay, grass, alfalfa cubes, etc. allow the cavy to naturally wear down its own teeth. I also suspect cavies having teeth problems are selenium and vitamin D deficient. Treating them for these conditions may prevent future problems. If the condition is true "wolf Teeth" the cavy will eventually die. Surgical correction of advanced cases has always resulted in the death of the cavy within one week. Advanced tooth disease produces foul smelling breath - diagnostic of back teeth problems

d. Diarrhea -- it is generally thought that the cause of this condition is improper diet. The cavy has a digestive system remarkably similar to the horse, in that over feeding of some items, and lack of roughage can lead to diarrhea, colic, and death. Most cases of diarrhea will respond well to treatment with Flagyl, 1/2 dropperful, twice daily for 3 days, along with ~~Parapectolin~~, and 1/2 dropper every 6 hours for 1 to 2 days or until diarrhea stops. ~~If Parapectolin is unavailable~~, Kaopectate can be used. Reduce amount of fresh greens, and addition of liberal amounts of hay/grass to the diet. Young recently weaned cavies will develop bloating if allowed to eat too much sweet feed. Cavies should receive bran mash routinely, at least 2 to 3 times a week to provide the necessary roughage and selenium E required for good health. This is especially true if no greens are fed. <u>There is no pelleted food available on the market that provides all the necessary dietary requirements of the cavy.</u> There is a form of diarrhea that hits cavies (I call it "the screaming shitties"). These cavies are found dangerously dehydrated and near death. When picked up, the stool is literely running out of the cavy like a river. They must be treated immediately with massive amount of fluids subq., along with the Flagyl and Parapectolin. See your vet. If you can keep them alive, treatment with Tetracycline, not over 15 mg per pound daily, seems to work in this condition. See diarrhea above for further treatment. Try Neo 200 6 drops neomycin to 6 oz water distilled give 1-3 drops works!

e. Show Shock - Shipping Shock -- Cavy will suddenly keel over; respirations gasping, body cold to touch, may or may not have blueness about mouth, more generally mouth and feet are extremely pale. Happens most frequently in super conditioned cavies. Cause is most likely low blood sugar brought on by stress. Treatment is immediate injection of 30 to 50 cc of D5RL subq. If you do not have this available, rubbing Karo syrup on the gums may work. You do not have time to get to a vet. I would suggest carrying a small amount of Karo syrup when showing cavies. Many fanciers withhold greens and/or water to prevent staining the coat (feed apple - no stains). In a caavy predisposed to this condition (and this includes sows that are in the early stages of pregnancy), this practice can precipitate this problem. Post mortems on several such cavies have shown no abnormalities, other than extreme palor of tissues throughout the body with no evidence of a bleeding site. In more than one case the cavy had a ruptured stomach.

f. Heat Stress -- Cavies are very susceptible to excess heat, especially without good ventilation. The ideal temperature range for a cavy is 65 to 75

degrees, depending on the humidity. When temperatures remain over 85 for a day or more, cavies become lethargic, stop eating, and drink large amounts of water. Depriving cavies of water when it is hot is a death sentence. Allowing cavies to remain in direct sunlight for over 10 to 20 minutes, depending on the intensity of the sun, will cause death from heat stroke. Cavies can be acclimated to a wide range of temperatures, but sudden changes must be avoided. (this can happen when transporting cavies, even when the temperature outside is below freezing!) If your cavy heat stresses, immediately immerse in cool water e.g. under tap or place on ice until temperature returns to normal (102.5). I have seen temperatures as high as 108 degrees and the cavy has survived with proper treatment. I always treat these cavies with 1 cc D5GD daily for 3 days and watch closely for pneumonia. If you do not have air conditioning, use fans, soaker hoses on the building and frozen bottles of water in the cages to reduce ambient temperature. Give as much extra greens as possible during hot periods. If your air conditioning goes out and your cavies are subjected to life threating heat, immediately grab your hose and spray down your cavies (it may be messy, but it works). Set up fans to get air circulation going, open windows, and observe for any adverse effects e.g. pneumonia or premature labor. Suprisingly, very few cavies will have side effects from the "hose down" method of cooling.

g. Pregnancy Difficulties, including toxemia -- see article on Ceaserian Section in this publication.

h. Fractures -- Cavies housed on wire and transported in wire bottom cages are subject to fractured legs. Any baby less than 2 oz at birth should be removed from wire bottom cage and housed in a solid bottom cage. Transporting young cavies on wire should be avoided. If you can not, always cover the wire with a layer of newspaper and add shavings and/or hay. Always lift any cages with wire bottoms from the bottom to prevent the pan from separating from the wire thus allowing legs to slip through and become trapped between wire and pan. Fractures invariably occur to hind legs. Fractures may be simple, or compound (bone will be sticking through the skin). Treatment requires anesthesia and setting of leg in position of function using Specialist Extra Fast Setting Plaster bandage. Use of splints and other types of molded casting material do not work well with the cavy. Cast should remain on for approximately 2 weeks. It may have to be changed after a few days, especially if there are signs of swelling, or coldness in the toes caused by lack of circulation, or the cavy is biting or chewing at the cast. If a compound fracture is present, the area must be treated with antibiotic ointment prior to casting, and the cavy should be given 1 cc D5GD daily for 3 days. This type fracture is more dangerous and should be treated by your vet.

i. Reaction to pesticides -- Any cavy can have an adverse reaction to pesticides. Some strains are much more sensitive than others and Satins are more sensitive than most. Reaction can vary from frequent scratching to excessive salavation and staggering gait followed by collapse and generalized fine muscle tremors. Treatment is Atropine 0.2 cc subq immediately followed by further injections in 30 minutes, then in 1 hour, and every 4 to 6 hours until symptoms are gone. Do not use products containing Carbaryl, Rotenone, or Lindane on the cavy. Read label on all pesticides. If Atropine is not antidotal, do not use the product. This also applies to fly sprays. I do not use or recommend the use of Black Leaf 40 on cavies. Manifestations of a severe reaction to pesticide presents a picture resembling a burn. The skin of the cavy is red, raw, may show blistering, and or oozing. I treat with

Atropine, subq fluids, D5GD, and Benadryl elixir 1 to 2 droppers full every 4 to 6 hours until symptoms are gone. A soothing ointment such as Desitin, or hydrocortisone 0.05% can be used to coat raw areas if not extensive. A burn treatment type ointment can be used. Unfortunately, if the skin involvement is extensive, the cavy will generally die, most probably by kidney failure. You can use Paramite diluted 1Tbsp per gallon of water as a generalized dip safely. However, the risk to you is fairly great, especially if dipping a large number of cavies. Also, unless you immerse the head into the solution your are wasting your time dipping. A solution of Paramite 1/2 tsp in 1 qt of water in a spray bottle is just as effective for treating small areas of infestation and is safer to you and the cavy. Ears can and should be treated by spraying solution directly into same. Severe mite infestations should be treated by using Ivermectin (Zimecterin) for horses. See Iveomectin. Ivomec goes on

j. Bloating -- this problem occurs in the stomach of acutely ill cavies. Cause not always known, but probably related to lack of eating, imbalance of gut bacteria and torsion of the gut (colic). Symptoms are evidenced by refusal to eat, lying prone in cage, rolling from side to side, and moaning. They are in pain. You can try a simethicone type product or Franklin's Frothy Bloat medication (available at some feed stores). Advanced pregnancy predisposes the cavy to this problem and sows should be fed readily utilized forms of carbohydrates such as greens, sweet feed, and/or propylene glycol 1 Tbs to gallon of water. Cavies can also develop bloating from certain foods e.g. sweet feed in weaning babies, bananas, and probably othe foods. Despite their reputation as a gas producing food, I have never seen bloating from cabbage, broccoli, cauliflower, brussel sprouts and related vegatables. Banana leaves do not cause bloating. Cavies can die from this. Using 0.2 cc Ketaset will often relax the cavy, relieve the pain and allow passage of gas. If the above does not work, the only thing left to try is trephining the stomach. This proceedure should only be done by your vet. Your vet will also have other medications for this problem. Severe distention of the stomach is life threatening as it causes increased pressure to the diaphragm which causes difficulty breathing and can cause cardiac arrest.

k. Colic -- Severe form of bloat caused by trapped gas in stomach and/or intestines. Cavy will generally be in shock, cold to touch, tight, painful belly, and no stools will have been passed. There may be evidence of mucousy type discharge from rectum. This stage is caused by torsion of the gut which can occur anywhere from small intestine down. Treatment with Dpanthenol and Torbugesic should relax gut and relieve pain, possibly allowing cavy to recover. The outlook is not good, since the gut on a cavy can not be excised and repaired successfully without microsurgery. Torsion has been seen in pregnant sows at term.

l. Bite Wounds -- These are not emergent unless vital structures are involved (bitten into lung or abdoman). Most of these wounds are superficial involving skin and muscle layer beneath. To treat, soak scabs with pad saturated with peroxide 3% or warm water, remove scab and apply triple antibiotic ointment. Purulent matter (pus) should be removed and wound irrigated with mixture 1/2 peroxide 3% and 1/2 Betadine solution 10%, before applying ointment. Deep wound should not be flushed with peroxide. Continue treatment daily until healed. If many bites are present and/or cavy appears ill it should be treated with D5GD 1 cc daily for 3 days or Chloromycetin Palmitate 1 cc daily for 3 days.

21. Estrus -- Heat cycle in the sow. Period when sow is receptive to breeding -- normally occurs every 14 days and within 4 to 24 hours after delivery. Lack of estrus in the cavy is most likely caused by ovarian cyst(s). Careful exam of the abdoman of such sows will reveal this problem. The prognosis, if surgery is required, is poor. You are better off allowing such a sow to live out its life in peace and comfort. Suspect this condition in sows who are "pregnant" but do not deliver when due. Must be differentiated from pyometria. Take cavy to vet. Use kelp in diet to prevent

22. Fever -- Abnormal elevation of temperature (above 102.5). It can be caused by too much heat in the environment, bacterial infections, viral infections, and reactions to medications. If above 104, immerse in cool water until below 103. Give Tylenol (Acetaminophen elixir or drops) 1 to 5 drops every 6 hours until temperature remains normal. Symptoms: lethergy, refusal to eat or drink, feels hot to touch, especially ears. Take temperature with well lubricated rectal type thermometer, very carefully!

23. "Grippe" or flu -- cavies can get viral infections resembling influenza. Treatment is supportive in nature (treat symptoms) and only use antibiotics if cavy has pneumonia. Use of Vicks VapoRub on nose and giving 1 to 5 drops Co-Tylenol every 6 hours is usually effective, along with Vicks Day Care Cold Medicine. Supply fresh water, fresh greens and give 50 mg vitamin C orally for 3 days.

24. Hypersensitivity -- acute allergic reaction to substances, ranging from drugs to bedding. Symptoms vary from mild cases where cavy will sneeze, eyes water, and perhaps cough, sneezing to acute anaphylactic shock. If the latter happens, and you do not have Adrenalin (Epinephrine) diluted 1 cc to 20 cc D5RL, on hand your cavy will die. If you have Adrenalin, give 0.2 cc in neck. Repeat in 30 minutes to 1 hour if necessary. Give orally, 1 to 5 drops Chlortrimeton elixir or Liquid Benadryl (10 to 15 drops for large cavy) and repeat every 4 to 6 hours for at least 24 hours. To find out if the allergy is caused by bedding, hay, etc., place cavy in cage or cardboard box with towel as bedding. If symptoms go away, add suspected material, one item at a time e.g. hay or shavings, until positive response is obtained. Some strains of cavies are much more hypersensitive than others, and you must remember this. All pioneering work in acute anaphylaxsis was done on the cavy.

25. Infections -- Are caused in the cavy by bacteria as a rule and specifically by gram - negative organisms. The exceptions are frequent repeated bouts with Strep and Staph. The tendency of your cavy to become infected is directly related to the following: 1) exposure to an organism to which it has no immunity; 2) Inherent weakness/deficiency of the immune system; 3) repeated stressing of the cavy by excessive showing, exposure to high levels of ammonia, sudden changes in temperature; 4) handling or allowing others to handle or care for your cavy when they have infections such as Strep throat or obvious staph (draining skin lesions, boils, etc.). Lump throat is a form of bacterial infection, see abcesses for treatment. The length of time required to treat these conditions and whether or not they will again succumb depends upon the quality of their environment and the state of their immune system. Remember, once a cavy has had an illness, whether it be lump throat, pneumonia, or whatever, the cavy will be more sensitive to stressors and liable to recurrence.

26. Infected anal gland/Impacted - stuck shavings, litter, etc, soak with peroxide 3%, wash with soap and water, clean out and apply Panalog. Do this daily until infection is cleared. Treat with D5GD for 3 days. Same Rx for infected shaft of penis. For swelling or boils in this area take to vet to be lanced and treat systemically with antibiotics, and topically (to infected area) with Panalog. Deep wounds can be packed with Iodoform gauze. Change daily. Do not forget to retract sheath (covering) over penis and remove any hair or other material that has accumulated. Apply Panalog before returning sheath to normal position. Both areas should be cleaned monthly.

27. Itching -- cavy will be noted to be scratching, usually at sides, near shoulders, or trying to bite area near rump. The causes, other than the rare possibility of an allergy, are infestations with lice or mites. Lice are small, generally white to cream colored specks that move. They lay eggs, called nits, at the base of the hair shaft. They are basically easy to treat. You can dip, powder, or spray with moost product safe for use on cats. Better yet, use oral Ivermectin. Mites are a horse of another color. Severe infestations with mites results in a miserable cavy that scratches itself until the skin is raw, especially if the mite involved is Demodex. Pray your cavy does not have this one! If you have ever had chiggers (jiggers, red bugs), then you understand the pain your cavy is experiencing. All mites, except Demodex, can be cured by using Ivermectin or Paramite dip. You must repeat treatment in 10 days for both lice and mites to kill off newly hatched critters. Demodex is a burrowing mite and very dificult to treat. There have been reported sucesses using Paramite dip and giving Levamisole orally to stimulate the immune system. Unfortunately the tendency to get Demodectic mange is inherited and the offspring are born already infested. Even if you can clear up Demodectic mange, the cavy will come down with it again, whenever stressed (showing, pregnancy, excess heat, etc.). The common misconception that parasites are host specific does not apply to the cavy. They can and will get "bugs" from your other pets, such as birds, cats, chickens, dogs, children, etc., and can also get fleas. Levamisole works well for this condition in the cavy (demodex)

28. Jitters (neurological conditions) -- Some cavies are excessively nervous. These cavies are "brainless wonders." They resist being handled, are easily and frequently startled, and make poor pets. These cavies should not be used for breeding. The problem is generally caused from inbreeding, lack of oxygen prior to birth, or inherited neurological dysfunction. It is also possible such problems are caused by deficiency of vitamins and other essential nutrients necessary for healthy nerve function.

29. Kidney Failure -- The second leading cause of death in cavies. Probably the leading cause of death in the aging cavy, next to pneumonia. They will occasionally occur at the same time. There is really no practical treatment for kidney failure in the cavy. They are a little small to hook up to a dialysis machine, and a kidney transplant is out of the question. You will probably not even realize your cavy has this problem, it will simply be dead some morning. Symptoms can include increased thirst, wasting (cavy becomes thin overnight), lethargy, and decreased appetite and urine output. This condition must be differientiated from kidney stones, acute kidney and bladder infections, and diabetes. For kidney stones, see colic. Cavies can also have chronic kidney and bladder infections (see bladder infections). A boar that shows signs of "labor," such as hunched posture, ruffled fur, moaning or crying, and straining, usually is trying to pass a kidney stone, or has diarrhea. Older cavies should be fed large amounts of parsley (this is

supposed to be very beneficial to the kidneys and helps to prevent stone formation

30. Labor -- A naturally occuring condition in sows that are pregnant. They will usually go off feed for a day or two, their shape will change from "10 inch skillet" appearance to "pear shaped" as the babies drop. They will usually face a corner, run off all other cavies, and sit up on their hind legs and push. Some sows are very stoic and make very little noise, while others scream, flap ears, and generally raise hell, just like people, except for the ears. Some sows will allow other sows and the boar to assist her during labor. Others will keep the rest away, even to the point of allowing the babies to die in the sack. For more details see article on Caersian Section.

31. Lameness -- General cause is lack of vitamin C. The cavy will hop instead of walk, appear stiff in the rear, and frequently will cry when handled, due to painful joints. Treatment. I give ~~50~~ 150 mg vitamin C orally for 3 to 5 days. Response is dramatic. If this fails to cure the condition, the cavy has Selenium E deficiency (see ESE above). Prevention is better than trying to cure. The only pelleted food on the market, that I know of, that contains added Selenium is Calf Mana (Animax). If you are feeding hay, alfalfa, fresh vegestables (especially root crops) grass, etc. grown in your area, you need to know if your area has Selenium deficient soil. Check with your county extention agent. If your soil is deficient, you need to supplement Selenium E. You must remember that your feed and produce probably come from areas with deficient soil. You must also remember that Selenium is very toxic, causing "blind staggers," loco weed poisoning. Feeding bran mash 1 to 2 times weekly will prevent vitamin C, and Selenium E deficiency. Mix 2 cups bran with 1 Tbsp Wheat Germ Oil, 1000 mg Vitamin C, powdered vitamins for cavies, such as AquaVite (1 tsp), mix with warm water until moist, but not wet, and serve 1 tsp per cavy. Cavy eats Nutr Research assoc from Indiana has 3mg/lb of food now.

32. Laryngitis -- loss of voice due to inflammation of the vocal cords. Some cavies do not have a voice. This, of course, is inherited. The condition will clear up when the primary problem is treated (see colds above).

33. Lice -- Two varities occur in the cavy. Hair chewing and blood sucking. Unlike mites, lice can be seen with the naked eye, and treatment of lice is simple. Dusting with Sevin .05% will kill the lice, but will not get the eggs. I repeat the dusting every 3 days for a 10 day period. Use of most cat products is safe. Do not use Adams Feliderm or Caniderm. Death following application of these products has occured. Symptoms of lice infestation include scratching, biting at sides, areas of bare skin, and particularly a "V" shaped area in the midback of the cavy. Ivomec kills lice

34. Lump Throat -- see abscesses above.

35. Lymp Node Swelling -- Is indicative of systemic problem, if more than one node is involved (see abscesses above and cancer).

36. Mites -- see scratching above.

37. "Marshmallow" testicles -- Swelling of testiclular area and filling of anal gland with mushy stool. Cause? May be a hernia or fistula, over feeding of greens. Is seen only in older boars. Clean area well with soap and water, dry, apply Panalog once or twice a day for up to a week. Usually goes away

with this treatment. Reduce amount of greens for a few days. Add bulk to diet -- hay, bran, grass, etc.

38. Mold Ingestion -- Most molds are highly toxic and rapidly fatal. There is basically no treatment for mold poisoning. If I suspect same, I use Atropine as outlined above, and force fluids. Avoid feeding moldy substances to the cavy. If they refuse to eat pellets, I always suspect mold. Prevention is really the only treatment. Never feed moldy hay. Molds produce spores that become airborne, are inhaled by the cavy, and produce pneumonia. There are specific drugs that will treat molds, but they are prohibitively expensive and by the time the problem is diagnosed the cavy is beyond treatment.

39. Nervousness -- see Jittery above.

40. Obesity -- Can be a problem. Appeaars to be inherited in some cases, and should be avoided whenever possible. It is hard to have your cake and eat it too. Show conditioned cavies carry more fat than breeding or pet cavies should. I eliminate sweetfeed, limit the amount of pellets, and feed more hay.

41. Prevention of disease -- The best way, of course, is proper herd management. Regular cleaning of cages, elimination of ammonia fumes, control of temperature and humidity, proper diet (with addition of vitamin C, regardless of what is fed), and isolation of cavies from potential disease vectors (flies, roaches, parasites, other animals, includint dogs, cats, rabits, chickens, birds, and other rodents). I sometimes find that cavies will become ill despite the best of care and conditions; that is why I have written this article.

42. Poisoning -- see Reaction To Pesticides and Molds above.

43. Pyometria -- collection of pus in the uterus. Generally affects the entire uterus and is far advanced by the time it is suspected. I have found that treatment with antibiotics is of limited value and removal of the uterus results in death of the cavy due to the cavy's poor condition and advanced stage of the disease. If I suspect this condition I treat immediately with D5G, Chloromycetin Palmitate, and Flagyl for at least 3 days before considering surgery. Symptoms include vaginal discharge, especially if purulent, poor condition in a nursing sow, refusal to allow babies to nurse, lack of milk production, mastitis, and evident swelling in area above bladder when feeling abdomen, and extreme pain when abdomen is touched. Palpation of the abdomen may produce gushing of purulent and/or sticky, clowdy fluid from vaginal area. This is an extremely serious, life threatening condition and must be treated aggressively. I always treat any sow that delivers dead, mummified or meconium stained (babies covered with yellowish material) babies with D5GD for 3 days, to prevent this condition.

44. Q Fever (Brucellosis) -- can get by feeding unpasturized milk from cows or goats to your cavies. Humans can also get this and it is called undulant fever or Malta fever. Do not use unpasturized milk. Symptoms can include recurrent fever, frequent abortions. The bacteria can be passed by a boar showing no symptoms, or from sow to sow. There are 3 species of bacteria in this group. The cavy must be cultured to determine if this bacteria is present e.g. milk from a nursing sow, vaginal discharge, and secretion from

penis of boar. I would treat with Bactrim and/or injectable Gentamycin (D5G), or any listed drug to which the sensitivies show the organism is responsive.

45. Rabies -- This condition has been reported once in the literature. If cavies are protected from sources of this disease, they will not get it. They are also highly resistant to attempts to produce this disease by injection, etc. Since they are suckling mammals, they could, theoretically have rabies. This disease is not really one to consider when the cavy exhibits unusual behavior e.g. aggressiveness, staggering gait, running into obstacles or side of cage.

46. "Running In Place" -- Seen frequently in a dying cavy. Usually find cavy lying on its side, running in place motion of feet. Cause is lack of oxygen, for whatever reason. Usually caused by severe pneumonia, poisoning, and/or dehydration. This problem is also seen in babies, anywhere from time of birth, to a few days to a week after weaning, and is caused by inherited neurological conditions (cerebral agenesis, etc.) or acute, severe infection. Treat infection (usually pneumonia) as outlined above. The congenital problem is self limiting since the cavy does not live to reproduce. The neurological problems appear to be inherited recessively. One of a litter of four may be affected, or the entire litter may die. Subsequent litters may all be healthy, which makes me suspect a virus is also involved. Breeding the sow to a different boar is necessary. I treat dehydration with massive amounts of fluids subq.

47. Rickets -- syn. Scurvy, vitamin C deficiency, see previous text for treatment.

48 Rheumatism -- supposedly occurs in the cavy. I have found most cavies having symptoms of pain, swelling of joints, and stiffness of limbs to be suffering from Selenium deficiency and/or vitamin C deficiency. Treat as outlined above. I would not use non steroidial antinflammitory drugs, such as Motrim, Advil, Tolectin, aspirin, etc. in the cavy. They are too susceptible to ulceration of the gut and rupture of the stomach. Arthritis quite likely a sequelae of septicemia. Treat such cases with antibiotics

5.

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6. Sores in Genital Area -Probably form of "vent" disease. May appear crusty yellowish whitish matter to reddish as if bloody to lesions with or without crusting. Chloromycetin treatment of choice; 3 days on, 3 days off, 3 days on. If response to treatment poor use oral Flagyl. Give D5GD for 3 days when treatment started. Organisms probably venereal. Treat all animals in contact with affected cavy, whether or not pregnant. High incidence of abortions in untreated animals and difficulty getting these sows pregnant. Sometimes appear as whitish yellow crusting around vaginal opening of sows; no discharge but galding of skin in perineal area. Can appear as red non-raised spots especially on testicles of boars -- in area closer to perineum or skin under penis shaft. If response to chloro is poor, switch to Flagyl. Also see Bladder Infections.

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8. Ring Worm, is evidenced by circular bald spots in the coat. It can be effectively treated with Tinactin, 3% sulfur ointment, lime sulfer dip, etc. Griseofulvin may be used but it is a Penicillin derivative (should be used with extreme caution; I have not used this drug on cavies.) Rub sulfur ointment (or spray the Tinactin) well into the site, and also into the hair around the site once daily. Continue for three to four weeks. This is a fungus infection and very difficult to cure. Severe infections need oral medication (Griseofulvin) available from your vet. Duration of treatment with oral medication will be a four to six week period. Ring Worm is contagious and can be transmitted to humans, so wash with soap and water after handling infected animals. Isolate cavy. This organism grows naturally in the soil. Can get it from contaminated hay, grass, etc. or wild rodents can contaminate feed supply. Scrub cages with Chlorox water (one tablespoon to one gallon of water). Can try using a ballpoint pen to draw ring around site of ring worm (in nonaffected area of skin). Ring worm supposedly will not grow past this line. Wash c betadine & use topical Tinactin etc rather than oral med.

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9. Wasting Disease Cavy becomes thin, will not or can not eat. Frequently drools and chin wet from fluids. Until proven otherwise, cavy has overgrown molars (back teeth). Take to vet. Anesthetize with AAK and remove overgrown tooth ????. Support cavy with fluids by injection -- D5RL perferred. Give liquids by mouth esp Guinea Pig tonic (see below) Treat c Levamisole

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10. Broken Leg Frequent happening when transporting cavies in wire bottom cages. Cavy will catch hock in wire and either fracture leg cleanly (simple fracture) or twist to get free compound or open fracture -- broken shin with bone protruding -- can feel bits of broken bone in thigh. Anesthetize with AAK. Clean area well with betadine, and rinse, apply Panalog, pad area of broken shin well. Apply plaster of paris cast; do not use new plastics or splints alone. Cavies are hard on splints and plastics do not hold. Simple fracture could be pinned by vet, but cost is prohibitive. If leg is hanging by thread, forget casting, amputate. Remove all bone splinters from thigh, put Panalog on area, and close with one silk 3/0 suture. Keep cavy on towels, no shavings or newspapers. Check cast or stump daily. Give D5GD in neck for three days. Swelling can occur under cast. check toes to insure adaquate circulation. Apply pressure to nails. They should go from pink to white. When pressure is released, nail should return to pink. If they do not, of if foot appears blue, cast should be removed and reapplied. For pain give

Died about 3 yrs ago - greatly missed by me.

I have started working with Dr. Larry Jones at Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University. All cavies that die are posted, results noted, bodies or specific tissues preserved in formaldehyde (1 part to 10 parts water with dash of baking soda added to buffer). Body or tissue is placed in solution. Skin should be removed, skull opened to preserve brain, and abdomen and chest opened to preserve internal organs. I send all stillborns and babies that die along with placentas and all other cavies that die. On senior animals size of carcass prohibits preserving entire skeleton. Generally I include any suspicious bony areas e.g. ribs, rump, rear leg, etc. along with head.

Some of you may think this is cruel. However, very little is known of the incidence of naturally occurring diseases, muscular disorders e.g. "down in hind quarters", actual cause of death in aged animals (kidney failure is reportedly the leading cause), incidence and type of cancers, heart disease, etc. I feel strongly that for the sake of the cavy, this type of information

See next page

Long term treatment of the cavy with antibiotics -- using any one drug over five consecutive days -- has always met with disaster in my experience; hence my direction of three days on and three days off routine, and use of more than one antibiotic at a time. Usually it is not accepted as good practice to treat until you have cultured the organism and then can use the proper antibiotic. However, if you wait to do this with a cavy, it will be dead by the time the organism has been identified. They are like infants, they get sick rapidly and either get better or die rapidly.

NEVER EVER use penicillin, synthetic penicillins (including Ampicillin, CeClor, Keflex) Lincomycin, Spectinomycin, Carbenicillin or Erythromycin, Neomycin on the cavy. Different strains of cavies react variously to certain drugs. Those safe in one cavy may cause problems in lines I suspect are immune defficient. I have seen acute fatal anaphylactic shock in cavies and hamsters given Procaine Penicillin and/or combiotic and Aqueous Penicillin. I have heard cavies have been treated with Penicillin and given yogert at the same time and survived. I have thought about trying it while using D5GD, Tetracycline or Chloromycetin Palmitate at the same time, but I have never had the guts to do it. Lincomycin causes lysis (dessolving) of the gut. The use of these listed drugs are just not worth the risk involved. The only exception would be a cavy dying anyhow, and on this cavy maybe try one injection of Penicillin while having adrenalin at the ready. The reactions I refer to as <u>acute anaphylaxsis</u> were characterized by lack of respiration, convultions and death, sometimes before the needle could be removed when injecting the Penicillin. I used <u>Ceclor</u> once. Every cavy treated with one dose was dead within 12 hours.

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If any of you would like to help in this research, let me know. Most Universities have similar programs such as mentioned above. I am sure the University of California at Davis, being a veterinary school, would have a similar service. Perhaps those of you in various regions of the country, who are interested, could start a similar project at a local University. Poor Dr. Jones I am sure could not handle a deluge of bodies, but several labs, working toward the same goal, could. And in the end, "None shall die that can be

saved". That is my goal.

I am particularly interested in ESE deficiency ("white muscle wasting disease"), abortions and infertility in sows, immune deficient cavies, possibly inherited disorders such as cataracts, obvious deformities in newborns and many suspected but unprovable defects in dead babies, naturally occuring bacterial infections type, incidence - strep vs staph vs bortedella, etc., and higher than average incidence of cancer (proven and unproven) in the cavy. The only way to get the answers is to have the animal ~~autopsied~~ necropsied.

I encourage all of you to think about it, but better yet, participate. The wider the geographical section covered, the more revealing the results.

It is worth the time and effort and money to me. Is it to you? Write or call me if you are interested:

Sally M. Winkler

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THAT NONE SHALL DIE

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2no Straight Sw

Ed. Note: This material ~~is~~ copyrighted and originally appeared in Cavy Commentary in the Ontario Cavy Club's Newsletter in the Spring of 1982. Sally has updated the material for our September 1989 GSCBA Newsletter.

With this article I will begin a series dedicated to those who have shown me the way: Webbing's Traveler, JMPC's Sparkler, Hildebrandt's Canadian Mist, BB's Kiss, Wilkin's Soliloquay and numerous Winkler's Whistlers cavies, who had a need and an owner without enough knowledge to fulfill it. I'm hoping the information I've learned from various veterinarians and the school of hard knocks will enable those of you interested in the health care of your cavies to provide the help needed so **THAT NONE SHALL DIE.** No guaranties of curability are implied by this article and it is not meant to substitute for proper veterinary care of your cavy.

With Article 1, I will cover **PREGNANCY PROBLEMS, TOXEMIA, TOXICITY, How to do a CESAREAN SECTION and CARE OF THE SOW AND BABIES.**

In order to do a Cesarean Section (CS) one needs the equipment, medications, knowledge of anatomy and technical procedure; and most of all, the intestinal fortitude and a benevolent God. This is not a simple procedure! You must be willing to finish what you start and take the risks inherent. This article is meant for those who live an unreasonable distance from veterinary care. From the time you realize your sow needs a section until you actually start cannot be more than 30 minutes!

Those of you who cannot stand the sight of blood or the inflicting of pain should stop right here. I strongly advise the majority of you having a sow needing a Cesarean Section to take her to your vet, along with a copy of this article. (Not bragging--just stating fact.) Most veterinarians know little about caring for cavies and are willing to admit the same. However, I have learned through experience what can and cannot be done. A pregnant sow does not tolerate general anesthesia; however, there is a new inhalant anesthesia (Isoflurane) that does work. Many vets are changing to it. *Do not give any form of penicillin or synthetic penicillin eg. Amoxicillin, Ceclor, Lincocin, Keflex, Carbenicillin, Vancomycin, Erythromycin or Spectinomycin.*

I will explain how to tell if your cavy needs a CS, and what you need and how to do it.

First of all, a pregnant sow never has trouble during office hours. It's always late at night, weekends, holidays or when your vet is at a convention!

My background for writing this article encompasses 15 years of learning and includes seven cavies sectioned by vets

that died (and no live young); many cavies sectioned by myself (two twice) 80% of which lived, some of which had hysterectomies, some that did not and subsequently were bred again, many that yielded live young that survived and were rebred without difficulty. Dystocia (difficult labor) appears to be an inherited tendency.

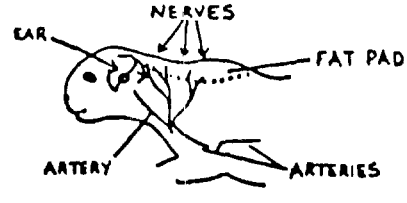
WHEN IS A CS NECESSARY?

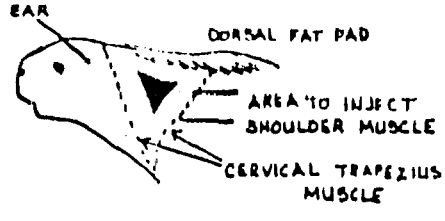
There's no easy answer to this but the following guidelines should help. Let me stress it is essential that you know your animal. Only in this way can you tell if her behavior is abnormal. If you find her sitting in the cage with a baby part way out it's obvious she's in trouble. Furthermore, if a normally active sow that's near term is lying prone in the cage or sitting hunched up facing a corner with hair ruffled and obviously not feeling well, you know you have to do something.

The first thing you do is put the sow on a towel under which is a heating pad set on low. Then give OxyCal 1 cc every 30 minutes until the sow has delivered all young and placentas. (OxyCal is a mixture of 1 cc Calcium Gluconate, 8 cc D5RL, (or NS or other IV fluid), and 1 cc veterinary oxytocin (20 units/cc). If using oxytocin for people which has only 10 units/cc you will have to use 2cc Pitocin and only 7 cc of IV fluid so the total is 10 cc.) You will be injecting 1 cc of this mixture in the crown. Do not use the legs for injections.

DIAGRAM # 1

Use the crown for injections.



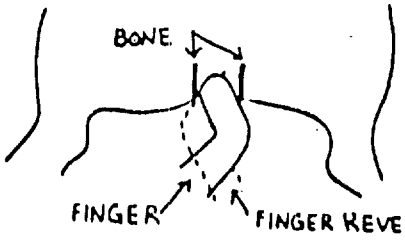


Underlying the cervical trapezius muscle are nerves.

She should start having obvious contractions in 10 to 20 minutes. Check her to see if the bones are completely separated (see diagram #2). When she starts pushing, hold your hands along her sides toward her hips (thumbs on spine) and apply gentle even pressure WHEN SHE CONTRACTS. DO NOT PUSH when she isn't. Sometimes this extra bit of help is all that she requires. If 30 minutes has gone by, give a second injection (assuming she's fully dilated) and wait. When she starts pushing, help her as outlined. If you've gone this far and it's obvious the sow is getting weaker, is not having effective contractions or seems to be in danger of dying, it's time to check her out more thoroughly. Using a glove, with K-Y jelly (preferable) or

vaseline on your index finger, gently insert it into the vaginal

DIAGRAM # 2



Area to apply pressure to force separation of the bones for delivery.

canal. If she is fully separated there should be a space between the bones at least 3/4" to 1" wide and the area should feel "loose". If it doesn't, raise your finger to apply negative pressure to the bones on opposing sides right to left or left to right (see diagram #2). If further separation can occur it will with this maneuver. Quite often this pressure will allow a wide headed baby (or abnormal presentation) to be born and you can forget doing a CS. The sow will not be too keen on this maneuver--hold her firmly around the shoulders with the other hand or you'll likely be bitten for your effort! Sometimes you'll get a small amount of bright bleeding but don't worry about this.

If you feel a constricted ring above your finger when exploring, leave it alone. This is the cervix (mouth of the uterus). You cannot force the cervix open safely. The pressure of the baby coming through will dilate it adequately for delivery. Manually trying to open it is risky and can cause rupturing of the uterus. ECP ("Estradiol" Estrogen Ciprionate Propionate: available from your vet) can be used to dilate the cervix. Do not give ECP without first priming the uterus with Oxy. Only use ECP if the constricting ring is present. Most sows never need it. If they do, give 0.2 cc and repeat in 30 minutes if necessary.

This exploration will allow you to tell if a head is down already or if the babies are still high, or if the presentation is abnormal. The usual causes of difficult labor, in my experience, are abnormal presentations, (especially when breech, an overly wide head, or ears first, shoulders first), too young sows, and toxemia. If the baby is presenting normally you should be able to feel teeth toward the back when moving your finger around.

TOXICITY

There is a big difference between toxemia and toxicity! Toxicity CAN be caused by sudden changes in diet, heat, humidity levels, lack of water and fresh greens, BUT 90% of the time is due to abnormal lies (the baby is positioned wrong), lack of calcium, ESE, vitamin K and glucose. It is heartbreaking to see a sow that has been in labor for 24 hours and is so far gone nothing will save her. Proper intervention will save most sows having toxicity problems.

True toxemia is the same as pre-eclampsia in women. The sow has positive ketones in the urine, decreased blood sugar levels and positive protein in the urine. These sows have too little glucose and are metabolizing fat. Many breeders have the mistaken idea that supplements such as calf manna and sweet feed should not be given to pregnant sows. This is not true. Sows need readily available sugars when they're near term. They have very little room for food when hugely pregnant. Calf manna provides the necessary protein and extra vitamins, especially E and selenium (one of the few products on the market that contain selenium!) for transfer to the offspring.

The pressure of young on the upper abdomen frequently causes blockage in the liver area with decreased vitamin K production. These sows bleed excessively and need supplemental vitamin K. A sow passing more than 1 tablespoon of blood during delivery has bled excessively.

All suckling young are born selenium deficient. Frequently litters will be delivered prematurely and the babies appear bloody--hemorrhaging under the skin. This is a prime sign of selenium deficiency. Sows should be given selenium supplements about 1/2 way through the pregnancy and the week before and the day of delivery. Make a mixture of 10 mg Selenium, 50 IU vitamin E, 100 mg vitamin C, 10cc propylene glycol and 20cc water. SHAKE WELL before use, Give 3-5 drops once a day for 3 days.

Prevention of selenium deficiency is easier than treating. Feed a bran mash to your cavies 2 times a week. Mix 2 cups bran with 2 tablespoons wheat germ flakes, add powdered vitamins, vitamin C, etc and mix with warm water till moist but not wet. Feed 1 teaspoon per cavy (roughly). They may eat it reluctantly the first time but they'll clean it up rapidly every time thereafter. They know what they need.

Let me state now that TOXEMIA is 100% fatal to the sows and babies. Prevention is the key to this. I feel the tendency is inherited. A toxic sow is a very sick animal. Usually she hasn't the strength to deliver normally and by the time you realize what is wrong she's gone for an extended period of time not eating or drinking. If she, in your mind is worth the risk, set up immediately to do a CS. Don't waste time giving Pit, waiting, etc. I personally would rather save an adult sow than chance an unborn litter. The babies may or may not make it and either way you're looking at 3 months for the sows and 5 to 6 months for the boars before you can breed with them. A sectioned sow can be rebred in 1 to 2 months depending on her course of recovery.

Toxic sows are usually found lying in the cage, sides flabby, depressed, cold to touch and if far advanced, having muscular twitching, preparatory to going into convulsions. Immediately inject 30 to 50cc D5RL in the neck and set up for a Cesarean Section (you're not sure if it's mechanical or metabolic at this stage so you try). These sows frequently are "crying", a low constant moaning sound and grinding their teeth.

The use of Lasix should be considered. These sows are usually hypertensive and have retained fluid. Mix 0.2cc Lasix in

2cc Normal Saline or Ringer's Lactate. Give 0.2cc in the neck.

Give a "cocktail" to toxic sows that are depressed, twitching, semi- or frankly comatose. Use 18 cc Ringers Lactate, 1 cc calphosan, 1 cc CalDex MP, 0.2cc Regular Insulin (80 units diluted 0.2 cc in 3 cc normal saline--give 0.2 cc of this dilution, don't give straight Insulin). These sows require much post operative intensive care and repeated injections of fluids sub-q or intra-peritoneally until they're reversed or obviously dying. If they have not reversed and made an attempt to eat or drink at the end of 24 hours or continue with moaning and tooth grinding they should be euthanized. Simply give 0.2 to 0.4cc Ketaset. They'll peacefully go to sleep and not wake up. Most people don't realize toxemia can develop anywhere from mid-term (around 32 days) to as long as 4 weeks after delivery. These sows always have pneumonia if they reverse and must be treated for this.

Keeping records is vitally necessary if you anticipate trouble with a sow. At the minimum you need the date the boar and sow are placed together. Preferably witnessing the breeding to be certain of the date and certainly not rushing into a CS because a sow "may" be overdue. Unless the sow is having obvious problems leave her alone. Watch her and when fully dilated induce her. She'll let you know when all is not right. If she doesn't eat or drink, refuses "treats", sits hunched up in a corner, is losing hair, looks dull in the eye, has a cold or pneumonia, is lying prone in the cage, feels "flabby" to the touch, seems to feel too cool or warm, or has lost condition (very bony feeling over the hips), then induce her. These symptoms I lump into one term: "futzy". Another sure sign of trouble is a sow lying in the cage rolling from side to side or stretching one leg then the other. These sows are victims of either malpositioning and/or detached placenta. If she is shivering along the sides (repeated fine muscular tremors) it's a detached placenta. These babies are born bloodless. The feet and mucus membranes are pale from lack of blood. They may or may not make a few weak gasping attempts at breathing. There is nothing you can do for these babies. They will all die.

Absolute indications for interrupting pregnancy include: (1) Pneumonia, (2) refusal to eat or drink over a 12-24 hour period. Refusal to eat treats, (3) obvious loss of condition, (4) any sow that has been actively laboring for over 30 minutes, whether she is dilated or not, (5) toxemia and (6) demodectic mange.

INDUCING LABOR WITH PITOCIN

After giving the Pit (you can use either OxyCal mixture or 0.2cc of veterinary Pitocin or 0.4cc Pitocin for people), a normal delivery proceeds as follows. The sow may take a breath, sneeze a lot, produce many pellets (stools), empty her bladder to make room for the babies head (this is a normal part of labor). When the Pit "hits" the sow will try to get away, hide etc. Watch or she'll go off the table or surface she's on. She may also thank you at this time by biting you. Watch your fingers! Hold her as previously outlined. The sack will present as a

clear "bubble" of fluid. Break this with your finger tips (can use tissue since its often slippery and difficult to grasp). A normal baby will be active while being born and will be breathing. You must get the sack off or it will aspirate fluid and get pneumonia and/or drown. Once the head is out, the greatest danger is past. Yellowish fluid in the sack signals babies in uterine distress. Blackish fluid is from dead babies.

Occasionally a baby will get "hung up". The sow contracts and it exerts pressure around the neck. This usually happens in babies with wide shoulders or rotated body position. Put your finger inside the vagina and run it around gently; sometimes this is enough to get her pushing again and to get over the pressure problem. If this doesn't work, do an episiotomy. Cut the vaginal wall on either side of the head/shoulders. Insert

DIAGRAM # 3

Episiotomy.

fingers between the baby and scissors. Suture these incisions and apply Panalog daily till healed. Use 3-0 Chromic, you will not have to remove the sutures.

Once the baby is out don't detach it from the cord as blood is still pumping into the baby. The mother normally starts cleaning from the face to the rear and cuts the cord last. She uses a stripping motion to do this. If the sow is weak and disinterested (a common occurrence in one having difficulties) you can "milk" the cord by stripping it from the mother toward the baby for 2-3 minutes. After this it's safe to detach the baby. I use fingers vs. scissors since the tear is more natural than a clean cut and less bleeding occurs. Take the baby and gently but firmly rub it dry with a paper towel etc. Wrap it up in a towel to keep it warm and go back to helping the mother. She should be able to deliver all the babies in 30-40 minutes and not require more than 3 injections of Pit if all is going well. However, I have had to use up to 8 injections in a sow to effect delivery.

Even a " futzy" sow will frequently snap out of it after the 2nd or 3rd baby--start taking an interest in them, cleaning them up, talking to them, etc. I'm convinced that sows count. They hunt for the ones that have been born and some go frantic trying to find them. Give such a sow a baby back but take it away when she delivers the next one or she's likely to clean the older one and ignore the newborn. If a sow has a long wait between babies, give her one back. Sometimes the pushing, rooting action of a baby under her will trigger more labor. The sow does not have to eat the placentas if she's had Pit. It's probably better if she does, but don't worry if she doesn't. Sometimes a weak sow will choke on the sack or cord while eating the placenta so be prepared to pull it away from her. Strip the sack off and just give her the placenta instead. If she chokes use a hemostat to remove the placenta from the back of the throat.

The absolute worst complications are ears or neck first.

These babies are born dead, usually, due to the pressure on the spine and vessels of the neck. The most you can do is wait till a presenting part can be seen then grasp it and pull. You may have to use an instrument such as a hemostat (clamp) to get a good enough hold. Use firm gentle pressure to pull WHEN the sow is contracting. If her contractions are weak then use constant gentle pressure to help get it out. If the baby has been dead awhile you may literally get it out in bits and pieces. This isn't for the faint-hearted. You may also have to do an episiotomy if the baby is really large.

Never try a "high forcep" delivery (ie putting a hemostat, etc. up into the canal) to grasp a presenting part. Chances are you'll tear the vaginal wall or rupture the uterus. If she can't get it low enough to see or to where you can feel it, just inside the opening, you'll have to do a Cesarean Section.

Often, once you get the "problem child" delivered, the sow can proceed and deliver the rest normally. Sometimes due to exhaustion from length of labor, the sow will just quit. Pit produces no contractions--she is tired! Put her back in her cage and wait 1-2 hours then try the Pit again. If the sow is active, eating and drinking, do nothing. Some sows have delivered live young 12-24 hours after the others were born. However, if there's s no response, give Dexamethasone 0.25cc and let nature take its course. The babies are probably dead by this time and/or will be by the time they are delivered. (Dexamethasone will kill the babies.) At this point you're simply working to save the sow. Sometimes you may need to repeat the Dexamethasone (after 1 hour).

Always check sows that have delivered for retained placentas. Theoretically they do not retain placentas. I know for a fact that they do. If you don't get the placentas out the sow will get toxic and die. She will also fail to produce milk. Hold her on your lap and gently, with thumb and forefinger, palpate her sides. A placenta will feel like a grape sized-lump. If this palpation doesn't cause her to pass it, give her 0.2cc Pit. She eventually will produce it and all will be well. Retained placentas and detached placentas are frequently caused by selenium deficiency.

Anytime you have to manually interfere with a sow (ie probe the canal) treat her to prevent infection. Treat any sow that has babies born dead as it's frequently an infection that caused the babies death; dead babies cause a reaction and infection will follow that may get out of hand if not treated. This is especially true if the babies were dead over 24 hours. These are born blind, white over the eyes, may or may not smell bad and may even be decomposing. Lack of treating sows such as these contributes, I think, to unexplained sterility at a later date and/or sudden death of the sow due to milk fever where the teats get reddish and/or bluish and there is swelling, hardness, purulent discharge and sometime even open draining wounds. Prevention is much better than trying to cure it. Use D5GD (mixture of Gentamycin 80 mg, Dexamethasone 12 mg per 100 cc D5LR) give 1 cc of mixture in the neck every day for 3 days.

You might want to try and revive or stimulate a baby having difficulty breathing. Get a rubber bulb syringe or the plastic cover from a 3cc syringe with a hole in the end, and suction fluid from the nose and mouth, if present. If this doesn't work, grasp the hind legs with one hand, put your fingers around the shoulders and swing the baby down and back a few times. If there's fluid in the respiratory tract this may help get rid of it. Then use the bulb syringe again. Ever notice how newborns sneeze and cough? This is a natural reflex to clear the fluid out. Weak babies are not able to do this. If the respiratory efforts remain weak and/or irregular, try pushing gently on the chest (midline) to artificially respirate the baby but first give Dopram 0.2cc of a mixture of 1 cc per 9 cc D5RL or NS. If no improvement is noted soon, put the baby to one side. It will die and all the drugs in the world won't save it. Babies that are born not breathing or only gasp a few times will not make it. Don't waste a lot of time and drugs on them. Since it's impossible to insert a tube in the airway (trachea) to ventilate them, they won't get oxygen. No drugs I've tried have ever worked on these babies. Babies born not breathing and with a white film over their eyes are dead. They have been for 12-24 hours or more in the uterus. I've had sows deliver that 12 hours before had live young but they were born dead and these babies didn't have this white film so the white coating doesn't reflect the length of time the babies have been dead.

Babies born of mother having difficulty delivering are often distressed. Signs of uterine distress are meconium staining: fluid in the sack is yellowish or greenish with cheesy material on the sack or baby. Not infrequently these babies inhale fluid before delivery and even though they may appear healthy, they die within a few days of birth from pneumonia. Treat a mother that delivers such babies and give 0.2cc D5GD in the neck of each baby in the litter for 3 days.

Some babies just aren't right at birth, the belly area doesn't appear full even though they seem to be normal in general appearance. They have a flabby appearance like part of the intestines were missing. These babies die. I've tried posting several of them and all the parts were there. It's strange. Some newborns never nurse properly--others choke when feeding etc. Forget them. I no longer get upset over failures such as these. Nature takes its course and the strong survive. If you're saving something only to propagate a weakness--why bother? Raising cavies is supposed to be fun. Propagating a bunch of congenital problems is not going to increase enjoyment of our delightful pets. Some of the "heart attack" cases in show animals leads me to believe they had some inherent heart disease that was precipitated by stress.

Which gets me back to **WHY DO A CESAREAN SECTION** since these animals would die in nature? I believe our handling of the cavy in captivity has brought on these problems. Usually the sows that have difficulty are those that are overly fat, too old, too young, or from a line that tends to produce very large young.

Size of the babies is determined by the sow, sex by the boar (though I'm beginning to wonder about this). I've had sows bred to Boar A produce huge babies but when bred to Boar B produced small almost premature appearing young and not especially more of them--eg. each litter contained 4 young. Why would the sow have such a size disparity if she is the one determining size? Same sows rebred to boar A again produced huge babies! I feel breeding for short heads causes problems in some sows. They just can't dilate wide enough to accommodate the head. These sows not infrequently will die when rebred and it's probably from trauma sustained with the previous pregnancy. The tendency to toxemia and dystocia is inherited. Keeping a sow "show" fat then breeding her is a sure way to sign her death warrant. Put such animals in runs with an active boar. He'll get her trim and fit in short order and she'll be able to deliver usually with no trouble. As a general rule don't breed older show sows nor young sows (under 26 oz.). If a sow doesn't readily breed with one boar, put her with any boar to get her bred. Don't wait 4-6 months then change boars: it may be too late. The term "barefoot and pregnant" readily applies to the cavy! Sows produce better and have healthier litters when post-partum bred for 2 or 3 litters. After 2-3 litters rest her for a month, maybe 2, then rebreed. Old dominant sows are terrors on young boars, especially in a 1:1 situation. Put them in breeding groups with a dominant boar and always post-partum breed these sows. I have several sows 3-4 years of age bred the post-partum way described that are still active, produce healthy litters and have no difficulties. Also post-partum breed any sow that tends to have only 1 to 2 very large babies.

A word about older sows virginity. It has been generally accepted that if a sow isn't bred by 8 months to 1 year she won't split properly and be able to deliver. 'Tis not necessarily true. I know of several instances where older sows were bred (over 1 year and some over 2 years) for the first time and actually delivered with no difficulty. If in fact the bones fuse thru disuse the only conclusion to be reached is that the sow had a litter when younger or "aborted" sometime during her "youth". If you have an older animal you're not sure of and you really desire a breeding from her take her to the vet and have an x-ray done. If the bones are fused this will show up on the x-ray. For reference the x-ray can be compared to the one on page 61, Figure 2-74 of a mature, never bred, female cavy in ANATOMY OF THE GUINEA PIG, Gale Cooper, MD, Alan L. Schiller MD, published by Harvard University Press, Cambridge, Mass. 1975, a commonwealth fund book. This is an invaluable work on the cavy though quite technical and expensive. If you have $48.00, a medical dictionary and a curious mind, by all means get a copy. The line drawings are exquisite. Also, sows that have had a litter have non-virgin nipples - they're larger & have dark tip in center of nipple.

Now for the actual CESAREAN: you will need the following supplies, ready to go before starting with the anesthetic.

DRUGS: Note: These are all prescription drugs.

1. **Ketaset** (Ketamine) injectable anesthesia solution: give

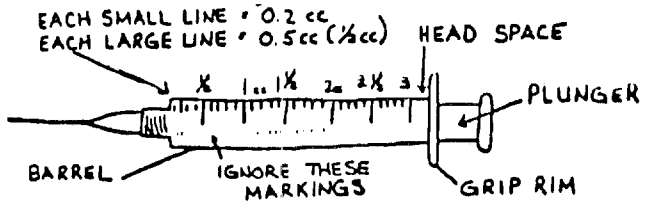
0.15cc per pound of body weight. 0.2-0.35 is usually right for most sows although I have had to use as much as 0.6 to 1.0 cc at 15-30 minute intervals. 10.

2. **Acepromazine** (tranquilizer) 1 cc to which **Atropine** 1cc (1/150 grain/cc) has been added per bottle of 30cc of Normal Saline. Use 0.15cc per pound of weight. Do not give until babies have been delivered and cords clamped and/or detached.
3. **Dopram** (a respiratory stimulant): 1cc to 30cc NS. Inject 0.5 to 0.1 cc in the neck of a baby having difficulty breathing. Can repeat every 5 minutes until regular respiratory rhythm established.
4. **Sterile IV solution**, D5 in Ringers Lactate (D5RL). You can get this from your vet.
5. Using **G5GD** solution: Use D5RL 20-30 cc syringe use for flushing abdominal cavity and keeping intestines moist. This will be used to replace fluids lost and to prevent infection of the abdominal cavity (peritoneum) after the CS is done. Use 10-20 cc D5RL and 1 cc D5GD as described later.
6. **Atropine** 1cc in syringe from a solution of 1/150 grain/cc in 20 cc Normal Saline.
7. Vitamin K (aquamephyton): 20 mg diluted in 100 cc NS or D5RL

Use larger needles to draw up the solutions if desired (esp. the 20cc syringe) but inject all with a 25 gauge 1/2 " needle. You'll have better control and less chance of hitting bone or severely damaging nerves. Check the diagrams shown previously and note where to give the injections before starting. Use the crown. The chances of getting fatty necrosis and sterile abscesses when injecting **oxytocin** (Pit) and other drugs in the crown are lesser risk than hitting nerves and temporary loss of leg use when using outer aspect of thigh. If you hit the nerve in the leg the sow will chew off her toes.

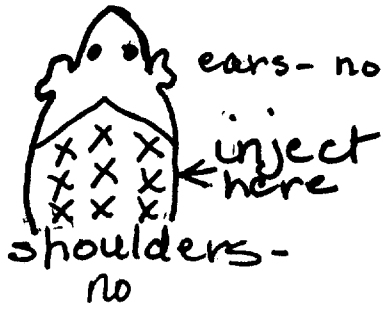
DIAGRAM # 4

Syringe.



Obtain a supply of **3 cc syringes with 25 gauge needles** attached. Practice drawing up the proper amounts and injecting into a dummy (you can use an orange, wad of cotton wrapped in adhesive tape, etc.). Then try injecting a pig with sterile saline solution before you have to actually work on your patient. Old boars are good subjects. Using a cotton swab soaked with alcohol, scrub the site for injection and insert the needle at a 45 to 90 degree angle. Push up on the skin on either side of the neck and inject into the mass to prevent hitting the spine. (Multiple injections can be given, varying the sites.)

DIAGRAM # 5



Varying the injection sites in the crown

Pull back on the plunger and if blood comes into the syringe, withdraw the needle and reinsert it at a different site. If no blood appears, inject the fluid by pushing in the plunger. Withdraw the needle and hold your thumb over the site for a few seconds to make sure the fluid doesn't leak back out. 3-5 seconds is adequate. If you get blood back in the syringe use it only on that cavy then discard! Once you've mastered the dosage markings on a syringe it's easier to fill the syringe and just inject the amount required by looking at the lines while injecting. This way if you need another dose you won't have to stop, draw it up, etc. Change needles between animals. The solution remains sterile enough for use at a later date if you keep a sterile, unused needle on the end after you've finished giving the injection. YOU MUST DO YOUR HOMEWORK and be assured in your own mind on how to give injections and how to make the incisions before actually starting on a sow in trouble! Working on a sow in trouble is NOT the time to learn.

Now you need to learn about sterile technique. Sterile of course in this sense refers to absence of disease producing organisms--or germs. Syringes and needles are packaged in a sterile fashion by autoclaving or gas sterilization. Same goes for bottles of IV (intravenous) solutions, small bottles of saline for diluting etc. In order to keep them sterile, never touch the needle with your fingers, cough or sneeze on it etc., and always put the protective cover back on after drawing up the solution. When withdrawing the solutions, clean the top (rubber stopper area of the vial) with an alcohol sponge. Pull back on the plunger and inject an equal amount of air into the vial as the amount solution to be withdrawn (eg 3cc, 20cc etc). Then draw up the amount of solution that you need.

Ideally for a CS you would be gowned in a sterile gown, have a face mask on and be wearing sterile gloves. You should drape the area to be cut with sterile towels etc. You should boil water and place the scissors, hemostats, needle holder, etc. in this so that most of the germs are destroyed. The scalpel blade will be sterile--attach it to the handle so that your fingers don't touch and contaminate it, then slide it back inside the sterile covering. You can obtain cold sterilizing solutions from your vet to keep on hand and put cleaned instruments into same. Rinse with water before use.

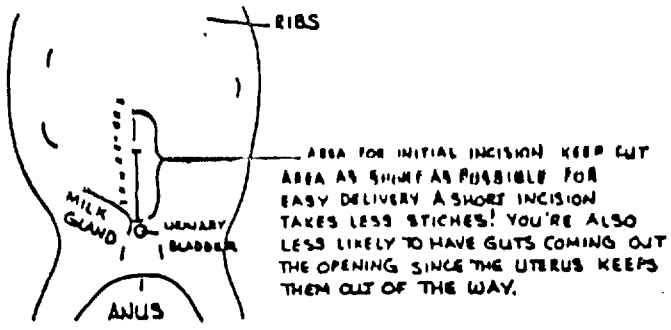
To do a CS you will need the following:

1. 4-5 hemostats (clamps), forceps which can be obtained from a medical supply firm. Kelly straight or curved, 4-5 inch are ideal.
2. Scalpel handle and sterile blades: size 10.

3. One or 2 pair sharp pointed surgical scissors: 1 blunt edged, one sharp edged.
4. Single edged razor blades can be used instead of scalpel blades but requires good hand control or you'll cut too deep.
5. Heating pad on low with clean towel (doubled) on top of it.
6. Vaseline or antibiotic eye ointment.
7. Paper towels or kleenex, old wash cloths, towels, diapers, etc.
8. Sterile 4x4's or 3x3's gauze squares.
9. Suture with attached cutting edge needles if possible. You can use a regular sharp small diameter needle if you can't get suture needles. Don't use sizes heavier than 3-0. 5-0 to 3-0 black silk is ideal for closing the skin. Use only 3-0 chromic on atraumatic needles internally.
10. **Panalog** or triple antibiotic ointment.
11. Alcohol sponges. You can get the type individually packaged or make your own by pouring alcohol 70% on cotton balls.
12. Rubber ear bulb syringe, or plastic syringe cover straw etc. for aspirating baby.
13. Clipper set, razor blade etc. for shaving the belly.
14. Skin disinfectant: **Betadine** very dilute.
15. High intensity lamp: tensor type.

If you have a helper so much the better. This person can help hold the sow and care for the babies after delivery. Have a comfortable work area set up. It can be a card table, kitchen table etc. Put the heating pad on this area and turn on low. cover this with a folded towel or any thick absorbent material that is lint free and clean. Have lamp on and directed at the operative area.

DIAGRAM # 6



VISUALIZE LOWER 1/3 OF ABDOMEN, ABOUT MIDLINE. USE SCAPEL TO CUT THRU SKIN AND FIRST LAYER. USE SHARP SCISSORS THRU NEXT LAYERS AND INTO PERITONEUM INTO ABDOMINAL CAVITY IF YOU ARE LUCKY YOU WON'T GET A LARGE AMOUNT OF GUTS SPEWING FORTH. HAVE STERILE 4 x 4's TO COVER INTESTINES AS NECESSARY. YOU SHOULD HAVE VERY LITTLE BLEEDING. IF BLOOD KEEPS RUNNING IN STEADY STREAM - FIND THE VESSEL WITH HEMOSTATS - TIE IT OFF WITH SUTURE BELOW THE BLEEDING AREA.

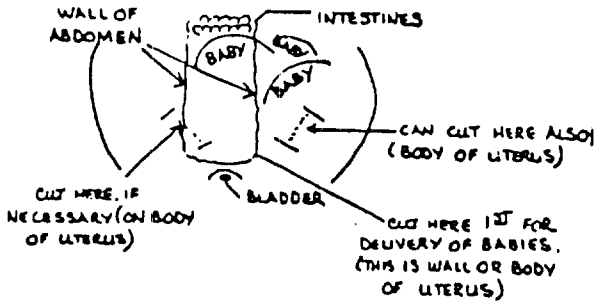
Shave the hair off as well as possible especially in the strip where you will be cutting. (see diagram #5). A sharp pair of scissors will remove a lot of hair if placed parallel to skin and used like shears. Try not to cut the skin! Don't fool

around trying to get the shave job perfect. Give Ketaset just before starting the prep. If you have an assistant have him/her hold the sow under the forearms, belly up and cleanse the belly area especially that of the lower abdomen. Wash the area again with antiseptic to get the loose hair off. Rinse the area with "sterile" water (boiled 20 minutes and then cooled) or sterile IV solution. Do this over a basin so you don't get your operative area wet and contaminated. Don't use globs of Betadine, as just a little will work well. Better yet make a solution of the concentrate and use this. You want most of the "soap" off and this is difficult to do and time consuming if you use it concentrated. You don't have time. Rinse with alcohol then with sterile water again. Take a clean or sterile 4x4 gauze and dry the belly AROUND where the incision will be made but not where you are going to cut. Place ointment or vaseline in each eye. Place the sow on the heating pad on her back. If she struggles and you are alone, use strips of adhesive tape on her legs and tape them to the table. This is critical. You can't have her turning over etc. while you are cutting. Your assistant can hold her down by the front legs, or use tape to secure the front legs.

Take your scalpel or single edge razor blade and make a steady stroke along the belly in lower midline (see diagram #5). You don't want too little pressure or you won't cut the skin. Too much and you'll go deep. It's a matter of "feel" (try cutting an orange skin about 1/8 inch deep). If done properly this cut went through the skin and into the first layer. Put aside your scalpel and use the sharp scissors (blunt side down) to carefully cut the muscle through into the abdominal cavity. Usually the swollen uterus will push up into the opening. If intestines protrude, wet a 4x4 gauze and have your assistant hold them up and back or stuff them carefully back into the hole with your finger. DO NOT PUNCTURE THE INTESTINES as they are impossible to repair. If it happens, swallow hard and start getting the babies out anyway, as you will lose the sow. The gut on a cavy is so thin I haven't found a suture or needle fine enough to repair it without leaks. (It would require micro-surgery.)

If the uterus is contracting this helps in getting the babies out. If the sow is still responsive to Pit, give her 0.15cc before starting the scrubbing shaving operation. This will start contractions about the time you are opening her up. The uterus will bulge toward the opening if all goes well. To help with the muscle cutting (going into the peritoneum) use a hemostat to grasp the muscle and pull upward. It is less likely you'll hit anything vital by doing this than by getting carried away with the scissors. As you are cutting you'll feel a "pop" when the scissors go through the peritoneal wall. You how have the sow opened up and the bluish-red uterus should be bulging toward the opening. With the scissors make a cut in the uterine wall about 2-3 inches long, keeping the scissor blade parallel to the tissue and going very shallow. The head or presenting part of the baby can be seen at this point. Gently use your thumb and index finger to pull the baby from the uterus. Immediately strip off the sacks (there are 2).

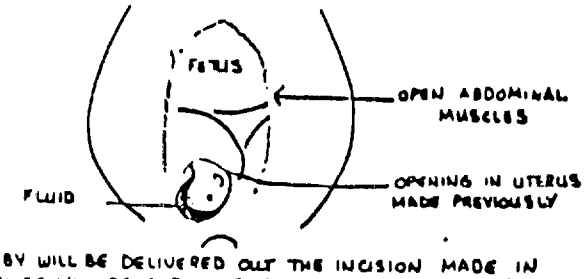
DIAGRAM # 7
Cutting the Uterus



Some sows will have 2 or 3 babies on one side and one or two large babies on the other side making another cut necessary.

DIAGRAM # 8

Removing the babies

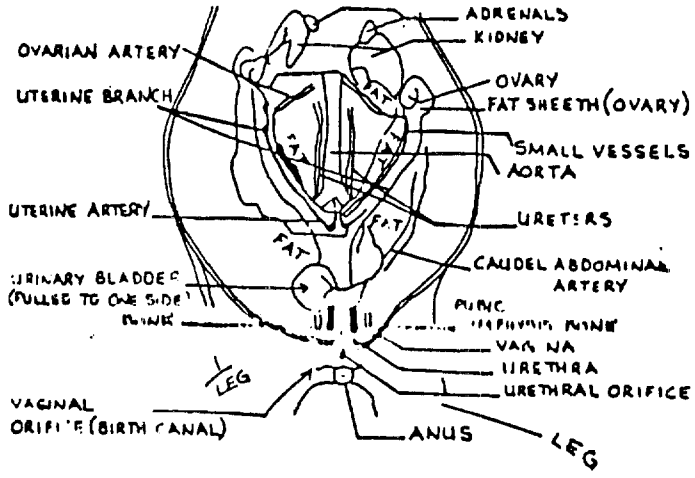


THE BABY WILL BE DELIVERED OUT THE INCISION MADE IN FIGURE 2 THERE WILL BE A DOUBLE SAC OVER THE BABY PINCH IT BETWEEN FINGERS TO BREAK SAC OR BABY WILL DROWN IN THE FLUID.

=

DIAGRAM # 9

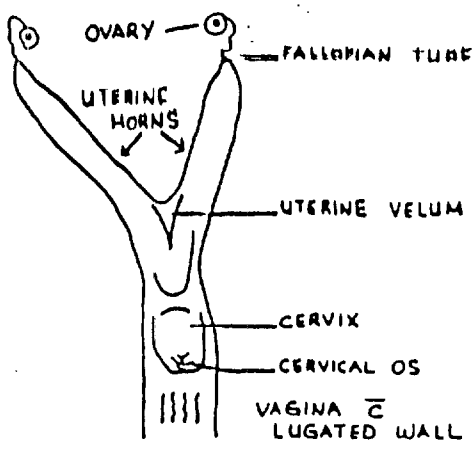
Uterus of a non-pregnant sow



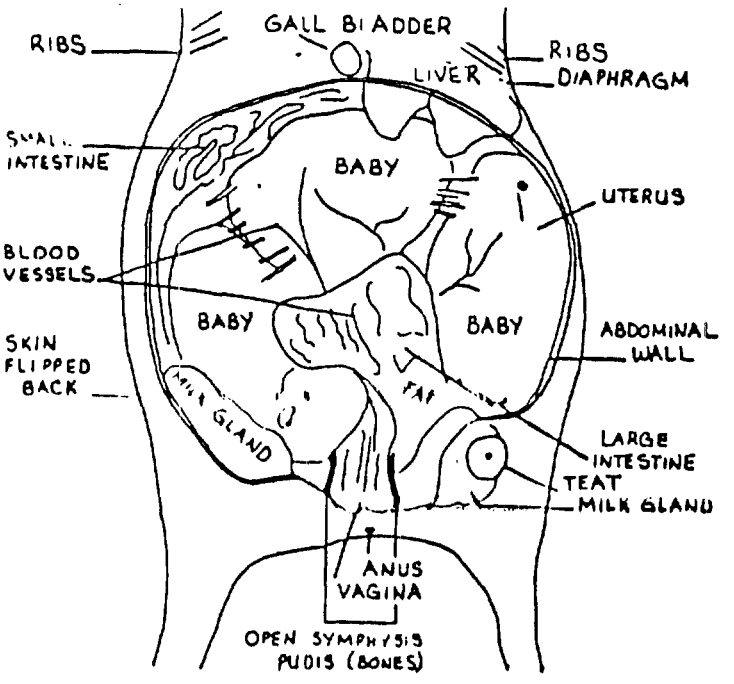
=

DIAGRAM # 10

Non-pregnant reproductive tract.



NON-PREGNANT REPRODUCTIVE TRACT



GRAVID (PREGNANT) UTERUS

DIAGRAM # 11
Uterus of a pregnant sow.

=

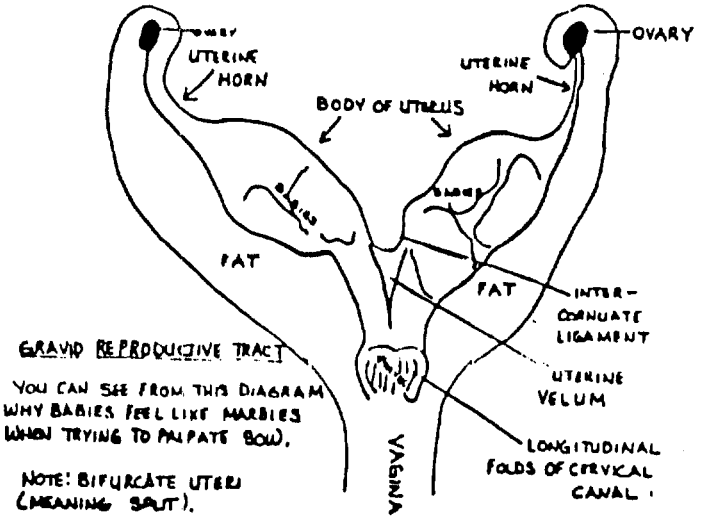


DIAGRAM # 12

Reproductive tract of pregnant sow.

Use a paper towel to blot fluid from the face of the baby and clamp the cord. If the baby shows no sign of life, give Dopram and stimulate the baby to start breathing by pinching the ear, flank, toes. Suction fluid from the nose and mouth first. Repeat Dopram every 5 minutes until respiratory pattern is regular (will be very rapid at first).

Next, go back to the uterus and get the next baby using the same technique. You may have to make an incision in the other wall of the uterus (remember it's two sided) to deliver the babies on that side. If it's easier for you, gently pull the whole uterus through the opening to get a better working field. Once you have all the babies out, sacks stripped of faces and cords clamped, gently go inside the uterus and work the placentas loose: there will be 1 for each baby. Remove the sack from the body and pinch or cut the cord about 1/4 inch from the body. Give the sow 0.15cc (or more) Acepromazine solution. If you have an assistant, have him/her dry the babies with a paper towel,

roughly. Watch the cords for bleeding. If it occurs simply hold it between the thumb and forefinger for 3-5 minutes. This should stop the bleeding. Do not use a product like Quick Stop on the cord. It's poisonous if absorbed into the body. A few drops of Aquamephyton (vitamin K injectible solution) will stop the bleeding. It's good to have some on hand anyway to give a sow that bleeds excessively. Give 0.2cc to 0.4 cc to a sow and 0.05cc to a baby if it is needed here. (It appears dark under the skin of the belly, bleeding into the toe areas. You may repeat the dose in 30 minutes to an hour, and again in 6-8 hours if necessary. Swaddle the baby in a dry paper towel and put on the heating pad to stay warm. Some babies for whatever reasons do not maintain their body temperature. This is especially true of premature babies. These babies will die.

While your assistant is working on the babies you have to work on the mother. Get your suture out (use 3-0 Chromic on an atraumatic needle) and place the needle in the needle holder. Use a needle holder as you can't hold the suture with your fingers with enough control. Go to the muscle of the uterus above the end of the cut and take a stitch. Tie off with a square knot (left over right, right over left) two times won't hurt. Do not cut the suture free; attach a hemostat to the loose end. Be sure you don't suture the front of the uterus to the back! Hold the muscle up with another hemostat and continue suturing down the uterus with a running stitch keeping the cut edges together firmly but unpuckered. This takes some practice. Think of it like hemming a garment. You want it firm (not overly tight) and unpuckered. When you get to the end of the incision go into the uncut muscle below with your final stitch and tie it off with a double square knot. Cut the suture free. If you had to incise the other side, sew it back up the same way. Hopefully you won't have any intestines in the way. If they are protruding at this point, squirt some of the sterile solution from the D5LR 20 cc syringe on them and stuff them back inside.

Use a hemostat to hold up the belly wall toward you. This allows you more leeway to suture without hitting them with the needle. You can use needle and thread to sew the muscle together, but infection is almost guaranteed to occur.

Take a stitch again in the tissue above cut. Tie a square knot and suture the muscle the same way you did the uterus. Keep holding the muscle up with a hemostat making sure stitches are firm but not overly tight. Don't be afraid of taking a "big bite" (more distance into sides of muscle). Don't take such shallow stitches that they might pull free with activity. After you've finished sewing up the muscle, tie a square knot as before. Don't cut the suture yet. Anytime you start with a new needle and suture, secure it with a square knot before doing the running stitch. You can use all kinds of stitches including mattress, interrupted, etc. but the running stitch is quickest and easiest. Take the 20cc syringe of D5RL in one hand. Hold up the incision with the suture you left attached to the hemostat at the top of the incision and insert the needle into the abdomen--preferably through a suture area. Inject 10-20 cc of solution into the abdominal cavity. Then inject 1 cc D5GD solution. This controls any latent (sleeping) infection and

replaces body fluids for the sow. If the fluid starts oozing out take stitches (single ones) in the areas of leakage till they no longer leak. Blot incision dry with a 4x4 gauze.

Now you're ready to close the skin. Use a new cutting edge needle (C-3 to C-6 ~~black silk~~) or sewing needle. The skin on a cavy is very tough. Go above the incision and take a stitch in the skin tying a double square knot--and do a running stitch again to the end of the incision. Again, keep suture line even with tissues against each other firmly but not puckered. Double square knot at the end of the incision. Be careful when suturing down near the pubis that you don't put a stitch through the urinary bladder. It's right above the symphysis pubis (area that splits for delivery). This can cause the death of the sow. It's preferable to empty the bladder before suturing. Apply gentle, firm pressure to the bladder till urine is released.

You have now finished a Cesarean Section! Take the still sleeping sow and pour peroxide over the belly to wash her off. Towel dry gently (pat) and apply Panalog ointment. Put her on towels in a box. Place heating bad under the cage so that no more than 1/3 of the cage is heated. Don't use shavings or hay. Preferably use white towels as you want to be able to see when she's voiding (yellow stains), if she's bleeding and when she has produced stools. She should be awake and staggering around in 1-2 hours maximum.

CARE OF THE SOW AND BABIES AFTER SECTION

Each sow reacts differently, some will accept the babies and others won't. Thus, plan on fostering them or hand feeding. I try to have a couple of "pet shop" milkers going at all times for emergencies such as these. I simply don't have time to hand feed babies. I've only had one nursing sow that would not accept another sow's babies. If you have to hand feed, use Similac with Iron as per directions on can. Feed with plastic eye dropper as much as they want at one sitting. Hold them with feet down and head up slightly (normal nursing position). Don't hold them on their backs. When the sows colostrum comes in, try milking it into a shot glass, etc. and giving it to the babies with an eye dropper. Along with feeding the wee beasties you must rub their anal area to stimulate voiding and stool passage. If you don't they will not go and they'll eat happily and die suddenly for no apparent reason. Ever notice a sow with her newborns--how she'll lick their rears? If you rub your finger down the babies back they will assume the "servicing" position--ie. tail end up in the air. Hand fed babies tend to bloat. Give lettuce in small amounts and add Karo to formula. They frequently will have dark urine and light stools indicating liver problems. Mix propylene glycol 1/2 cc in 30 cc water and give 1 to 3 drops 2 times daily, may help. Propylene glycol is "liver sparing".

Now back to the sow. She should be awake. Offer her lettuce with a small amount of salt sprinkled on it. This, we hope, will make her thirsty. Provide her with a bottle of fresh vitamin laced water, her favorite foods and then observe frequently. She should start eating and drinking within 8 hours

for sure. If not, she is in trouble. Keep the heating pad on low until she shows by action that she no longer wants it by consistently going to the opposite end off the heat. Sometimes, you'll need to set it up for her again after a couple of days. As she starts healing the heat is sometimes desired. Never set it higher than low and always leave room for her to get off it completely if she wishes. You can "cook" a cavy very easily. Too much heat just burns up calories and depletes body fluids--neither of which she needs.

The neat thing about Ketaset/Acepromazine is the fact that the animals never lose their swallowing reflex. Therefore, they won't choke. After awakening, if the sow is not taking fluids, mix up water, vitamins, sugar (include vitamin C 100 mg, vitamin E 5 to 10 IU and calcium and give them with an eye dropper. Give her 3-4 droppersful or more every 2-4 hours. Give her more if she'll take it. You also can blenderize lettuce, parsley, etc. as "tea" and give it by dropper. From here on it's a matter of time. Every day give her an injection of D5GD 1 cc. At this point you are treating her symptomatically. If she sounds gurgly, give her Lasix. If her nose is stuffy give her nose drops (1/4% Neo-Synephrine). If you suspect pneumonia, pray, and treat according to symptoms. An asthmatic inhaler (Alupent) works miracles on cavies with pneumonia. Clean crust off of nose and give nose drops. Spray the inhaler mist right in her face. These are prescription only medications--either Bronkometer or Alupent mistometers work well. Don't use Primatene mist as it contains epinephrine, which is contraindicated for use in animals having received Aceptomazine. Don't use epinephrine injections either. Norepinephrine can be used however. Remember that a cavy with a blocked nose will not eat so you must keep the nasal passages clear.

If the sow refuses to swallow fluids you'll have to inject them just under the skin. (see diagram #12) for proper area). If she's going to make it, it shouldn't take more than a day or two before she's eating and drinking again. If she is losing fluids through the incision and won't drink, you'll have to inject her in the neck. Use the D5RL solution you used in the belly. Dehydration is best noted in the face. The eyes appear sunken, dull and dry. Don't let her dehydrate. Cavies are like babies. Small amounts of imbalance can create havoc.

PAIN CONTROL

Now we come to pain control. Cavies do feel pain and the amounts vary from sow to sow. Some are stoic--they don't fuss but just sit in a corner and won't move or eat. You can use almost anything. For pain, try liquid Tyelenol 5-10 drops for a large sow and 3-5 for smaller ones. Or, you could use cough medicine containing Dextromethorphan, elixir Terpin Hydrate with Codeine, etc. If you have a prescription pain medication such as Tyelenol with Codeine, Talwin, Demerol, etc. you can crush up 1/2 tablet, mix with 1 ounce water and 1cc propylene glycol and give 2-3 drops. It's easiest to just give her 0.2cc AAK (mixture of Acepromazine 2cc, Atropine 2cc, with 1cc Ketaset, 5cc D5LR in a 10cc syringe). You'll be able to tell by her reaction if she

needs more or less. You can also just give her .2cc Ketaset.

You can use liquid Benadryl (12.5 mg/tsp.) 5-10 drops, 2-3 times a day for about 5-6 days after the operation to relieve the itching. You'll find that suture removal is no problem as the sow will take out her own stitches 9 out of 10 times. Don't worry about it unless the skin separates. Cavies heal very rapidly. If she still has any skin stitches after 7-9 days, remove them with sharp scissors and hemostat. Cut and then pick out with a hemostat. Apply Panalog or triple antibiotic ointment to suture line every day. Stop giving the antibiotics after 3 days. Wait 2 days and repeat for 3 days if any signs of infection occur (pus along incision, overly tender belly, (remembering her belly will be sore). If the sow refuses to eat or drink and has a very tender abdomen or swelling of same she will have to be opened up and explored.

Sometimes the sow will die despite everything you do. You'll just have to accept this possible consequence. At least you gave her a fighting chance. Without the CS she wouldn't have had any chance. Sows that consistently sit around refusing to eat or drink after 1-2 days post-op generally have some major complication and will not make it. If she sits around and cries or moans with each breath, she will die. This holds true for any sick cavy. You will be doing her a favor by putting her down. If she grinds her teeth this is her way of letting you know that she feels badly. Crying milky tears lets you know she's in pain.

OTHER PROBLEMS

If the sow post operation doesn't respond readily, add Chloromycetin Palmitate to her treatment, 1 dropperful daily for 3 days. You don't want the bugs getting out of balance. I've had the best success treating with 3 antibiotics simultaneously to keep the negative and positive bugs from going wild. Some drugs will only kill one kind, there by letting the others grow rampant. If the sow should develop diarrhea, use Donnagel or Kaopecatate to which has been ~~added paregoric (prescription drug) or Parapectolin (available over the counter by signing for same)~~ and/or Neomycin (Biosol M). Crush 2 tablets Biosel M and add to about 2 oz Kaopectate. Always shake well and give 1-2 droppersful daily or more often till diarrhea is controlled. Continue for a day or two until stools are firm.

If she dies, do a post-mortem. Just open up the incision and widen it. See if the uterus looks swollen or hard, if there is fluid in the belly, if the gut is twisted, for a distended (balloon like) stomach, for a pale liver, etc. Makes me feel better to know why they died. A very pale liver that bleeds easily indicates toxemia. Cut into the chest cavity and look for free fluid and signs of infection. Check the heart for signs of infarction. There may be an area that appears blackish. The lungs may be congested, pale in some areas and dusky reddish in others indicating pneumonia. If you take out the lungs and find that they won't float in water, she had pneumonia for sure.

This should cover most of the things that can happen and how to deal with them. If you have sows that tend to get toxic try keeping sugar in the water, extra vitamin C and get some

propylene glycol from the drug store (it is a liver sparing drug-a form of sugar). Give it either in the water about 1 tablespoon per 16 oz. or give the sow 1-2 droppersful daily. It's supposed to work. Dilute the propylene glycol 10cc to 30cc water when giving it directly by mouth. Always give fresh sugar water daily--it ferments and grows bacteria.

DIARRHEA

The Donnagel/Biosol M mixture (I call Donna M) works fantastically well on youngsters that suddenly develop diarrhea. It's the only thing I've found that works. I've seen cavies that would be flowing like a river when picked up get reversed and have normal stools in 1-2 days by treating them 2-3 times daily with this. You should always keep it on hand. Of course, if the baby is badly dehydrated you must inject fluids into the neck or belly. To inject the belly is tricky however. Simply put the cavy on its back, cleanse skin with alcohol, angle the cavy at 45 degrees down so internal organs shift toward chest area, pick up the skin over the belly and insert needle just under the skin. Start injecting fluid. If you get a bubble, push the needle a little further in and inject. Don't use more than 10cc, probably not more than 5cc for a small baby. Hold your finger over hole left by the needle so the fluid can't run out. I've saved several cavies using this technique. Also use this technique on sectioned sows not taking fluid and leaking fluid from neck sites.

As you can see, a CS in not a simple procedure. It has a place and time. A further note--if the sow feels cold internally when you open her up, she'll die. This symptom denotes some severe problem other than just a delivery one. I've never had one make it--they just don't come out of the anesthetic (just peacefully go to sleep and die). The babies in this case are already dead or die soon after delivery. The sows are usually toxic or terminally ill with pneumonia.

If you go to your sow's cage and find dead babies, check them out. Most of the time you can tell why they died. Note their position: babies born ears first will be found curled up. Sometimes the body will be rotated. Nose and feet first or "praying baby", lying in cage sack on face, rear cleaned was a breech baby; pale feet, ears and gums usually white was a detached placenta; chewed ears, feet etc: sow trying to get baby to breathe by stimulating it (not cannabilisnm!). Shoulders first presentations and frequently ears first presentations kill the sow. They simply cannot dilate adequately to get the baby out. Sows will roll, stretch, bite at sides etc. when babies are malpositioned. Extremely large babies (6-8 oz.) will frequently kill the sow. Sometimes the baby will be large and lying transverse (sideways) and the sow can't deliver.

Always be wary of very young first time sows, any sow out-crossed (unrelated boar), older sows, and any who had trouble with previous litters, especially dead babies.

CONGENITAL ANOMALIES

I've heard of one Siamese Twin birth, I've seen one chunky monster, one sudden death during delivery due to a ruptured ovarian artery, many different types of club footing (almost always of the front legs): one baby to an entire litter (this is usually positional and such legs must be casted to correct deformity while they're young: 5-7 days after birth. Two cases of "galloping horse" leg deformities (born with legs in position of front legs when horse gallops--probably due to inbreeding). You can have everything from missing eyes to missing teeth to hermaphrodites (both sexes in one) to coat faults. I've only seen 2 cases of rear leg deformity--both were wasp-waisted and there was no development of the rear end or hind legs which were held in crossed-legged position. Interestingly nail growth is normal on these legs. The animal is neutered so he can't reproduce and he scoots along without a care in the world. The other one was not neutered and died at about 8 months of age. He had several internal abnormalities.

SELENIUM FORMULA

Selenium E formula is 100 mg selenium (from capsules) 100 IU vitamen E, 100 mg vitamen C. Mix together in 80 cc Water and add 10 cc proplylene glycol (=90 cc) ~~Add a few grains of sweet N low and shake well~~. Keep refrigerated. Give 3-5 drops daily for 3-4 days and at the first sign of "down in the hindquarters": staggering gait, paralysis or dragging of one or both hind legs, inability to walk with a free stride (they hop). Stop for 2 days, then give 1 drop less every other day for 1 week. Then give 2 times a week for 2 weeks , then once a week and continue once monthly once they've recovered. It can take 6 to 8 weeks for full recovery. Many sows get deficient in selenium, esp. mid-term 30-35 days all are borderline or outright deficient at the time of delivery. Injectible BoSE (Schering) for ~~horses~~ cows works faster. Dilute 2.5 mg/cc: ½ cc in 12 cc NS or D5RL and give 0.2cc as per schedule above. Use only first week then change to oral form. Give in the neck.

FURTHER HELP

If you have problems and cannot find help locally you can call me usually between 12:00 PM to 10:00 PM (Texas time) at ~~(817)~~ 983-5151 (Haslam Residence). 254

Diagrams and anatomical portrayals are from experience and those found in "ANATOMY OF THE GUINEA PIG".

Telephone
409/845-3414

Accession #: C97190244

TEXAS VETERINARY MEDICAL DIAGNOSTIC LABORATORY

Drawer 3040, College Station, Texas 77841-3040

FINAL REPORT - VETERINARIAN'S COPY

Date Shipped:
Date Received: 07/09/97

Vet. Acct. Number: 00791
PH:(254)778-5246 FAX:( ) -

Owner Name:
Haslan, Mary

Veterinarian's Name:
ANIMAL MEDICAL CARE, INC.
1604 W. AVENUE H
TEMPLE TX 76501

Prelim Report Dates: 07/15/97 07/10/97 07/09/97
Telephone/Fax Dates: 07/16/97 H 07/10/97 T
Final Date: 07/21/97

ASSIGNMENTS:
CS = TOX: F BAC: F CPT: PAR: HIS: F SER: VIR: NEC: F THR: RAB:
AM = TOX: BAC: CPT: PAR: HIS: SER: VIR: NEC: THR: RAB:

SPECIMENS SUBMITTED:
entire pig

TESTS REQUESTED:
autopsy, culture, aflatoxin

SPECIES: Exotic
BREED: GUINEA PIG
SEX: Male
AGE: 1.0 Years
WT: Unknown

#ANIMALS IN GROUP: 0001
#ANIMALS SICK:
#ANIMALS DEAD: 0001
DATE OF DEATH LOSS: 07/05/97
ILLNESS DURATION: 01 Hours

CLINICAL HISTORY:
Dr. Koonsen. Sudden death on 7/5/97.
MLD-173 Cr/Wh Texel Br. xmb

Male

Dr Crews says this is consistent with fall or abuse

CONCLUSION:
Laboratory results as listed.

COORDINATOR: Dr. Gayle

CHARGES

Necrop:	$20.00	Bact:	$10.00	Cl Path:		Parasit:	
Path:	$39.00	Serol:		Toxic:	$40.00	Virol:	
Therio:		Ph/Fax:	$1.00	Ctn Rtn:		Shippng:	
Bus:		Other:				TOTAL:	$110.00

The fee for the Services of the Texas Veterinary Medical Diagnostic Laboratory are listed above. This charge doesn't include professional service fees by your Veterinarian or costs of preparing, packaging, and shipping of the specimens.

BILLED TO VETERINARIAN - You are advised to consult your Veterinarian for his analysis of this report and for any treatment that might be indicated.

Accession #: C97190244

**NECROPSY REPORT
7/09/97

SPECIES: Exotic **BREED:** Guinea Pig **SEX:** Male
AGE: 1 year **WEIGHT:** 0.9 kg

EXTERNAL EXAM: An adult white/tan intact male guinea pig in good physical condition is received in a mildly autolyzede state of postmortem preservation.
RESPIRATORY, CIRCULATORY SYSTEMS: No gross lesions.
DIGESTIVE SYSTEM: There is 10-15 cc of clotted and non-clotted blood in the peritoneal cavity. Blood clots are adherent to the right renal artery. A defect is not appreciated. The stomach has 3 cc of brown, slightly thick fluid. The rectum has formed feces. The liver is pale and slightly friable.
UROGENITAL SYSTEM: The testicles are bilaterally symmetrical. Hemorrhages are present in right kidney pelvis and parenchyma.
LYMPHATIC, ENDOCRINE, MUSCULOSKELETAL, EAR/EYE, SPECIAL SENSES AND NERVOUS SYSTEMS: No gross lesions.

NECROPSY DIAGNOSIS/COMMENT: Right renal hemorrhage. Hemorrhage appears to be the cause of death. Further tests are in progress. --Dr. LaRock/mb

***HISTOPATHOLOGY REPORT
7/16/97

7/15/97 20/5
DESCRIPTION
LUNG: In this section of lung in alveolea there are multiple randomly located dense infiltrates of macrophages, lymphocytes, plasma cells and fewer neutrophils. Some of the pulmonary vessels are surrounded by moderate infiltrates of lymphocytes and plasma cells.
PANCREAS: In this section of pancreas many of the adjacent adipocytes are mineralized. The pancreas exhibits advanced post mortem autolysis.
KIDNEY: Two sections of kidney are examined. In these sections of kidney the interstitium contains a few mild infiltrates of lymphocytes and plasma cells.
STOMACH, COLON, SMALL INTESTINE: These tissues exhibit advanced post mortem autolysis.
LIVER, SPLEEN, TESTICLE, URINARY BLADDER, TRACHEA, ESOPHAGUS, ADRENAL GLAND, SKELETAL MUSCLE, TONGUE, MYOCARDIUM: No lesions are observed.

DIAGNOSIS
LUNG; moderate multifocal pneumonia. * Carry showed no outward signs of pneumonia
PANCREAS; moderate peripancreatic fat necrosis.

COMMENT
was startled and "jumped" out of cage day before - so sorry caretaker we suspect he lost temper + hit or threw carry.

***HISTOPATHOLOGY (CONTINUED):

The primary histologic lesions were the multifocal pneumonia and peripancreatic fat necrosis. The distribution of the lesions in the lung suggest a septicemia. Peripancreatic fat necrosis suggests a previous bout of pancreatitis. It is likely that the pneumonia and abdominal hemorrhage (observed grossly) both contributed to the death of the animal.
----Dr. Hoffman/lab

***BACTERIOLOGY AEROBIC AND ANAEROBIC CULTURES
7/15/97

ANIMAL/SPECIMEN ID: PORCINE

The following tissues/specimens were cultured:

Specimens	Isolated	Pathogenic Significance
INTESTINE	ENTEROCOCCUS SPP	Normal Flora (4+)
INTESTINE	NEGATIVE CULTURE SALMONELLA	
LIVER	STAPHYLOCOCCUS SPP	Contaminant (1+)
LIVER	ENTEROCOCCUS SPP	Contaminant (1+)

COMMENTS:
--DR. WHITFORD/mm

***TOXICOLOGY - LAB RESULTS
7/10/97

ANIMAL/SPECIMEN ID: C97190244

SPECIMEN	TEST/ID	QUANTITY	UNITS	INTERPRETATION
LIVER	ANTICOAGULANT			NONE DETECTED

TOXICOLOGY LAB COMMENTS:
The sample submitted was tested for coumarins (brodifacoum, bromadiolone, warfarin, racumin, coumafuryl) and indandiones (pival diphacinone, chlorophacinone).
Feed material is required for Aflatoxin testing.
---DR. REAGOR/bw

Liver pale, friable
clotted blood adherent to rt renal artery
kidney hemor in pelvis & parenchyma
generous many adjacent adipocytes
are mineralized

"That none shall Die" ®
The "Poof, You Say!
all about Cavy Teeth

Many fanciers dont realize cavies can have teeth problems - much sorrow & chagrin. I made a comment to my vet about "wolf teeth" affecting the incisors & she said "oh - no its the pre molars that are affected. So off I went to the bible, Biology of the Guinea Pig Joseph E Wagner, Patrick J Manning, Academic Press Inc.; 111 Fifth Ave Ny. Ny 10003; 1976. Sure enough, under Malocclusion they state the problem is more severe in the teeth closest to the diastema - space between incisors & molars (like space in horses where bit fits). Since guinea pig teeth are open rooted & grow continuously throughout life, proper diet is essential to healthy teeth." Malocclusion of the lower premolars & anterior molars is frequently misdiagnosed, as it is difficult to see the molar teeth in a live guinea pig because of the looseness of the abundant buccal (cheek) skin. Many times the condition is not diagnosed until there is secondary malocclusion of the incisors (the wolf look - visible at a glance, but sometimes not so visible!).

Guinea pigs with tooth abnormalities have chronic weight loss. Sometimes the first sign is "slobbers" - wetness under the chin eg eat lettuce & greenish stains running down chin & chest

2. Teeth

They state the problem is more common in cavies receiving a poor diet particularly pet animals - wonder if it could be due to subclinical vit c deficiency or imbalance of minerals in the diet & that the etiology of malocclusion has been poorly studied - dietic & genetic factors would be worthy of further investigation. A high incidence in strain 13 guinea pigs (highly inbred) suggests a genetic role. The mandibular premolars & anterior molars overgrow & cause tongue tie by crossing the tongue. The maxillary (cheek teeth) grow into the sides of the cheek - frequently appearing like spicules or slivers of bone. These animals slowly starve to death. The pain from these spicules can cause ~~abscesses on the mouth~~ refusal of all food. Abscesses in the mouth are not uncommon from this form of over-growth.

The teeth of a cavy form a V shape in the mouth & the point of the V being toward the mouth. The teeth are contained in the mandibles & maxilla (or jawbones); there are four premolar & molar teeth on each side of the mouth upper & lower ~~16~~ 12+4 = 20 teeth. Cavies have no "canine" teeth hence the open space or diastema. The mouth is triangular in shape - the lips rounded & covered by fine hair "The upper half of the lips are separated by a well defined philtrum" "The upper lip rolls inward forming a broad flattened buccal pad. In the middle of the diastema, the buccal pad is separated from the oral area which is covered & relatively long bristles."

3 Teeth

The lower lip is relatively short & is attached to the gums by a frenulum (piece of skin)." The front 1/3 of the tongue is freely moveable, the remainder is attached to the floor of the mouth. The authors presume cutting the teeth back to a normal level should temporarily solve the problem (this is not necessarily so, as you shall see).

They then go into "slobbers" in the carry & provide the following info: Since the teeth are continuously growing, any interference with normal wear & occlusion (closing of teeth) can cause malocclusion. Symptoms include inability to grasp feed &/or swallow, drink efficiently & swallow the saliva "which in herbivores flows profusely" (love that line) The following conditions of slobbers have been recorded 1. Colony of TS testes guinea pigs that continued dampness around mouth chin & ventral region of neck. Stopped eating weight loss, death & in 6 days. Diet & condition of teeth were not investigated but attempts to culture & pass organisms met & variable to negative results.

2. Paterson in 1957 reported on slobbers in cavies fed Parkes Diet 18 & kale - the problem was dental overgrowth & histological changes in the teeth.

3. Reid et al 1956 observed profuse salivation & slobbering in guinea pigs on a purified diet deficient in folic acid. 4. Hard & Atkinson, 1967 reported on slobbers thought to be caused by chronic fluorosis (Australia) Sx wt loss, depression decreased food intake drooling & difficulty swallowing. Post mortems revealed

lack of fat deposits in body, little food in GI tract. lower molars overgrown toward tongue & upper molars excessively worn down causing malocclusion. Tooth enamel was of varying thicknesses & hypoplasia & cyst formation. They diagnosed chronic fibrosis & subacute scurvy but did not report what type diet was fed & analysis of feed & tissues of affected cavies. The authors conclude the cause of slobbers is uncertain & may be related to nutrient deficiencies or excesses & presence of toxic substances in the diet. The molars of the cavy possess a cartilagenous tissue which is unique to the guinea pig.

Having seen & treated more cavies with wolf teeth & slobbers than the authors, I would like to share & you my observations over the past 15 years. Note normal cavies chew using a side to side motion!

Wolf teeth can present in varying forms. (see enclosed diagrams). Cavies do not necessarily have overgrowth of molars (tongue tie). a good way to check for tongue tie is 1. Feed raw carrot if they can't eat it, check rear teeth 2. Insert ball point pen behind incisors in diastema area - cavies should try to push same out & tongue will be seen coming to side of incisors & protruding slightly (some pigs don't cooperate! Just sit there with pen in mouth!) 3. Best method - offer sugar water with plastic eye dropper. You'll be able to see tongue darting forward to lick at liquid.

If you have a cavy with sudden or chronic weight loss or slobbering, check the teeth!

[redacted]

do in floating bases teeth. You can't get enough of the overgrowth off & it caused abrasions on the cheek surfaces. This will tend to cause abscesses. It is not uncommon for a sizeable chunk of tooth to come out. There is little bleeding. Frequently, before being able to visualize the teeth, you'll have to flush out the caries mouth. Along with bad teeth goes pockets of mushy foul smelling masticated & just souring food in the back of the throat. Hold your cavy head down (he's asleep remember) over the sink, use a 10 cc syringe & thoroughly flush inside mouth & warm water or warm salt water - put tip of syringe inside mouth & force water in with fair amount of pressure. This technique works quite well & should be used when you're finished working on the teeth. I use Chlorasceptic® - tsp in ounce of water to do this flush. Makes me feel better, pig's mouth

smell better & should soothe the abraded areas from dentistry. It doesn't hurt them.

If a cavy breaks a tooth the other tooth should be cut back to the same length & the teeth checked weekly to be sure they're growing straight. If they're not, cut them back evenly again. You can use nail clippers (toenail size) or small dykes (preferred). You can sand off surface w emory board if desired but I don't.

I strongly feel tooth problems are caused by deficiencies in vitamins & minerals. The most overlooked essentials are Vit D, Selenium, biotin, choline folic acid inositol E, calcium, Vit C & amino acids. Rounding a diet of 20% plant origin protein usually provides the necessary amino acids, even those for which they have an unusually high requirement. ~~for~~.

Ascorbic acid, vit c, is crucial to the health of the cavy; lack produces scurvy. Amount necessary varies from study to study from a low of 6mg to protect against infection to a high of at least 20mg/day for pregnant & lactating sows. to 50 mg/day for total tissue saturation
Copper tubing must never be used to deliver Vit C since it oxidizes it rapidly. Recommended is 200mg per 1,000cc fresh daily. Vit C is very heat sensitive. Tests have shown 50% of vit c added to glass or plastic bottles remains after 24 hrs.

Withholding of water & feeding only greens causes less thrifty cavies & increased deaths esp in pregnant, lactating & young rapidly growing cavies. Amount of water consumed if no greens are fed varies from 250-1000cc (they drink a lot). When

greens are fed water intake should be 50-100cc daily. Increases in amounts of greens fed decreases amount of water consumed (they should still have water dumped & fresh supply at least every other day). Feeding greens enable breeding animals to maintain body weight. & results in an average increase of 10 to 44% in weaning weight of babies. Feed (pellets) for Cavy use should be stored in rooms below 50°F Have you found any feed stores following this practice? Heat also adversely affects most vitamins. Therefore old & improperly stored food may contain the proper protein but be severely lacking in essential vitamins, amino acids etc

Cavies are exquisitely sensitive to lack of selenium (my observation) vit E & panthothenic acid. a good source of panthothenic acid is corn (also a good source of aflatoxins).

Symptoms of Selenium & deficiency include poor growth, muscle weakness, inability to walk normally (hop instead of use each hind leg properly) swelling, pain, tenderness in thighs & cording (tenseness) of main ligament from knee to hip (inside mid lateral thigh).

Selenium deficiency is fatal - guinea pigs afflicted with wasting disease are probably selenium deficient. Tooth overgrowth also seems to be related to lack of selenium. Selenium deficiency is more prevalent in pregnant & nursing sows & in some strains

of cavies. & Teach a "strain" is a line that has been inbred for over five generations. whether mother-son; father daughter; cousin, cousin; brother sister (actually these are truly inbred cavies)

In deficient cavies selenium E should be given by injection (in crown) & dilution of horse ESE (do not use other forms as they are to acidic). Use 0.1 cc selenium per 10 cc & give 0.2 cc every other day x 3 then, 2x weekly for two weeks then once weekly til symptoms are gone. Do not overdose - a little is great too much deadly. After the first week you can switch to oral ESE. Use 10 mg selenium 50 I.U. vit E (capsule) or powdered form, 100 mg vit C, 5 cc propylene glycol, few drops & bit of little Sweet & low powder, mix well & refrigerate.

If using oral form give 3-5 drops daily for 3-4 days skip 2 days, reduce to 1 drop every other day for 1 week, then 1 drop 2x weekly for 2 wks - then 1x weekly til symptoms are gone. Maintain on 1-5 drops monthly (some need more than others) It must be given to any sow that becomes pregnant (who has shown signs & deficiency before) & others if they're stressed - breeding showing, excess heat, humidity etc. Selenium depletes the body of vit C so extra needs to be given. If your Selenium E solution turns pinkish - mix new solution. It can take 6-8 wks for full recovery I've seen cavies paralyzed in the hind & some in the front too that recover & selenium E treatment

9 Teeth

Prevention of selenium deficiency is better than having to treat it. Simply give bran mash 2-3x weekly. mix 4 cups. bran, 4 tsp wheat germ add usual vitamins liquid or powdered, add sufficient warm water to make mixture moist but not wet & serve 1 tsp per carry. Lack of selenium also can cause infertility, abortion esp. mid term, around 30-33 days, excessive bleeding at term & during abortion. The symptoms of Vit C deficiency are nearly identical but this condition clears in 3-4 days & doses of Vit C 100 mg/day either Improper dosage of Vit D can cause difficulties too much or too little. Since most carries do not recieve direct sunlight they could be borderline or clinically deficient. Brittle bones could be the result. Powdery teeth when cut may be due to decreased or excess Ca Calcium-phosphorus is vitally important but must be in the proper proportion - Ca 0.8-1.0% P (phosphorus) 0.5 mg or less. Magnesium & potassium requirements are directly related to Ca:P ratios. Magnesium deficiency is evidenced by poor wt gains, hair loss, decreased activity poor muscular coordination stiffness of rear limbs, anemia - elevated serum phosphorus, possible neurological signs such as tetany & in chronic deficiency, defective incisor teeth that are darkened, eroded & soft.

The "flecks" seen in the eye in carries are calcium deposits - whether these flecks are due to excess calcium, abnormal calcium-phosphorus ratios or reflects abnormalities of metabolism is not known - more research needs to be done on this.

You need to be aware that the carries overall

health depends on the right feed in the proper proportions, including vitamins & minerals. To Keep teeth properly ground down fresh grass & good quality hay (not heavy on alfalfa - can cause excess breeding), are essential. Ideally it should be fed daily. I use it for bedding & feed - add to it daily. Fresh greens & fruits are also essential, even if supplemental vitamins are used. Do not feed moldy hay or rotting vegetables & fruit. A cavy can literally eat its weight in fresh greens daily without adverse effects - just remember to start them & small amounts & gradually add more & vary the goodies offered. Too much of one thing is not good. Try to feed every week - grass (from non sprayed, non contaminated by dog, cat rodent mine or feces, areas) lettuce (or explain) carrots, apples, celery, parsley, cilantro, cabbage etc are all relished & needed. Don't start giving greens unless you are willing to continue it. Sudden withdrawal of greens will cause big problems - some go toxic very rapidly from this one action!.

It is not uncommon to see wolfing of the teeth in older animals. It seems to go with age &/or improper diet. It's normally found in squirrels & I'd imagine other rodents. The problem & teeth problems is that by the time you know an animal has it you have already bred this animal into your lines for 2-3 generations. The form I think is dominant ~~genetic~~ is much more severe than the age related one & is fatal. It tends to occur in younger animals

N teeth

a has been sent by my self in canies 2-3 months old. If two tries at correcting these teeth abnormalities doesn't work the cany should be euthanized to prevent death by starvation.

While the mouth is sore, feed soft foods such as baby food apple, carrot, cereal & Similac formula & milk sop. (Similac over bread crumbled up). I use reg. whole milk now with whole wheat, oat bran etc type bread

By the time the condition becomes apparent, unfortunately, the canies general body condition is very poor & there are no reserves left for extensive treatment. These canies usually die. Roughly one in 10 will survive but seem to require repeated work on the teeth & are always borderline "well". don't reproduce & don't tolerate stress.

To trim your canies front teeth - get someone to help. Hold against body - use one hand to grasp behind head, put ball point pen in mouth to hold tongue down hold in place with index & ring finger & cut teeth with dykes (side nipper pliers) using other hand. It can be tricky - your cany won't appreciate it. Never put your fingers in the mouth - you'll get bitten. And while juggling the cany & trying to cut, also pull upper lip & lower lip (depending on which teeth you're cutting) away from mouth to prevent nips by pliers. For rear teeth problems take your cany to the vet. anesthesia is mandatory to successful trimming of these teeth.

Now hopefully you know all about teeth!

Yours for better canies, Sally M Winkler

8640 Mount Hill West Rd
~~Rt 1 Box 174~~
Rogers TX 76569 3603
254-983 5151

Figure 3-8 Lateral aspect of deep muscles of head

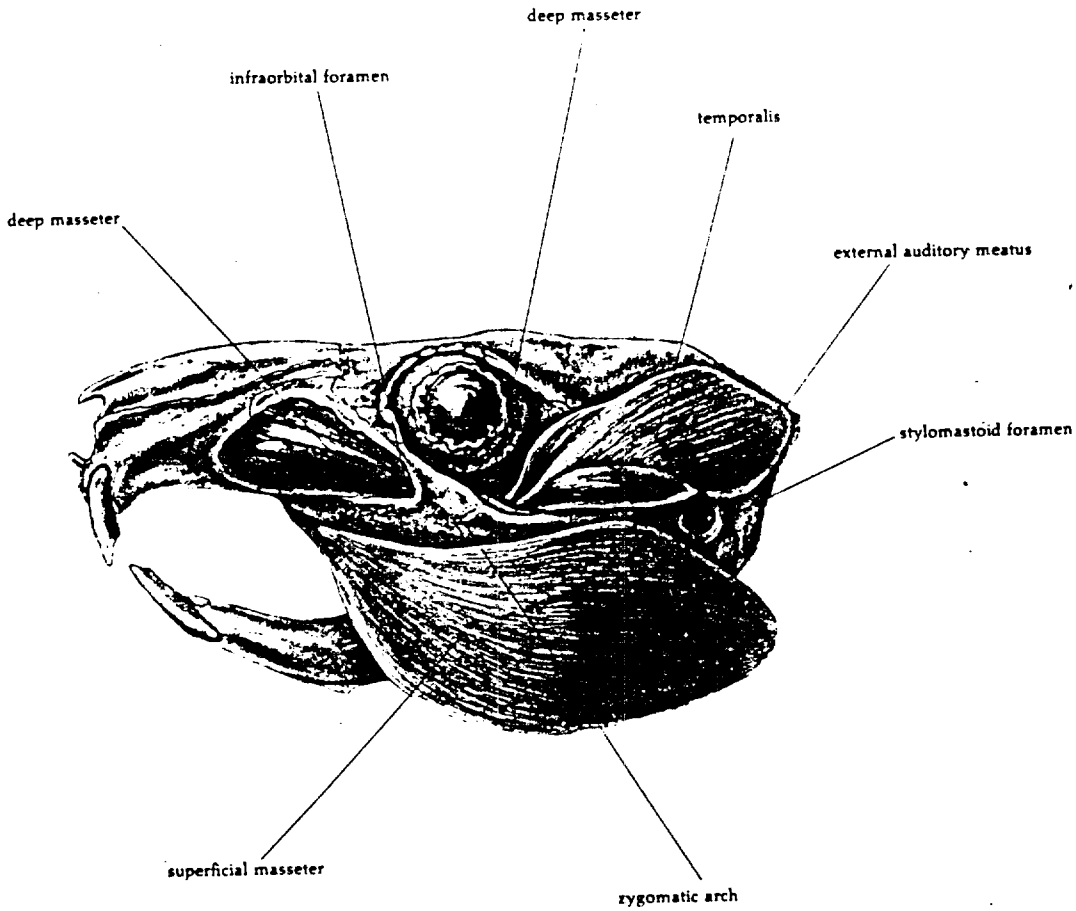


Figure 2-29 Dorsal aspect of mandible

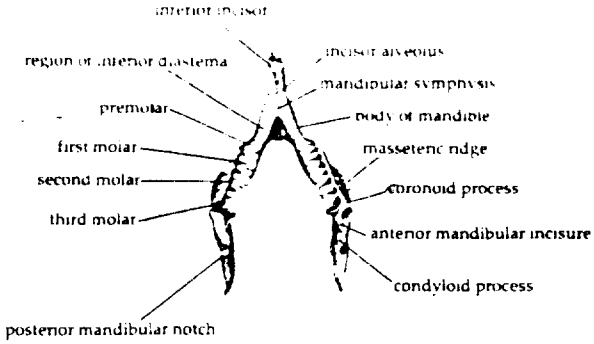


Figure 2-30 Lateral aspect of left mandibular ramus and body

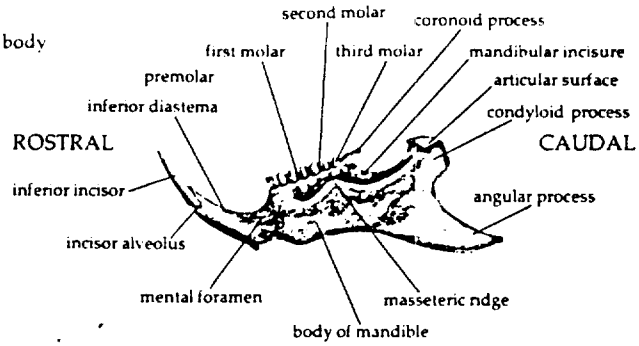


Figure 2-31 Medial aspect of left mandibular ramus and body

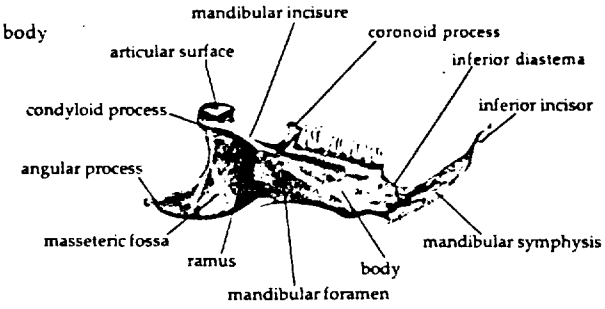


Figure 3-10 Pterygoids in relation to skull and masseter

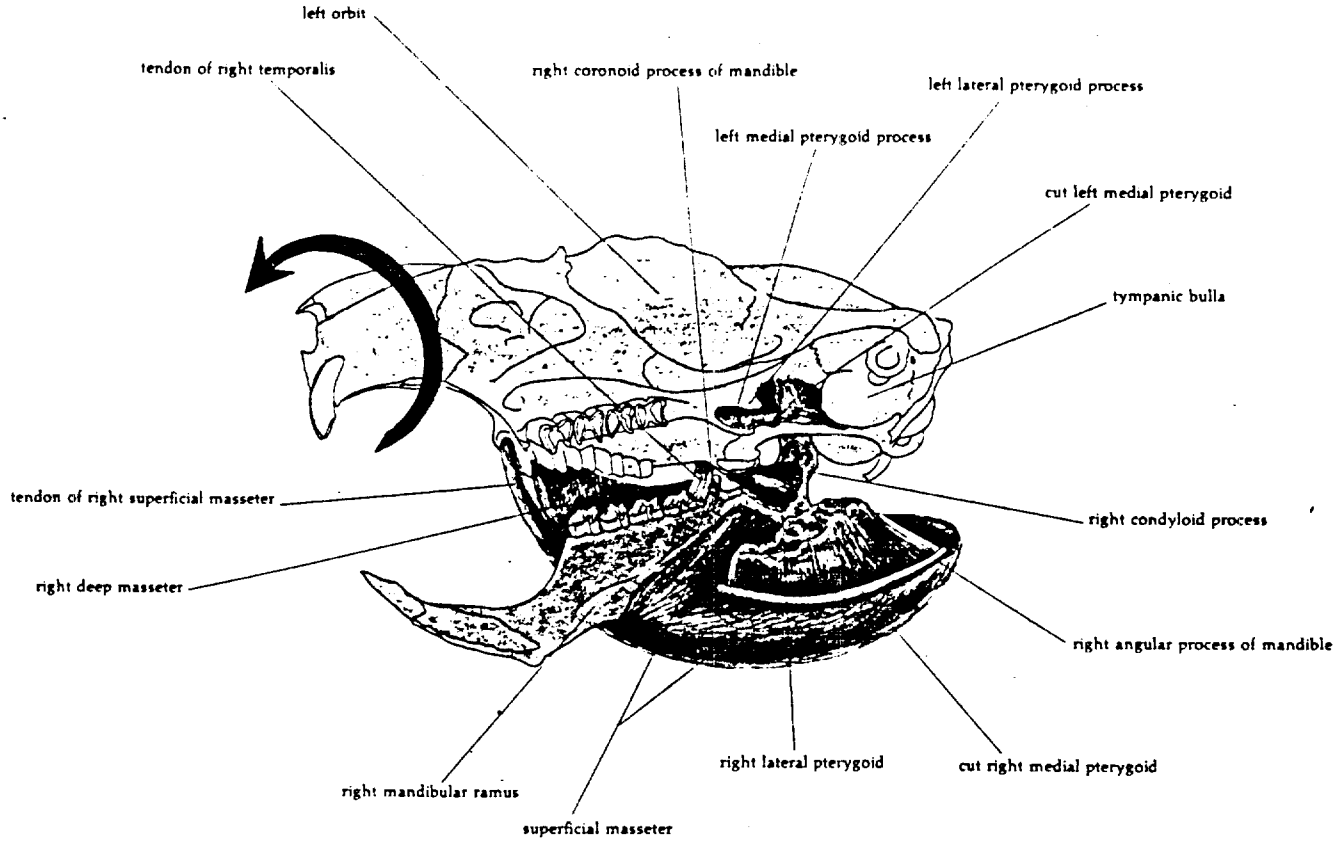
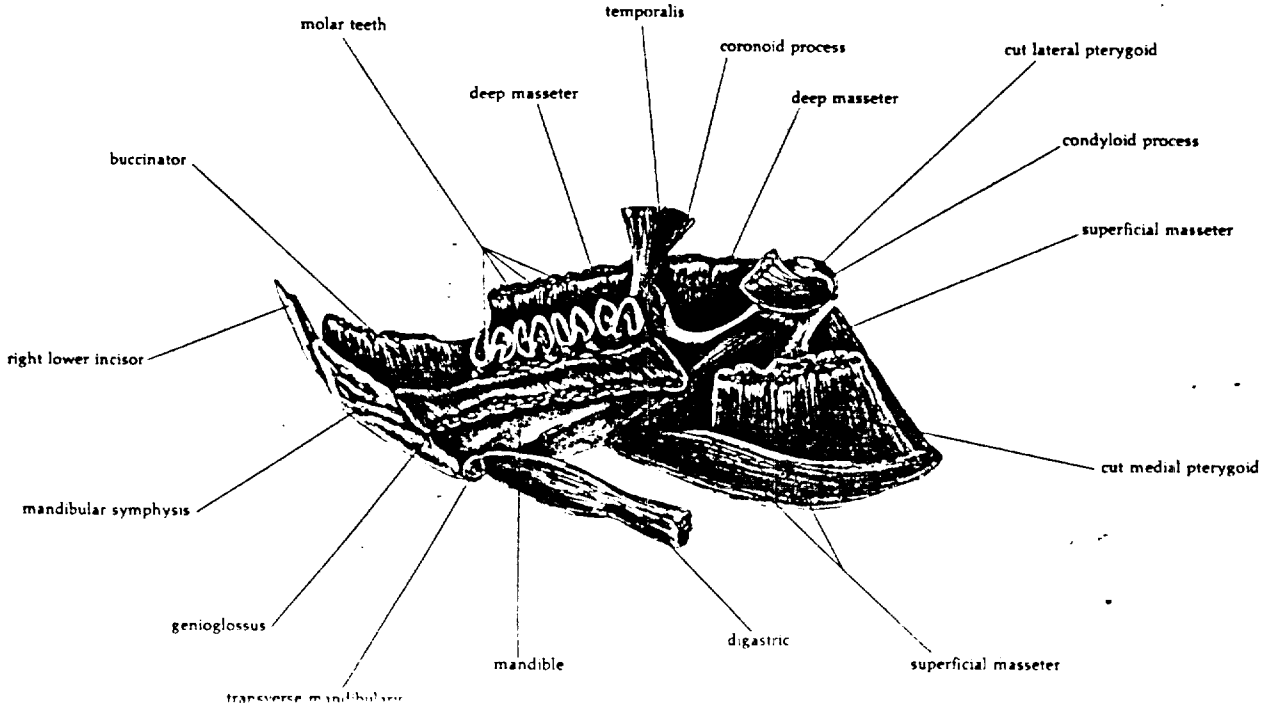
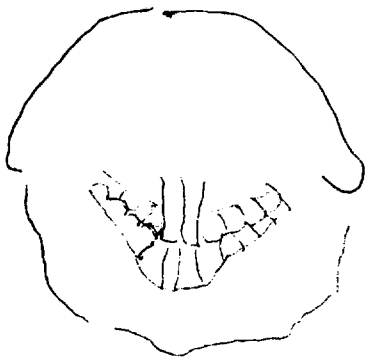


Figure 3-11 Medial aspect of muscles of mandible

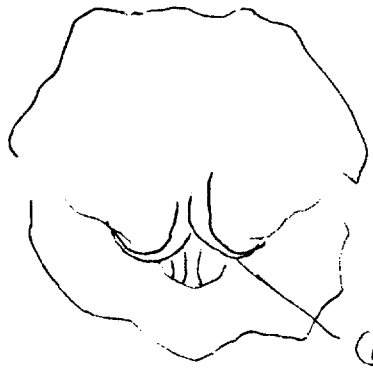


WOLF TEETH VARIOUS FORMS 1

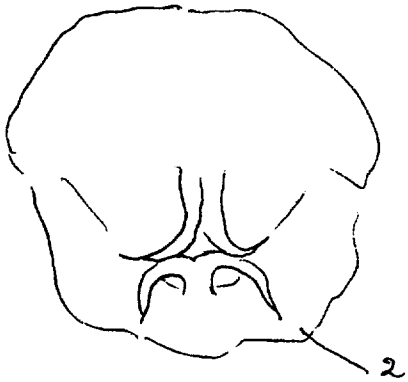


Normal

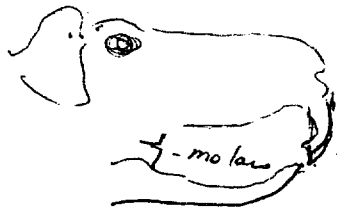
lower teeth should be slightly behind upper not evenly meeting



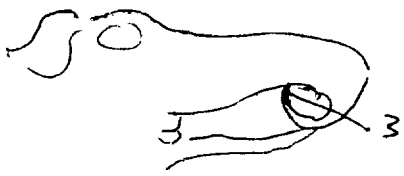
① Can curl upward over lips.



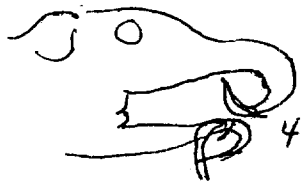
2 Can curl upward and downward over lips



Normal side view

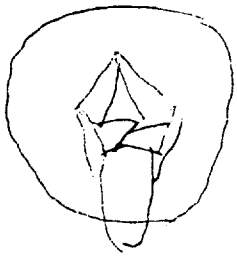


3 Can grow upward into roof of mouth - one or both upper incisors



4 Can grow upward and also lowers grow down & around lower jaw

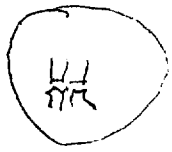
WOLF TEETH VARIOUS FORMS 2



NORMAL TONGUE TIE - one overgrown tooth each side - lower both premolars

① 

upper outward curl left

② 

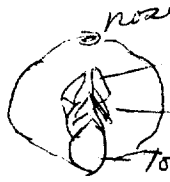
Broken jagged lower right

③ 

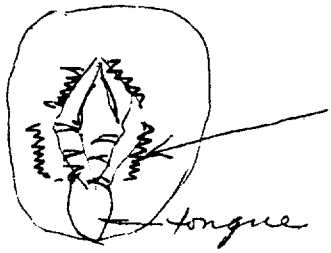
some have incisors different widths some have more space between incisors & hair growth in space (food sticks too).

④ 

lower molars formed triangular bridge of plaque material - when removed normal appearing molars present - no tongue tie after procedure but severe before.

⑤ 

upper molars bridge of plaque?

⑥ 

tongue tie with spicules (spikes) going into cheeks
abscesses common with this form
usually have obvious wolfing of incisors. always fatal
stalagetite < spicules look like

IS DINGLE'S ZOO FOR YOU?

Sally M. Winkler

While researching the literature for a talk on Tropical Fish Diseases, I came across a couple of items that should be of interest to Cavy breeders.

The following are excepts from "Trends in Humane Animal Care Legislation; C.O. Finch, D.V.M., Animal Care Staff, U.S.D.A. Animal and Plant Health Inspection Service, Veterinarian Services, Hyattsville, Md. 20782" presented at the 109th Annual Meeting, American Veterinary Medical Association Meeting, July 18-20, 1972 in New Orleans, La.

Humane treatment of animal laws have been on the books a long time. In 1641 The The Massachusetts Bay Colony included in a list of "100 Rights", having the force of law, #93- preventing the physical abuse of animals and prohibited cruelty toward them.

Right #94 required that animals being driven, led or hauled away from home pastures should be provided feed, rest and water.

In 1865, Henry Bergh was appalled at the cruelty to horses prevalent in New York City. There being no laws at that time in New York to prevent this he and others established the American Society for Prevention of Cruelty to Animals (the very familiar A.S.C.P.A.). Other groups in large cities followed suit and established organizations for the purpose of Protection of animals. The first conviction in a case of child abuse in the U.S. was prosecuted under the "humane animal treatment law"!

In 1873 the first Federal Law was passed to protect animals during shipment for export purposes. In 1891, the first post entry quarantine law was established. Both of these laws were enforcable by U.S. Marshals.

In 1906 Congress passed the first 28 Hour law. It required the unloading of livestock to provide feed, water and rest on any shipment going over a 28 hour period. This law is still enforced by the U.S.D.A. and covered animals shipped by rail or water. A move is on to have animals shipped by truck and air included (I'm sure that by now, 4 yrs. later, this law is in effect for truck and air shipments.)

In 1956 Congress passed the Humane Slaughter Act. By 1961, protection was extended further by passage of P.L. 89-544 - The Laboratory Animal Welfare Act, The Dealer Act and the Act of 1966, all regulating "animal welfare" and enforceable by the U.S.D.A.

1969 saw passage of the first Endangered Species Act, enforced by the Department of the Interior. (remember this group, we'll come back to them later!).

More than 30 bills on Animal Welfare were introduced in Congress in 1970! Two Bills became law and were assigned to the U.S.D.A. for enforcement. The Horse Protection Act and Animal Welfare Act- an amendment to P.L. 89-544. The Horse Protection Act was specifically aimed at prohibiting the blistering of feet and legs of Tennessee Walking Horses (Yea! Not all legislation is bad).

The amendment to P.L. 89-544 - The Animal Welfare Act established standards for minimum care of animals with regard to:
1. Housing, space and suitability. 2. Feeding, appropriate and sufficient. 3. Watering, potable and in sufficient quantity. 4. Sanitation, animal not to be soiled by its excretions. 5. Ventilation, especially important for indoor housing. 6. Protection from extremes of weather and temperature. 7. Separation to assure compatibility. 8. Adequate Veterinarian care by graduate vets only. 9. Handling and physical manipulation.

Animals were specifically pointed out for pretection in: 1. Research - both before, during actual use of animals with adequate safeguards to assure that research would not be curtailed. 2. Those used in exhibition including but not limited to zoos and circuses. 3. Those sold thru the wholesale pet trade. 4. Those handled by dealers and importers.

The exemptions that will probably be included in future legislation include: 1. Veterinarian hospitals, unless research is conducted in the hospital. 2. Animals intended for use as food and fiber. 3. Horses not used for research. 4. Cold blooded animals.

Exempted also were retail pet stores, fairs -state and county, rodeos, horse races and shows, purebred dog and cat shows, field trials and related shows and dog races.

It is projected that over 200 species will become extinct in the next 20 years, some by overexploitation but mainly thru habitat destruction due to expanding human populations.

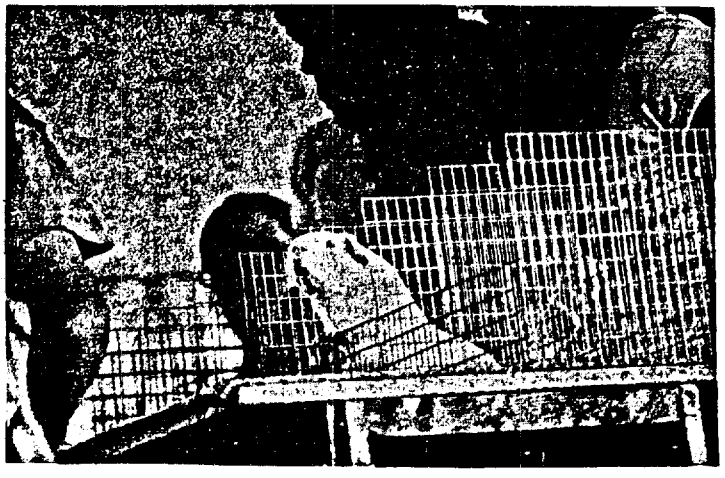
He predicts more legislation covering animal shelters, farm animals, revision of predator controls more toward a natural balance, establishment of breeding programs for animals in the endangered species classification and new animal identification systems. There will also be expanded regulations under the present statutes.

You're probably wondering what all this has to do with you and Cavies, right! If pending legislation becomes law, it could have a lot to do with you. Representative Dingle of N.Y. seems bent on regulating the entire animal loving populace. His current bill would classify you as a "zoo" if you have more than a dog or cat. If you are fortunate to have and care for a dog, cat, bird, cavy, rabbit in the same household YOU are a Zoo! The regulations that would be imposed are ridiculous.

Dingle is an "old friend" to Tropical Fish Hobbyists since he was behind the big drive to pass legislation regulating the importation of fish, plants, etc. and when this Bill got tied up in red tape, he changed to another phase of legislation. Unfortunately, the Bill regarding fish is not a dead issue, just "sleeping". A slightly different form is being prepared for presentation to the Legislature. Once someone gets an idea that a new law is needed it seems to snowball. Next thing you know you have a proposal like Dingle's Zoo Bill.

I don't know about you, but I don't especially care for the idea of having to have a license to keep my pets. Can you further imagine having to "apprentice" with an approved, licensed person for every species of animal you wish to keep. If you're licensed to keep Cavies and then want to have Rabbits or vice versa you have to take a course. Can you see doing this for every pet!! It wouldn't be so difficult for Cavy and Rabbit hobbyists since there would be a wealth of people for instruction. It wouldn't be so easy tho for herpetologists, arachnologists, even hamster enthusiasts.

I don't know how far this Bill has gotten but it bears close watching and even more importantly probable action on our part. The government assumes if there are no complaints from the people they don't object. We can't let this happen. Believe me it could. The fight against the Tropical Fish regulation was almost lost thru inaction.



SAY WHAT?

article

~~ASK SALLY~~

SELENIUM DEFICIENCY - A HISTORY of work and its use in Treatment & Prevention of DEFICIENCY in the Cavy

~~This month's question is from Kim Miller, editor of the Pig Scoop and owner of Pretty Pig Cadiary in Jacksonville, Florida.~~

3545 '97 OCT 24 A9:02

What does selenium do and from what source do we get it; I've heard of it but can't place it?

Selenium E (SE) deficiency (Down in the hind quarters) is not a recognized condition of cavies except by myself and perhaps a few researchers. Nothing has been printed on the need for, effects and toxicity of selenium E in the cavy. Quotes used here are from "Selenium - Tocopherol: A biomedical summary for veterinarians" published by Schering Corporation and edited by their veterinarian S.W. Dawley. The most recent reference listed was Koller, Modern Veterinary Practice, Jan 1981. One of the most interesting titles was Trelease and Beath, Selenium, Its Geological Occurance and Its Biological Effects in Relation to Botany, Chemistry, Agriculture, Nutrition and Medicine, Champlain Printers, Burlington Vermont, 1949.

Around 1980 I first became aware of the possibility of Selenium E deficiency in cavies after a series of cavies went "down in the hindquarters" and died despite treatment with massive doses of vitamine C and antibiotics (for suspected bacterial infection). Because the animals developed an ascending (upward progressing paralysis) of the body ending with inability to swallow and drooling, I dubbed the condition "cavy polio". As of this date, August 9, 1990, I cannot say for certain there isn't an ascending virus causing a "cavy polio" type illness.

Tetracycline gentamycin injectible & oral Bactrim later used genta & Bactrim (Tribrissen ① Ditrim ②)

However, 95% of cases of "down in the hindquarters" respond to Selenium E treatment. Also it is a recognized ~~recognized~~ fact that ~~sever paralized~~ severe deficiency in Selenium E is always fatal. In 1980, a post mortem exam of a cavy by a veterinarian in Arizona was my first clue to this disorders' cause. He told me the cavy had a nutritional problem. My reaction was "no way". My cavies were getting all known essential ingredients plus added vitamins and greens but were being fed rabbit pellets (Acco at the time) due to inability to get fresh guinea pig pellets. This vet told me, and three others have ~~senee~~ since then, there is no one food on the market ~~taht~~ that contains everything (in the right quantities - my ~~aldendirn~~ addendum) that the cavy needs. After ten years, I have to agree they are right.

The symptoms of Selenium E deficiency are insidious (sneaky) and by the time you realize there is a problem it may be too late.

When symptoms first start everyone assumes it is lack of vitamin C and treat the cavy with vitamin C. The deciding factor is their lack of improvement over a three day period. If scurvy is the problem, it should be reversed for the most part by three days of treatment with 100 mg. vitamin C (50 mg twice daily) for three days. If it's selenium deficiency you don't have 3 days to find out!

The cardinal sign of Selenium E deficiency is coding of the tendons/muscles in the thigh of the cavy. The inner area of thigh is sore to touch and the tendons are taut and very painful. The cavy has difficulty walking or may already be "down in the hindquarters" (I have seen a similar condition in nursing does may be hopping instead of having a free striding walk

(rabbits) where the rabbit is assumed to have broken its back, has lost bladder control (though still producing milk and nursing the kits). The Condition progresses to slobbering and death. I have not had occasion to treat any such rabbits but treatment with Selenium E would prove enlightening). With advancement of the condition the thighs are pulled outward (bowed thighs) and areas of bluish discoloration indicating bleeding under the skin, are present in the thighs, lower abdomen and nail beds.

I suspect "wolf teeth" could be cured ± SE in the rabbit.

Now for the history of Selenium: "For more than one hundred years, selenium was identified only as an extremely toxic element responsible for the livestock diseases referred to as "alkali disease" and "blind staggers". The nutritional significance of selenium and effects of selenium deficiency became evident in 1957. Since the early 1960's, selenium responsive disorders of livestock have been recognized with increasing frequency."[1]

Selenium is accepted today as an essential trace element, a semi-metal chemically & biologically similar to sulfur, occuring almost everywhere in soil surface waters and air. Of great importance to us is seleniums presence in the soil, absorption by plants and subsequent availability to our animals. Acid soils render selenium unabsorbable - eg. elemental selenium. Some plants (such as locoweed) absorb high levels of selenium and produce toxicity = "blind staggers". Other plants cannot utilize selenium, nor can they survive high levels of selenium in the soil. Organic selenium (seleno proteins) offer greater protection against SE deficiency than do the inorganic seleniums (selenite or selenate). The selenite form is the most readily

available, economical, most commonly used form for supplementation. "Studies have shown that dietary sulfur, silver, mercury and copper are among the elements which may compete with selenium for absorption sites in the animal body. The importance of selenium antagonists under practical field conditions remains to be established."[1]

"Selenium content in lush forage is frequently low espcially during periods of heavy rainfall -- due to excessive leaching of selenium to deeper soil, rapid plant growth and dilution by abundant plant tissue."[1]

Other factors listed as being responsible for the increased incidence of SE deficiency include stress, such as excessive unaccustomed exercise; confinement rearing (lack of grazing), inadequate or improper (due to intereferring factors such as sulfur) absorption from the GI tract esp young or nutritionally deficient animals; inadequate feeding, as during the winter or in limited feed programs and any problems causing inappetance (refusal to eat) in any animal.

Animals with one stomach absorb 85% of SE salts vs 35% by ruminants (goats, cattle). The probable cause is conversion of SE salts to insoluble elemental SE by the ruminants I believe cavies, (even tho having only one stomach, do this also. The highest concentrations of selenium in ~~rats~~ RATS were found in the liver with ~~inorderate~~ moderate levels in muscles, GI tract and blood. SE is rapidly bound to plasma and milk proteins. The excreted portions of SE are handled mainly by the kidneys with small amounts excreted in the stool and by the respiratory system. In 1949 it was noted that the minimum toxic

dose of selenium in its various forms in different types of livestock is unknown. This holds true today. "

"Selenium is known as the least plentiful but most toxic trace element". The safety margin between toxic and therapeutic doses is 10 - 15:1 for medical use in livestock. (not a wide safety range)

Symptoms of toxicity vary widely according to severity and species affected. Acute SE toxicity is frequently termed "blind staggers" - animal is blind, wanders aimlessly, presses head repeatedly against tree, wall, etc., has a depraved appetite and abdominal pain (in large animals. ~~and cavies~~). Death is caused by paralysis leading to respiratory failure (ascending paralysis in cavy, lack of ability to swallow, convultions and death). Acute poisoning in dogs and cats produces garlicky odor to breath (make sure DMSO hasnot been used), nervousness, fear evidenced by loud crying and vomiting and diarrhea. Further along the signs include lethargy, with drawal (quietness), difficulty breathing, depressed reflexes, opisthotonus (drawing backward of head), cronic spasms and death. Chronic toxicity of SE, "alkali disease" (most prevalant in Nev and South Western US, produces thinness (wasting), dullness, stiffness, and lameness (remember these symptoms!), loss of hair especially at base of tail and of switch in horses and cattle and baldness in swine. In 1857, hoof abnormalities in army horses due to SE toxicity were reported in Madison, Nebraska. Excesses have also been reported to impair reproduction in animals and oral ingestion of excessive SE during the organ forming period of pregnancy may cause malformations in the offspring.

In cavies lack of SE causes abdominal pain.

space

The known actions of SE include "assisting in protein synthesis in red blood cells and liver organelles, retention of vitamin E in plasma and increasing ion transfer across cell membranes." Selenium is anti inflammatory. Deficient animals have low levels of glutathione peroxidase activity and decreased microbiolodidal activity in neutrophils and peritoneal and alveolar macrophages (forms of white blood cells). SE enhances antibody synthesis and carbohydrate metabolism." (Koller, Modern Vet Practice, Jan 1981.)

In 1936 two compounds of vitamin E were identified in wheat germ oil, alpha and beta tocopherol. Alpha tocopherol has the greater biological activity and is the most widely used theraputic form. Natural sources of vitamin E in animal feeds are corn, alfalfa, and soy bean meals. Cereal grains, green pasture and well cured fresh hay have enough vitamine E for maintenance of most livestock. Vitamin E deficiency is caused by feeding inferior quality hay/straw or grass stored for extended periods (6 months or more); high intake of unsaturated fatty acids (cod liver oil, fishmeal, linseed oil. corn oil - these require higher vitamin E levels to compensate for the high fatty acid ration; examples calves fed milk replacers with high levels of unsaturated fats, yearling cattle fed high moisture corn (with propionic acid added to retard fungal growth) caused destruction of vitamin E and increased lipid peroxide formation.

Since vitamin E is readily oxidized the amount available is governed "by genetic variety of plants, stage of growth, and time when harvested, processing and storage practices. High

temperatures, prolonged storage and high moisture content increase the loss of vitamin E as do grain processing procedures (milling, flaking and shredding)."

Although vitamin E is a fat soluble vitamin the body doesn't store adequate amounts of E as they do with vitamins A and D. "As a result a constant daily intake of vitamin E is required". Cavies are exquisitely sensitive to lack of Vitamin E.

Lack of vitamin E causes excessive fat peroxidation and causes widespread damage at structural and functional cellular levels; loss of desired mitochondrial, lyosome and transport mechanisms. Vitamin E ~~is~~ was classified as an antioxidant in 1962 though this activity of vitamin E was recognized as far back as 1945. Excessive peroxide production occurs frequently due to stress, excessive oral intake of polyunsaturated fatty acid or when there are inadequate antioxidant mechanisms in the Animals' system (~~animal's~~). The result is destruction of cells and occurance of SE responsive disorders.

Vitamin E exerts its antioxidant abilities to prevent hydroperoxide formation which causes lipid peroxidation. Selenium as a part of glutathione peroxidase converts hydroperoxides to less toxic alcohols. Both elements provide integrity to the cell membranes in the body.

Lack of SE can be exhibited by something as simple as poor performance with no evident observable (clinical) signs to sudden death.

The followding listed disorders describe the deficiency in that species indicated:

I. Cows: exhibit four (4) forms of the nutritional syndrome

A. Acute heart dystrophy, calves 2 - 4 months of age suddenly die with no symptoms.

1. Occurs most frequently in calves just after being weaned and turned out to pasture * cause is stress of exercise and weaning.

2. Symptom if present (prodromal) include dulness, severe respiration/HR distress with frothy or blood stained nasal discharge, found lying on side with elevated HR and normal heart rate body temperature. Eyesight and mental attitude normal. Nearly 100% fatal despite therapy.

B. Subacute White Muscle Disease

1. Seen during rapid growth phase of calves and is the most common form of disease.

2. Calves found down on chest (rump up) and cannot rise or only do so with difficulty. Muscle weakness seen as insoordination, stiffness and muscles trembling quite obvious.

3. Involvement of intercostal muscle and diaphragm causes labored abdominal respiration. called use of accessory respiratory muscles.

4. Treatment with SE results in dramatic improvement in 3 to 5 days (caves can walk unassisted).

C. Congenital White Muscle Disease

1. Lesions found at birth.

2. Premature calving (abortion) or dead or weak calves at birth are common. Caused by feeding rations deficient in SE esp. in winter months.

3. Treat cow with SE during second trimester and 30 days prior to calving. Give SE to calf shortly after birth to

prevent deficiency through critical nursing period.

D. Subclinical Muscular Dystrophy

1. Probably cause of most economic losses from SE deficiency cattle.

2. Symptoms less spectacular and more difficult to diagnose.

3. Occurs most frequently in young feedlot cattle a signs include failure to thrive, poor growth, occational persistent diarrhea, occational generalized muscle weakness depending on severity of deficiency.

4. Dramatic improvement by treating cattle with SE (by injection, I'm sure).

5. Treatment with SE by injection before sending to feed lot.

II. Horses This nutritional deficiency is only well documented as myopathies; however, SE is used to control.

A 1. Rapid respiration, profuse sweating, muscle spasms and stiffness when associated with myositis (muscle inflammation).

1 2. Myositis occurs in any breed, sex or age and can be acute or chronic.

2 3. Acute form in foals up to 7 months age: sx. rapidly developing depression, ↑? respirations, stiffness and lameness in one or all linys.

a. progress to prostration and death in 1 to 7 days.

b. Some exhibit bloody urine, painful swelling of nuchal crest, ventral abd. wall and rump, damage to lingual

muscles,(excessive salivation and difficulty swallowing)

c. In adult horses signs are similar including bloody urine, edema of head and neck and stiffness.

d. Agotemia "Monday Morning Syndrome", tying-up syndrome common in race and work horses, is responsive to SE.

e. If animal is not down (recumbent) positive response to SE is good in cases of dystrophic muscle degeneration in foals and adult horses.

III. Swine Symptoms of SE deficiency dependant on body system most severly affected.

All age groups of swine require adequate SE in diet. Causes of deficiency include: complete confinement, corn-soybean meal diets, breed, weaning stress and disease predispose to SE deficiency. Exclusion of green forages, drying, processing and storage of feed and possible other stresses account for the need for SE supplements in swine. Three clinical syndromes are observed in SE deficient pigs:

A. Mulberry Heart Disease

1. One of the most common and occurs most frequently in rapidly growing pigs in excellent condition being fed a high energy diet. Usually found in 3 weeks to 4 month old pigs but reported in late finishing and breeding stock pigs.

2. Can occur in 25% of susceptible pigs with death rate at 90%.

3. Pig usually found dead without symptoms.

4. Dying pigs have severe respiratory distress cyanosis, and found lying down. Forcing exercise may cause

immediate death.

5. Post mortem: excess fluid and massive hemmorrhage around heart, in peritoneal cavity (belly) with congestion and edema of lungs (mimicing pneumonia). Liver frequently enlarged, mottled and has nutmeg appearance (characteristic) on cut surface. May have many linear hemorrhages under epicardium (sack around heart).

6. Prevention: supplementation with SE of all animals in same herd; treatment of weanling pigs and treatment of sow during last week of pregnancy to insure adequate levels of SE in the colostrum.

B. Hepatosis Dietetica. Less common than Mulberry Heart Disease.

1. Evidenced by acute bleeding with necrosis of the liver and sudden death: or occasionally difficult, labored respirations, severe depression, vomiting, staggering and icterus (jaundice).

2. Primarily affects young pigs up to 3 to 4 months of age.

3. Post mortem reveals a swollen liver with mottled to mosaic like appearance throughout its lobes. Muscular dystrophy is frequently present despite lack of symptoms before death.

4. Prevention is only form of treatment. Affected pigs die despite therapy.

C. Nutritional Muscular Dystrophy (pigs)

1. Occurs along with Mulberry Heart and Hepatosis

Dietetica. It has been described in 11 month old gilts (neutered) pigs.

2. Around 2 days after delivery the sow develops muscular weakness, muscle tremors and shaking followed by difficulty breathing, cyanosis and collapse. Note similarity to symptoms of "toxemia" in cavies!

3. Post mortum showed bilateral muscular dystrophy and Zenker's degeneration but no liver or heart lesions. (Some "toxic" cavies do not have bad livers).

4. Treatment of sows with SE before farrowing to provide SE to piglets and aid in prevention of this condition. Once they're dead or dying it's hard to treat!

IV SHEEP Four (4) forms similar to those found in cattle occur in sheep: acute, subacute, congenital and subclinical muscular dystrophy.

1. All sheep in the affected herd should be injected with SE.

2. Avoidance of stress while doing this is mandatory to avoid precipitating acute muscular dystrophy.

3. Sheep with subacute skeletal muscular dystrophy will begin to show improvement by 3 days after start of treatment and may be able to stand and walk unassisted within 1 week. "The more suble, nonclinical disease more recently associated with SE diffiency including muscular weakness of newborn, unthriftiness, persistent diarrhea and occurence of dead and weak offspring or abortions" should lead veterinarians to look at the nutritional status of the animal rather than only look for an infectious (bacterial or viral) agent. (This applies also to cavies)

IV Dogs!

add paragraphs 1 2 on Dog Pg 17

Blood selenium levels should be determined. Clinical chemistry evaluation of creatine phosphokinase (cpk), serum glutamic oxaloacetate transaminase (sgot) are of value in showing muscle damage in living animals. SE and vitamin E levels of liver and kidney tissue of dead animals can reveal SE status of herd or group of animals.

A test for glutathione peroxidase is available and may be of value in some species to determine the adequacy or inadequacy of selenium.

"Evidence is available to indicate that selenium and vitamin E deficienct is more widespread in animals than once believed and that selenium and vitamin E are essential elements for optimum growth and performance of livestock."[1]

In 1975, it was estimated that 51% of beef cattle, 69% of diary cattle and 31% of sheep raised in the US were on selenium deficient soil. Losses were estimated at 545 million dollars. The regions of the US historically defined as most severely affected by selenium deficiency include the Pacific NW, Southeast, Northeast, ~~and Northeast~~ and states adjoining the Great Lakes." Due to the presence of many factors that can interfere with SE absorption, it is understandable that SE responsive animals diseases have been reported in all 50 states and most countries of the world.[1]

To the last paragraph I add AMEN! I've seen and treated a large number of cavies from all areas of the U.S. that were selenium E dificient and will outline below the symptoms in the cavy.

VII VC CAVY "Down in the Hindquarters"; wasting Disease; Sudden

Death Syndrome; Slobbers; all of the above conditions can be possibly treated or prevented by use of selenium E. 95% of the time. Unfortunately, by the time the cavy shows obvious signs of the problem the disease is so far advanced they:

About 5% of cavies with these problems either have too advanced SE deficiency for correction &/or have a coexisting or predominant viral disease. Predominant

1. Die suddenly for no apparent cause.

2. Show signs of muscle tremors, inability to walk, esp use of hind quarters. "down in hindquarters"

3. "Waste away" over period of days to 6 weeks.

4. Slobber and are unable to swallow. Actively fight being fed anything by mouth.

5. Cry from pain when handled.

6. Show signs of "bruising" under the skin, esp. of abdomen and thighs.

7. Have cording of the tendon(s) in the thigh(s) with or without swelling and heat. Confused with "arthritis" but diagnostic of SE deficiency in the cavy. This is the cardinal sign of SE deficiency

8. May have wolf teeth and/or overgrowth with plaque like build up on molars and/or spicules going into cheeks - the relationship of the tooth problems is highly suspect of SE deficiency and possibly hypo or hyper vitamin D. Also the exact relationship of vitamins D, E, SE, Ca, P, Na, K need to be explored fully. More

9. Lack essential vitamins and amino acids in diet "~~up~~ 2"

e.g. lack of panthothenic acid "causes ~~low~~ decreased growth rate, loss of appetite, weight loss, rough coat, diarrhea, weakness and death. Adrenal glands enlarge - may be hyperemic or hemorrhogic and gastro intestinal hemorrhages were frequent. Addition of normal to high levels of vitamin C ~~dit~~ did not ameliorate the problems (it

does, in rats)." Lack of pantothenic acid at 9 - 10 weeks of pregnancy frequently resulted in abortion and/or death of the mother and high body fat a low c pantothenic acid in the liver of newborns. The unborn require their greatest intake by the sow 1 week before delivery and require 20 mg/kg of fry dry diet (Reid and Briggs, 1954). Adult requirement is not known, but may be close to that for the young animals since pregnant or nonpregnant adults can be depleted in a short period (Hurley et al, 1965)". This basic type pattern of findings is covered very thoroughly in chapter 17 - Nutrition, Nutritional Diseases and Nutritional Research Applications by Juan M Navia and Charles E. Hunt. What is most striking is the lack of knowledge in regard to the interactions of many of the vitamins and minerals. Selenium is not even discussed. Requirements for vitamin K are unknown (but I know them). the actual signs of low or hyper intake of vitamin D are unknown etc. vitamin E on the other hand, has had relatively large amounts of research applied to it. A diet induced muscular dystrophy of cavies was described in 1930, but cause was unknown. In 1933 use of cod liver oil in generous amounts produced fibrosis of sheletal and cardiac muscle causing paralysis or stiffness - changing from cod liver oil to cottonseed oil containing vitamins A and D did not produce stiffness. By 1941 research had shown that vitamin E was essential for maintenance of normal muscle and successful completion of pregnancy. Giving 3 mg orally every other day (vitamin E deficient diets - lab use)[25] protected against muscular dystrophy. Muscular dystrophy preceedes degeneration of the

4 → 4 - Biology of The Guinea Pig 1976 Joseph E Wagner Academic Press Inc. 111 Fifth Ave NY NY 10003 Ed. In Joseph E Wagner & Patricia J Manning

[25] Footnote: don't try this on your cavies.

testicles. Lack of vitamin E in the rat causes testicular degeneration after 40 - 50 days wheras such lesions in testes of guineu pigs were absorved only after 130 days and advanced degeneration after 175 days. Them canies know how to protect them, huh!

Symptoms of vitamin E deficency (diet low in E - high ~~high~~ in poly unsaturated fatty acids showed primairly muscle degeneration (skeletal) leading to partial paralysis and total prostration. Testes atrophy in males, show degenerative changes in the sperm cords and clumping or complete disappearance of spermatozoa and spermatids. In pregnant female lack of vitamin E causes malformations and death of fetuses, which are frequently resorbed. (or passed as mummified babies. May also be retained, causing "false" pregnancy, low grade pelvic inflammatory disease, infertility & PYOmetria) / my addendum

Requirements difficult to establish from available data due to use of purified, liquified etc type diets and reluctance or refusal of cavies to eat same. (They aren't dumb!) Doses of 5 or 10 mg of tocopherol acetate given weekly using a diet containing 0.18% cod liver oil prevented skeletal muscle changes but did not prolist resorption and death of fetuses. In 1950 Farmer et al used a natural diet (grains?) whose exact nutritional composition was not known. Live births were obtained in 1st time littering sows using 3 mg tocopherol, daily. In mulerporas this level reduced the incidence of hemorrhage and abortion and increased % of live births. It is probable the requirement is between 1.5 -1.6 mg/day depending on Puf A intake, age, sex and physiological stress (showing, ~~pregnancy, etc.~~).

Remember at the beginning I said remember these symptoms - dullness, wasting, stiffness, lameness, loss of hair, slobbering and

inability to swallow? These are the sx (symptoms) of selenium overdose. They are also the sx (symptoms) of deficiency in the cavy. Perhaps the reason I've had good results with SE is because I use E-SE The horse form which is much higher in selenium (@5.48mg) than Bo-SE (2.19mg), L-SE 0.55mg, but lower ~~at 5.48mg than MouSE~~ (than MUSE @) 10.95mg. The rest of the ingredients are the same - vitamin E 50mg or 68 IU, polyorbate 80-250mg (preservative), Benzyl alcohol 2% preservative. E-SE does contain, however polyoxy ethylated vegetable oil 250mg and is not supposed to be given sub q. I do, though whether or not the same effects could be obtained by using 1/2 doses of Mu-SE, further diluted, remains to be seen. I haven't tried it, but E-SE in painful to inject so I may switch. (to Seletoc® or MUSE®) Cavies with signs of SE deficiency should be given injectable selenium daily for 3 days then every other day for 1 week, then switch to orally and continue as outlined until symptoms are gone. (It can take up to two months to reverse the SE deficiency symptoms.) Monthly maintenance will be required to prevent recurrence of symptoms. (& even increasing to weekly bi weekly during pregnancy may be required, unless bran mash is fed as a preventative.

Dogs: A Certain arthropathies, & symptoms present with hip dysplasia & disc syndrome are alleviated & controlled with ~~SE~~ Seletoc® the SE preparation SELETOC®

(it does not contain polysorbate and contains only 100 mg polyoxyethylated vegetable oil (vs 250mg in ESE®), plus it is pH adjusted & can be given I.M. & S.Q. in divided doses. (divided doses are ~~Thus~~ is not necessary in the cavy) due to the small volumes given.

B Some cases of idiopathic (unknown cause) dermatitis have benefited by treatment & Seletoc.

C Seletoc should not be used in place of any other standard treatment for ~~disorders~~ the arthropathies & dermatoses. 3

17

3 footnote: My feeling is that SE deficiency probably provides more curative activity than the other "standard treatments". However controlled double blind studies would be required to prove this.

KISSIMMEE DIAGNOSTIC LABORATORY
Florida Dept. of Agriculture & Con. Services
P.O. BOX 460
KISSIMMEE, FL 32741
TEL. 305-847-3185

Date 10-14-93

Species Guinea Pig Breed Peruvian Age 2 yr. 3547297 OCT 24 Sex M

Veterinarian Dr. Cindy Miller Owner Nana Peyton
(Name and address must be shown)
Address 1145 N. Main St. (Street, PO Box, RR No.) Address 7616 Lueders Ave. (Street, PO Box, RR No.)
Jacksonville, FL 32218 (City & Zip Code) Jacksonville, FL 32208 (City & Zip Code)
Phone 904 757-4610 Duval (county)

Specimen(s) Frozen tissues - liver, lung, kidney, stomach

HISTORY (signs, treatment, autopsy lesions, etc.); On tumor specimens the following must be completed:
Also - cultured Enterobacter from Lung & Conjunctiva, Staph in Lung & Protoustin Con
Location a/o tissues involved
Diet - Manna Pro
Size Shape ~~All~~ heavy growth
Herd health problem. Signs generally begin with slobbering, then animals stop eating & drinking; then have diarrhea & get dehydrated or start staggering, then die. Symptomatic tx & prophylact antibiotics help somewhat, but O has lost 60 out of 150 animals. Necropsy results: thin (< 1 lb), diarrhea, ocular discharge & crusting, full gall bladder, mottled red & black & pink lungs. Histopath (Dr. Robert Schmidt) - Fatty Liver, Nephrocalcinosis, Lungs - edema & histiocytosis BUN 97 CPK 9004 WBC 19.
Provisional Diagnosis Ddx: ① Acute Bact. Inf ② Underlying Nutr. Prob ③ Underlying Viral Problem - not seen on histopath
TEST(S) REQUESTED Viral isolation

FOR LAB USE ONLY

(✓) Request Report by Collect Phone

LAB USE ONLY HIST ☐ BACT ☐ PARA ☐ CHEM ☐ VIRO ☐
OTHER LABS ☐ SERO ☐ _____ ☐

State of Florida
Department of Agriculture and Consumer Services
Tallahassee, Florida

Bob Crawford
Commissioner

SPECIAL FEED SAMPLE ANALYSIS REPORT

DATE: 10/25/93
SPECIAL SAMPLE NO. S-00054 BJH 056

SAMPLE SUBMITTED BY: INSPECTOR NAME: BENJAMIN J HEWETT

NANCY PEYTON
7616 LUEDERS AVE
JACKSONVILLE FL 32208

IDENTIFICATION:

MANNA PRO SMALL WORLD GUINEA PIG FOOD

ANALYSIS FOR INFORMATION ONLY.

AFLATOXINS 0001 PPB

20 parts per billion = (no [redacted] found.

Dep. of Agriculture Animal Peanuts Lab in Kissimee = Dr. Harvey Rubi [redacted] 407-846-52[illegible]

REMARKS:

CC:
STANDARD FEED CO
1282 KINGS RD
JACKSONVILLE FL 32219

CC:
MANNA PRO CORP
2962 S CEDAR AVE
FRESNO CA 93725

By: Leigh A. Humphreys
Leigh A. Humphreys, Division of Chemistry
Florida Department of Agriculture and
Consumer Services (904) 488-9095

Bob Crawford
BOB CRAWFORD
Commissioner of Agriculture

CLIN. PATH.
LABS

(310) 542-6556

PATIENT: PEYTON R/WPWEUVIAN REQUESTED BY: NORTHSIDE ANIMAL HOSPITAL
AGE: 1.5 YRS SPECIES: G-PIG
CHART # DR M
ACCESSION # 50782

TIME REPORTED: 10:18
DATE DRAWN: 09-15-1993 DATE RECEIVED: 09-16-1993 DATE REPORTED: 10-03-1993

REQUESTS:	RESULTS	UNITS	NORMAL VALUES
			NITRO
			POLY/B
			TRIM/SULFA
SENSITIVITIES #3			
AMIK			
AMP			
CARB			
CEPH			
CHLORO	ERYTHRO		
GENT			LINCO
CIPRO			
BAYTRIL	NEOMYCIN		
	NITRO		POLY/B
	TRIM/SULFA		

COMMENTS:
100 L/VH
SENSITIVITIES ARE ON 1. ENTEROBACTER
2. PROTEUS SPECIES
3. STAPH

E/RNL

Gram negative rod shaped bacteria - assoc. with fecal enteritis

<< REPORT COMPLETE >>

ROSALIE A. LANE DIRECTOR
3701 INGLEWOOD AVE. STE. 106 REDONDO BEACH, CALIFORNIA 90278

DR. ROBERT E. SCHMIDT

ZOO/EXOTIC PATHOLOGY SERVICE

2825 KOVR DRIVE
WEST SACRAMENTO, CA 95605

(916) 372-4200

3544 '97 OCT 24 A9:02

Doctor:

Date: September 21, 1993

Hospital: AVIAN & EXOTIC ANIMAL CLIN PATH LABS
3701 Inglewood Ave. # 106
Redondo Beach, CA 90278

Access: V303767-7

Species: Guinea Pig
Breed:
Sex: Male
Name: Corie
Age: 1 1/2

Client: Peyton #50781

Acct. No.: 010

Northside

CLINICAL HISTORY: Ptyalism, anorexia and dehydration. Ocular discharge present. At necropsy, the lungs were mottled. Thirty of the 150 animals have diarrhea and ataxia.

HISTOLOGY: Submitted are several sections of tissue.

Esophagus: Small foci of inflammation are noted within the mucosa. Neutrophils and macrophages are seen.

Trachea: No lesion recognized.

Lung: Diffuse edema is noted. Histiocytes are noted within alveoli.

Adrenal Gland: No lesion recognized.

Liver: There is diffuse swelling and vacuolation of hepatocytes.

Kidney: Scattered foci of mineralization are noted.

Lymph Node: No lesion recognized.

DIAGNOSIS:

1. **DIFFUSE MODERATE VACUOLAR HEPATOPATHY**
2. **MULTIFOCAL MINIMAL NEPHROCALCINOSIS**
3. **FOCAL MINIMAL ESOPHAGITIS**

AVIAN & EXOTIC ANIMAL CLIN. PATH. LABS

3701 Inglewood Avenue
Suite #106
Redondo Beach, CA 90278

1-800-350-1122
(Anywhere in the U.S.)
(310) 542-6556

☐ ROUTINE
☐ PRIORITY
☐ STAT

ACCESS NO. 50781

DATE SUBMITTED

Account #
Phone # 904-724-6644
Fax #

Hospital Name: PARKWAY Animal Hosp. JAX, FLA

DOCTOR	OWNER	PET I.D.

AGE	SEX	SPECIES

HISTORY

FREQUENT INDIVIDUAL REQUESTS (Please Check # of Test Requested)

1. ☐ CBC
2. ☐ Diff./Est. WBC
3. ☐ PCV
4. ☐ Hemoglobin
5. ☐ Plasma Protein
6. ☐ Platelet Count
7. ☐ Microfilaria ✓
8. ☐ Psittacosis Titer
9. ☐ Chlamydia EHsa
10. ☐ **Blood Lead**
11. ☐ T-4
12. ☐ Acid Fast Stain
13. ☐ Urinalysis
14. ☐ Fluid Analysis
15. ☐ C + S w/ Gramstain
16. ☐ C + S w/ Fungal Culture
17. ☐ C + S w/ G.S. & Fungal
18. ☐ Combo C + S w/ [ ]Fungal [ ]Gram St
19. ☐ Fungal Culture
20. ☐ Feather Biopsy (Feather X ___)
21. ☐ Histopath (Tissues X ___)

Special Instructions:

GRAM STAINS

Sce. A

99. Pos. Cocci	104. Bacteria	
100. Neg. Rods	↓	105. Yeast
101. Neg. CB's	R ☐	R ☐
102. Spirochetes	F ☐	F ☐
103. Pos. Rods	L ☐	L ☐
	M ☐	M ☐
	H ☐	H ☐

Sce. B

106. Pos. Cocci	111. Bacteria	
107. Neg. Rods	↓	112. Yeast
108. Neg. CB's	R ☐	R ☐
109. Spirochetes	F ☐	F ☐
110. Pos. Rods	L ☐	L ☐
	M ☐	M ☐
	H ☐	H ☐

EXOTIC PROFILES

22. ☐ Complete Avian
23. ☐ Mini Avian
24. ☐ Micro Screen
25. ☐ Complete Reptilian
26. ☐ Mini Reptilian
27. ☐ Small Mammal
28. ☐ Special Screen
29. ☐ Basic Scan I
30. ☐ Basic Scan II
31. ☐ Basic Scan III (includes choice of 1 of the following)
    - ☐ Acid Fast Stain
    - ☐ Fecal Trichrome
    - ☐ Add'l Gram St + 1 Chem.
32. ☐ Basic Scan IIIA (includes Psittacosis Titer)

BIOCHEMISTRIES

33. ☐ Amylase
34. ☐ Albumin
35. ☐ Alk. Phos
36. ☐ Bili T.
37. ☐ Bun 97 ↑↑
38. ☐ Calcium 11.1
39. ☐ CPK 9904
40. ☐ Creatinine 1.0
41. ☐ Glucose 136 SL↑
42. ☐ LDH 204
43. ☐ Lipase
44. ☐ Phosphorus
45. ☐ Sgot 108
46. ☐ Sgpt
47. ☐ Tot. Protein 6.2
48. ☐ Uric Acid 2.8
49. ☐ Serum Hemolytic
50. ☐ Serum Fibrinous
51. ☐ Serum Icteric
52. ☐ Serum Lipemic

HEMATOLOGY

53. WBC x 10^3 19.8 ↑ (7.18)
54. RBC x 10^4 6.77
55. Plasma Prot 6.2
56. PCV % 50 slT (37.4)
57. Buffy Coat 0
58. MCV 73
59. HgB 14.2
60. MCHC 28
61. NRBC/100 wbc
62. Thrombos/Platelets present

DIFFERENTIAL

63. Bands
64. Hets/Neuts 72
65. Lymphocytes 28 ↓?
66. Monocytes
67. Eosinophils
68. Basophils
69. Polychromasia normal
70. Anisocytosis normal
71. Spherocytes
72. Poikilocytosis
73. RBC Anemic Signs
74. Pb Toxicity
75. Hemoparasites none seen
    Type
76. Comments

FECAL ANALYSIS

77. ☐ Direct
78. ☐ Float:
79. ☐ Trichrome:
80. ☐ Fat, Fiber & Trypsin:

☐ URINE/FLUID ANALYSIS ☐

Sce./Coll. Meth.
81. Color
82. Appearance
83. Spec. Gravity
84. pH
85. Protein
86. Glucose
87. Ketone
88. Blood
89. Bilirubin
90. Urobilinogen
91. WBC /HP
92. RBC /HP
93. Casts /LP
94. Epith. Cells /HP
95. Crystals /HP
96. Bacteria /HP
97. COMMENTS

* Fluid Analysis includes Cytology

98. ☐ Source:

CYTOLOGY

BACTERIOLOGY

115. Isol. #1 Heavy Enterobac
116. Isol. #2 Proteus
117. Isol. #3 Staph
118. Isol. #4

SENSITIVITIES

Isolate #	1	2	3	4
117. Amikacin	I	S	S	
118. Ampicillin	R	R	R	
119. Carbenicillin	R	R	S	
120. Cephalothin	R	R		
121. Chloramphenicol	R	R	S	
122. Claforan				
123. Doxycycline				
124. Erythromycin	R	R	I	
125. Gentamicin	S	S	S	
126. Kanamycin				
127. Lincomycin				
128. Cipro	S	S	S	
129. Baytril	S	S	S	
130. Neomycin				
131. Netilmicin				
132. Nitrofurazone				
133. Piperacillin				
134. Polymixin B				
135. Spectinomycin				
136. Ticarcillin				
137. Tobramycin				
138. Trimeth. Sulfa				
139. Vancomycin				
140. Vetasulid				

OFFICE USE ONLY

RTT/SERUM ___ HCT/WHOLE ___
LTT/WHOLE ___ HCT/S&S ___
FIT ___ HCT/SPUN ___
COVER/SLP ___ HCT/MICRO ___

SLIDE/GS ___ SWAB ___ AIRBORNE ___ FAX P ___ F ___
SLIDE/BS ___ ELISA ___ UPS ___ PRINTER P ___ F ___
SLIDE/AF ___ FEC. TUBE ___ FEDS ___
FLUID AHA ___

[redacted]

span with NO REPORTS of any problems. The product can be eaten, scattered, licked off paws etc. and causes no adverse effects. It's ability to control ammonia odors is amazing. If you plan to use it, go ahead. No harm will come to your cavy. I understand it is a dust, so I would recommend putting a thin layer of shavings on your base (usually newspapers), then the Sweet P.D.Z. then a normal amount of shavings over the dust, eg. 2-3 ins. If you have questions or concerns, by all means call Mr. McGregor at 1-800-367-1534. He is very concerned that people are getting the wrong impression about this product.

Sta-Pure water bottles. Are any of you having problems with these bottles? This Spring we purchased about 4 dozen, 8 oz. (Hamster size) new bottles. Within a week some of the bottles were leaking badly. Close inspection showed the rubber flange on the stopper was deteriorating, preventing the proper seal. As of this time, none of the original 4 doz. bottles are usable. The Company says they haven't received any other complaints. If you have had problems, please write or call Sta Pure Systems, 610 Industrial Park Dr., Lansdowne, Pa. 19050; 1-800-872-7507. I cannot believe we are the only ones who are having problems. I have used these bottles for over 15 years,with never a problem until now. I still use the same vitamins and mineral supplements I've always used, so the cause of the problem is a mystery to me.

Vice Presidents Message

We all know its election time. Enough on this. In lieu of my usual message, I feel a couple of health care items need to be addressed. I'm trying to be concise- a first.
If you suspect your cavy has pneumonia, get the cavy to a vet immediately. Prompt treatment will go a long way toward allowing a cure. Silent pneumonia is a fact! You don't suspect a lung problem because the cavy doesn't sound "rattly". If the pneumonia is severe, the cavy is not moving enough air to hear the typical sounds, hence the term "silent pneumonia". These cavies,

unfortunately, do not "present" with your typical crusty eyes, runny/ stuffy nose, obvious respiratory difficulty signs, coughing or sneezing. ANY cold should be taken seriously and treated. Use nose drops (childrens type, decongestant or even nasal saline- they'll sneeze, blow their nose and keep it unblocked. Spray a lung bronchodilator toward their nose and mouth. DO NOT HOLD IT RIGHT UP TO THE AREA! Keep it 1-2 ins in front of the face and spray. If relief is not rapid, WAIT at least 15-20 mins. before spraying again (unless the cavy is so bad it is unconscious and/or convulsing. If this is the case, get to your Vet immediately. Time is of the essence. Many cases of silent pneumonia end fatally.) These drugs are powerful heart stimulants and increase the heartrate tremendously. If side effects occur, you won't have the means to control them. Many people use Primatene mist, since it is over the counter. I prefer using Alupent, or another longer acting, more effective preparation. These can only be obtained by prescription but are essential to keep on hand if you raise any number of cavies.

Cavies with pneumonia do not eat or drink. Unblocking the nose and improving air exchange may be all that is necessary to enable your cavy toeat and drink again. However, pneumonia is serious, the major killer of cavies and should be treated with antibiotics. The current drugs of choice are Baytril, Gentamycin and (if not life threatening) Bactrim (Tribrissen). Baytril is given by injection for the first dose, then orally BID for 7-10 days. It is not uncommon for cavies to not eat for a day or so after starting Baytril. Give oral fluids, yorgert, acidophilus milk, Bene-Bac etc, orally. At least 2-3cc must be taken orally every hour to prevent dehydration due to respiratory loss of fluid (a normal response of breathing). Severe dehydration requires the injection of intra-peritoneal or sub-cutaneous fluids using 50-100cc's of D5Ringers, D5Saline, etc. This should be done by your Vet. and is critical to the survival of the cavy. If the cavy has "lost over night" what appears to be 1/2 or more of its body weight, fluids by injection are mandatory for survival. This is a true Emergency. The bacteria currently afflicting cavies are very resistant and not affected by Tetracycline, Terramycin and sometimes Gentamycin and Bactrim. I have had over 90% success rate using a combination of Baytril and Gentamycin (0.4cc of each plus 0.4cc Dexamethasone and 3 drops of Alupent Bronchodilator solution) per asthma nebulizer solution (10 cc NS) Place the cavy in a small plastic tub, cut hole to fit the tube the mouthpiece normally fits on, run til cage is misty appearing "fogged", turn off and allow cavy to breathe vapors til cage clears. This is by far the easiest, least traumatic way to treat. Cavies are well known for going into shock and "giving-up" type behaviors. The "magic mister" treatments appear to prevent these potentially fatal side effects. (my experience). If a cavy is critically ill, I do not hesitate to treat with three antibiotics. You don't have time to wait for culture results. The third antibiotic of choice is Chloromycetin palmitate. It is now only available from Mexico, unfortunately. It is obtainable there over the counter, no Rx required. All three of these antibiotics are safe to use on a pregnant sow. Dexamethasone,

even though it is a steroid, and in disfavor by many doctors, can mean the difference between living and dying, for your cavy. It reduces fever, inflammation, and increases appetite, all of which are vital for survival of your cavy. Do not use ASA, Tylenol or other usual "animal fever reducers" on cavies. The results can be liver and kidney problems plus bleeding (even rupture of the stomach) in the cavy. Provide lots of TLC, favorite munchies, force fluids and TALK to your cavy. They understand and respond favorably to you. If they are cold, shivering etc., place their cage on a heating pad on LOW, never HIGH, and be sure they can get to an unheated area if they need to. NOTE: Dexamethasone should NOT be used to treat a pregnant sow, unless in the opinion of the Vet, her condition is so critical, you have to make a choice between her and her unborn. Dexa. will cause abortion, or miscarriage, depending on stage of pregnancy. I, personally, would rather save the mother; she can always be rebred. A term sow may require an emergency SECTION to try and save her and or her young. Their condition is too critical to waste time inducing her with Oxytocin. She simply does not have the strength and "reserves" necessary to deliver. These are all hard choices to have to make. These small animal "mister" set-ups can also be used to deliver Oxygen during the time of treatment; it certainly won't hurt. Emergency sections, I believe, should be done using only Ketaset 0.2-0.4cc with 0.1-0.2cc Atropine, the "dowm and dirty" way, I call it. I've seen too many cavies that never come out of inhalation anesthesia, despite the surgery being a success. diluted 1:10

Dopram must be readily available to give if necessary to the mother and the babies after delivery. I dilute Dopram 0.2cc/10cc saline or better D5W or Ringers. Sows and babies are very low in blood sugar by time of delivery. You can place a bit of Karo on the gums of babies and sow to give instant sugar to them. Have an assistant ready to clear the airway of newborn, always, before trying to rescusitate. Hold baby gently but firmly around shoulders, swing toward floor,then upward two or three times, clear airway again and pinch a tender spot (ears, flank, between toes etc. until you get a good cry; repeat these procedures until the baby is breathing REGULARLY on it's own. If you do not, your efforts will be in vain. Inflating the lungs within 1-5 mins. is essential to the babies survival. (If the baby is really wet, wrap a kleenex, cloth etc around body to prevent slipping.) Dopram can be given every 5-10 minutes during this revival procedure. It is not uncommon to have to give 2 or more injections to counteract the effects of the anesthesia. A helper is critically important, as you can see. One has to be removing the babies as fast as possible while the other works on the babies. Some babies simply will not make it, especially if they are premature, post mature or excessively large (from injury to brain in delivery). Always be sure the cord is not bleeding. It does no good to revive them while they are bleeding out from the cord. Clamp the cord with a hemostat. Tear the cord, rather than cut same; hold near belly and tease the end off with your fingers. Mamas "saw" the cord. An amazing fact is that babies can go for prolonged periods with spells of apnea (not breathing) and

still be revived. Don't give up too soon. DO NOT BLOW INTO NOSE OR MOUTH to inflate lung or hope you can get them to breathe. All this does is fill the stomach with air and decrease the babies' chance or survival. Passing a tube into the trachea has always been met with failure. Do not use silk or vicryl type sutures internally. I have always used ~~Dexon (for race horses)~~ or plain Chromic 2 or (3-0) for internal repair and muscle, skin closure. Always, before closing, lavage the peritoneal cavity with saline etc. to remove blood etc before closing; soak up with 4x4's until solution is clear. Do not leave "gaps" like one can do on dogs or cats. Cavies frequently will push the small bowel through these openings with disastrous results. Do leave one or two areas, though, loose enough for fluid to drain out. Before closing the skin, I inject 1mg. Gentamycin, 0.1 mg dexamethasone into peritoneum along with at least 10cc's of Ringers etc. (estimated fluid loss replacement). I feel this step is crucial to recovery. Ninety % of my section sows survive, nurse their young and can be rebred after a 2-3 month rest. You may have to hand feed the babies for one or two days on some sows. On "preemie" babies, hand feeding using sugar water first, is very important. If the young do not actively "root" for their meal, the sow will not help them. She may not clean the anogenital area to stimulate voiding and defecation. Many babies have very full bladders at birth. If they are not cleaned before trying to feed them, they won't eat and one wrongly assumes they can't and are going to die. Do not give milk for a first feeding. If the baby inhales it, pneumonia is guaranteed! A baby that chokes and/or has fluid coming out the nose when feeding is attempted, has little chance of survival. Do not castigate yourself for failing to do the right thing. Congenital defects are frequently incompatible with life. You can't do surgery on a baby with a cleft palate, for example. Let the baby go. It's the most humane thing you can do for it. Place the eye dropper to the lips and let the baby get a drop, then another before trying to place it further into the mouth. It frequently takes a preemie a day or more to learn to suck. Other newborns try to "eat" the dropper. Use whatever method works on that particular baby.

I have digressed. Pneumonia can be successfully treated, following this outline in over 90% of cavies. The real heart breakers are those who have pleural and pericardial effusions along with massive pneumonia. They simply cannot hold out long enough to get better (this is frequently seen it Satins, to the point where I've dubbed it "Satin Disease".) Extra regular vits and Vit. C, at least 100mg/day, must be given to replace stores on sick cavies. Don't be afraid of overdosing on Vit C. Give it for at least three days then cut to 50mg/day. Pregnant sows should get at least 50mg./day, plus Vit. E and selenium. Feed bran and Kreshmers wheat germ, or better yet, get raw wheat germ from Nutritional Research Assoc., New Whitely, In. Selenium and Vit E help neutralize toxic products that may be in the feed. Prevention is far better than trying to cure. In the ideal situation, if all cavies were receiving the proper, optimal amounts of vitamins, minerals, essential fatty acids etc. we would see far less infections, debilitating diseases etc. in our

stock. Most feed formulas are based on the minimum requirements necessary for growth and reproduction; these amounts are not adequate for showing, producing cavies (my opinion).

The second oft misunderstood problem is "Wet Vent" disease. This is not really a disease but symptoms of urinary tract disorder. Such cavies frequently have bladder/urethral,kidney or tube stones. These conditions are life threatening and should receive prompt Vet. care. The cavy must be treated with antibiotics (Baytril and/or Gentamycin), fluid intake must be kept at 100cc's minimum per day and the urine must be acidified. This can be done with large doses of Vit, C. orally, daily (or divided and given twice a day eg. 50mg. am and pm). Any cavy that has lost more than half it's body weight must receive fluids by injection. Often, the only symptom of this problem is a chronically wet bottom. It is more prevalent in sows and can occur at any age but older sows are more prone to it. These sows may appear to be in "labor", with hunching, crying and obvious signs that they can't go pee. The urine may appear frankly bloody but more often it is dark and odoriferous. Pus may or may not be evident. Boars show the same symptoms. Any boar in "labor" has a kidney/bladder stone problem, until proven otherwise. If a sow has a stone in the bladder, this is a readily treatable problem. The Vet can simply remove the stone via surgery. Boars are more difficult to treat. Bladder stones can be removed, same as for a sow, but boars tend to have stones lodged in the urethra or in the kidney. Urethral stones are Emergency problems and must be treated by a Vet. The best form of treatment I've found for all stones is the use of d-panthenol (o.2cc of a dilution of 1:10, along with Torbugesic o.2cc given twice to three times daily for one to three days. Meantime, the cavy feels better, will resume eating and drinking and can be given Vit. C. 100mg/ day in divided doses along with cranberry juice, V-8 juice, as many green, leafy veggies as he will consume (actually, anything he desires, he gets), watermelon (high water,sugar content) cantaloupe, cabbage,broccoli, cauliflower leaves (they prefer the outer leaves of cabbage and broccoli stems, fruits such as pears, apples, peaches etc. One of the first indicators of stones is sudden weight loss in a previously healthy, hale and hearty cavy followed soon after by hunched posture, pain when handled and refusal to eat or drink. Starting treatment immediately it vital. If it is a weekend, after hours, etc. try to get them to drink Vit. C. Don't put it in the water! Give directly by mouth. also, you can use a urinary analgesic "Pyridium", available at your drug store or supermarket. There are several generic forms available. Ask your pharmacist. Crush two tablets, place in 2 oz. (60cc's) water, add 15cc propylene glycol (in total of 60cc'c), always shake well before using, refrigerate, give one dropperful every 6-8 hours. May continue for 7 days and give along with other meds already described. Give Lixitinic (tonic, blood builder) 1 dropperful daily for 3 days then 1-2 times a week til recovered. Available in many pet shops and from your Vet. This problem in older cavies is sometimes the herald sign of cancer of the bladder. If you can feel swollen areas, or see

them, your cavy continually "strains" to pee, has obvious bleeding or will not eat or drink, get to your Vet STAT.

The "Guinea Pig Man" of England, Peter Guerney says stones can be broken up using the human drug Destosil (the Vet at The Guinea Pig Trust, Vedra, has successfully used it. Peter reports success in preventing the formation of stones using tincture of Hydragner, gravel root and parsley piet (no amounts listed). Apparently, he has a forthcoming book titled "Piggy Potions", possibly published by T.F.H.? This was not clear. He will have one coming out by T.F.H. on popular Breeds in which he says "I have really done something special in the way of photographing". I am a firm believer of using parsley on any sick pig. It tends to soothe the stomach and increase appetite. If they won't eat, I crush up Parsley, add water, decant (keep bits of leaves out or they may choke on them) and give per eye dropper. If he says the above items work, I don't doubt it. A word to the wise, though on "natural" medicines. Never give such products unless YOU KNOW what the active ingredients are, the indications for use, the contra-indications and side-effects. AND always dilute by 10-100 parts, depending on the "potency" of the product eg- a more dilute or "safer" drug can be diluted lcc/9cc sterile solution, while a strong one should be lcc/100cc's solution. Think "baby" doses. Check with your Vet. And don't give meds containing DMSO orally to cavies.They have a high enough rate of Cancer, as it is, without giving them a know cancer causing agent. DMSO is a super penetrant but I no longer addit to the "Magic Mister" solution (even though my Vet said it was O.K.) because I'm not sure it's safe. They are sooo small.

Telephone
409/845-3414

983-5151

Accession #: C97190285

TEXAS VETERINARY MEDICAL DIAGNOSTIC LABORATORY
Drawer 3040, College Station, Texas 77841-3040

FINAL REPORT - VETERINARIAN'S COPY

Date Shipped:
Date Received: 07/09/97

Vet. Acct. Number: 00791
PH:(254)778-5246 FAX:( ) -

Owner Name:
Winkler, Sally

Fwcl

Veterinarian's Name:
ANIMAL MEDICAL CARE, INC.
1604 W. AVENUE H
TEMPLE TX 76501

Prelim Report Dates: 07/11/97 07/09/97
Telephone/Fax Dates: 07/16/97 H 07/11/97 B
Final Date: 07/16/97

ASSIGNMENTS:

CS =	TOX:	BAC: F	CPT:	PAR:	HIS: F	SER:	VIR:	NEC: F	THR:	RAB:
AM =	TOX:	BAC:	CPT:	PAR:	HIS:	SER:	VIR:	NEC:	THR:	RAB:

SPECIMENS SUBMITTED:
entire pig

TESTS REQUESTED:
autopsy, culture, aflatoxin

SPECIES: Exotic
BREED: GUINEA PIG
SEX: Female
AGE: 1.0 Years
WT: Unknown

#ANIMALS IN GROUP: 0001
#ANIMALS SICK:
#ANIMALS DEAD: 0001
DATE OF DEATH LOSS: 07/05/97
ILLNESS DURATION: 01 Weeks

CLINICAL HISTORY:
Dr. Koonsen. Failure to thrive, acute bloating abdomen 2 days before death; depressed, diarrhea day before death. Unable to walk well. Gave chlor 1/2 cc oral selenium .1mg. Dead next a.m. Himy sow Jr- short head. /mb

"golf ball" type

CONCLUSION:
Septicemia, endocarditis. ---DR. EUGSTER/bw

CHARGES

Necrop:	$20.00	Bact:	$10.00	Cl Path:		Parasit:	
Path:	$45.00	Serol:		Toxic:		Virol:	
Therio:		Ph/Fax:	$1.00	Ctn Rtn:		Shipping:	
Bus:		Other:				**TOTAL:**	**$76.00**

The fee for the Services of the Texas Veterinary Medical Diagnostic Laboratory are listed above. This charge doesn't include professional service fees by your Veterinarian or costs of preparing, packaging, and shipping of the specimens.

BILLED TO VETERINARIAN - You are advised to consult your Veterinarian for his analysis of this report and for any treatment that might be indicated.

Whitford Hoffman

Accession #: C97190285

NECROPSY REPORT
7/09/97

SPECIES: Exotic **BREED:** Guinea Pig **SEX:** Female
AGE: 1 year **WEIGHT:** 0.4 kg

EXTERNAL EXAM: A white intact, non-gravid, female guinea pig in thin body condition is received for necropsy in an autolyzed postmortem state of preservation.
RESPIRATORY SYSTEM: The lungs have multifocal, well demarcated, non-depressed, slightly firm areas predominantly in the ventral anterior regions. Sections float in formalin.
CIRCULATORY SYSTEM: No gross lesions.
DIGESTIVE SYSTEM: The small intestine has brown/red granular material. The large intestine has green granular material. The rectum has green liquid. Mucosal surfaces are within normal limits. The liver is friable and slightly pale.
UROGENITAL SYSTEM: No gross lesions. The ovaries are symmetrical. The uterus is empty.
LYMPHATIC SYSTEM: Two (1.5 x 1.5 x 2.0 cm and 1.8 x 1.5 x 2.5) masses are adhered to the spleen on the mesenteric surface. They contain moderately thick yellow/tan material (pus). There are multiple (about 10) 0.2 to 0.4 cm raised whitish nodules on the surface and within the splenic parenchyma.
ENDOCRINE, MUSCULOSKELETAL, EAR/EYE, SPECIAL SENSES: No gross lesions.
NERVOUS SYSTEM: The brain is soft.

NECROPSY DIAGNOSIS/COMMENT:
Suppurative splenitis and perisplenic abscesses
Multifocal pneumonia
Further tests are pending.
--Dr. LaRock/mb

floating lung = pneumonia?
sm intestine hemorrhage

***HISTOPATHOLOGY REPORT
7/16/97

7/15/97
DESCRIPTION
SPLEEN: Two sections of spleen are examined. In these sections of spleen there are multiple discrete dense infiltrates of neutrophils admixed with necrotic debris and macrophages. Partially surrounding these areas of inflammation are thick accumulations of fibrous connective tissue. The red pulp contains occasional accumulations of fibrin.
MYOCARDIUM: Adherent to the endocardial surface and surface of the valves are scattered dense infiltrates of neutrophils admixed with necrotic debris and fibrin. Scattered myocardial fibers are necrotic and mineralized.
LUNG: Two sections of lung are examined. In these sections of lung the alveoli are filled with variable accumulations of neutrophils, macrophages and lymphocytes admixed with a proteinaceous material. The pulmonary capillaries are diffusely and severely congested. A few of the pulmonary vessels contain fibrin thrombi. Some of the pulmonary vessels are surrounded by moderate infiltrates of lymphocytes and plasma cells.
LIVER: Two sections of liver are examined. In these sections of liver some of the centrilobular hepatocytes contains one to several clear rounded cytoplasmic vacuoles.
KIDNEY: Two sections of kidney are examined. In these sections of kidney the interstitium contains scattered moderate infiltrates of lymphocytes and plasma cells. Some of the renal tubules are filled with a proteinaceous material.
STOMACH: In this section of tissue, post mortem autolysis is advanced.
ADRENAL GLAND, LYMPH NODE, CEREBRUM, BRAIN STEM, CEREBELLU, COLON, SMALL INTESTINE, UTERUS, OVERY, TRACHEA, ESOPHAGUS: No lesions are observed.

DIAGNOSIS
SPLEEN; severe abscessing splenitis.
HEART; multifocal fibrinopurulent endocarditis with multifocal myocardial necrosis.
LUNG; moderate suppurative pneumonia.

COMMENT
The histologic lesions are highly suggestive of a septicemia. It is likely that the endocarditis was the source of the bacteria causing the splenic and pulmonary lesions. Presumably, the cause of death was metabolic imbalances associated with the septicemia.
---Dr. Hoffman/lab

Why necrotic & mineralized fibers in heart
why cytoplasmic vacuoles in liver
kidney interstitium moderate infil of lymphocytes & plasma cells
some renal tubules filled w proteinaceous material

Accession #: C97190285

***BACTERIOLOGY AEROBIC AND ANAEROBIC CULTURES
7/11/97

ANIMAL/SPECIMEN ID: PORCINE

The following tissues/specimens were cultured:

Specimens	Isolated	Pathogenic Significance
LUNG SWAB	*STREPTOCOCCUS ZOOEPIDEMICUS	Pot. Pathogen (4+)

* SENSITIVITY TEST REPORT FOR STREPTOCOCCUS ZOOEPIDEMICUS

Sensitive	Intermediate	Resistant
AMPICILLIN/AMOXI		SPECTINOMYCIN
CEFTIOFUR/NAXCEL		TRIMETHOPRIM/SULF
CEPHALOSPORIN		VETISULID
ERYTHROMYCIN		KANAMYCIN
GENTAMICIN		NEOMYCIN
PENICILLIN		
TETRACYCLINES		

The following tissues/specimens were cultured:

Specimens	Isolated	Pathogenic Significance
LUNG SWAB	ENTERICS	Contaminant (3+)

COMMENTS:
--DR. WHITFORD/mm

Telephone
409/845-3414

Accession #: C97163201

TEXAS VETERINARY MEDICAL DIAGNOSTIC LABORATORY

Drawer 3040, College Station, Texas 77841-3040

FINAL REPORT - VETERINARIAN'S COPY

Date Shipped:
Date Received: 06/12/97 6 '97 OCT 24 A9:03

Vet. Acct. Number: 00791
PH:(817)778-5246 FAX:( ) -

Owner Name:
Winkler, Sally

Veterinarian's Name:
ANIMAL MEDICAL CARE, INC.
1604 W. AVENUE H
TEMPLE TX 76501

Prelim Report Dates:
Telephone/Fax Dates: 06/16/97 B
Final Date: 06/16/97

ASSIGNMENTS:
CS TOX: BAC: F CPT: PAR: HIS: SER: VIR: NEC: THR: RAB:
AM TOX: BAC: CPT: PAR: HIS: SER: VIR: NEC: THR: RAB:

SPECIMENS SUBMITTED:
1 tube

TESTS REQUESTED:
Culture & sensitivity

SPECIES: Exotic
BREED: GUINEA PIG
SEX: Unknown
AGE: Unknown
WT: Unknown

#ANIMALS IN GROUP:
#ANIMALS SICK:
#ANIMALS DEAD:
DATE OF DEATH LOSS:
ILLNESS DURATION: Unknown

CLINICAL HISTORY:
DR. LANCE CREWS. Fax results to 254-778-6327. /bw

CONCLUSION:
Laboratory results as listed.

COORDINATOR: Dr. Whitford

CHARGES

Necrop:	Bact:	$10.00	Cl Path:	Parasit:	
Path:	Serol:		Toxic:	Virol:	
Therio:	Ph/Fax:	$.50	Ctn Rtn:	Shippng:	$1.34
Bus:	Other:			TOTAL:	$11.84

The fee for the Services of the Texas Veterinary Medical Diagnostic Laboratory are listed above. This charge doesn't include professional service fees by your Veterinarian or costs of preparing, packaging, and shipping of the specimens.

BILLED TO VETERINARIAN - You are advised to consult your Veterinarian for his analysis of this report and for any treatment that might be indicated.

Accession #: C97163201

***BACTERIOLOGY
6/16/97

AEROBIC AND ANAEROBIC CULTURES

ANIMAL/SPECIMEN ID: GUINEA PIG

The following tissues/specimens were cultured:

Specimens	Isolated	Pathogenic Significance
BROTH	*STREPTOCOCCUS CANIS	Pot. Pathogen (4+)

* SENSITIVITY TEST REPORT FOR STREPTOCOCCUS CANIS

Sensitive	Intermediate	Resistant
AMPICILLIN/AMOXI		AMIKACIN
CEPHALOSPORIN		SPECTINOMYCIN
CHLORAMPHENICOL		STREPTOMYCIN
CLAVAMOX		TRIPLE SULFA
CLINDAMYCIN/LINCOCIN		TRIMETHOPRIM/SULF
ENROFLOXACIN/BAYTRIL		VETISULID
ERYTHROMYCIN		
GENTAMICIN		
NITROFURANS		
PENICILLIN		
TETRACYCLINES		

COMMENTS:
--DR. WHITFORD/mm

Telephone
409/845-3414

Accession #: C97190267

TEXAS VETERINARY MEDICAL DIAGNOSTIC LABORATORY
Drawer 3040, College Station, Texas 77841-3040

FINAL REPORT - VETERINARIAN'S COPY

Date Shipped:
Date Received: 07/09/97

Vet. Acct. Number: 00791
PH:(254)778-5246 FAX:( )

Owner Name:
Haslan, Mary "Myra"

Final

Veterinarian's Name:
ANIMAL MEDICAL CARE, INC.
1604 W. AVENUE H
TEMPLE TX 76501

Prelim Report Dates: 07/15/97 07/09/97
Telephone/Fax Dates: 07/16/97 H
Final Date: 07/21/97

ASSIGNMENTS:

CS =	TOX:	BAC:	F	CPT:	PAR:	HIS:	F	SER:	VIR:	NEC:	F
AM =	TOX:	BAC:		CPT:	PAR:	HIS:		SER:	VIR:	NEC:	

THR:	RAB:	
THR:	RAB:	

SPECIMENS SUBMITTED:
whole pig

TESTS REQUESTED:
autopsy, culture, aflatoxin

SPECIES: Exotic
BREED: GUINEA PIG
SEX: Female
AGE: 1.0 Years
WT: Unknown

#ANIMALS IN GROUP: 0001
#ANIMALS SICK:
#ANIMALS DEAD: 0001
DATE OF DEATH LOSS: 07/05/97
ILLNESS DURATION: 01 Hours

CLINICAL HISTORY:
Dr. Koonsen. Sudden death 7/5/97.
Myra #MLD 262 Ag/orange /mb

CONCLUSION:
Laboratory results as listed.

COORDINATOR: Dr. Gayle

CHARGES

Necrop:	$20.00	Bact:	$7.00	Cl Path:		Parasit:	
Path:	$50.00	Serol:		Toxic:		Virol:	
Therio:		Ph/Fax:	$.50	Ctn Rtn:		Shippng:	$10.10
Bus:		Other:				TOTAL:	$87.60

The fee for the Services of the Texas Veterinary Medical Diagnostic Laboratory are listed above. This charge doesn't include professional service fees by your Veterinarian or costs of preparing, packaging, and shipping of the specimens.

BILLED TO VETERINARIAN - You are advised to consult your Veterinarian for his analysis of this report and for any treatment that might be indicated.

Accession #: C97190267

***NECROPSY REPORT
7/09/97

SPECIES: Exotic **BREED:** Guinea Pig **SEX:** Female
AGE: 1 year **WEIGHT:** 1.15 kg

EXTERNAL EXAM: An orange longhaired female guinea pig in good physical condition is received for necropsy in a moderately autolyzed state of preservation. The ventral abdominal fur is blood stained.
RESPIRATORY SYSTEM: The trachea is slightly red. A small amount of white to slightly tan fluid is in the mainstem bronchi. The lungs are diffusely dark red, heavy and moist. Cut section of lung float in formalin. Cut surfaces are red and exude a small amount of fluid.
CIRCULATORY SYSTEM: No gross lesions.
DIGESTIVE SYSTEM: The stomach contains a scant amount of brown fluid. The small and large intestines have copious amounts of green granular material. All mucosal surfaces are normal. The rectum has formed feces. The hepatic lymph node and adjacent parenchyma has an 0.8 x 0.5 x 0.5 cm firm nodule with central caseous white material (abscess).
UROGENITAL SYSTEM: The ovaries are symmetrical. The uterus is empty.
LYMPHATIC SYSTEM: See hepatic lymph node description.
ENDOCRINE, MUSCULOSKELETAL, EAR/EYE, SPECIAL SENSES: No gross lesions.
NERVOUS SYSTEM: The brain is soft. - from death

NECROPSY DIAGNOSIS/COMMENT:
Severe diffuse pulmonary congestion
Hepatic abscess
Further tests are pending. --Dr. LaRock/mb

what was cultured liver abscess
hepatic lymph node
what is significance of soft brain

***HISTOPATHOLOGY REPORT
7/16/97

7/15/97 31/6

DESCRIPTION

LIVER: Four sections of liver are examined. In one of these sections of liver there is a discrete, extensive area of acute coagulative necrosis. Scattered throughout the necrotic area are numerous bacterial colonies and multiple foci of mineralization. Surrounding this area of necrosis are thick strands of fibrous connective tissue. Scattered throughout the fibrous connective tissue are moderate infiltrates of macrophages, lymphocytes and plasma cells. The adjacent bile ducts are hyperplastic.

LUNG: Three sections of lung are examined. In these sections of lung the alveoli contain mild to moderate infiltrates of macrophages, admixed with a proteinaceous material. The pulmonary capillaries are diffusely and severely congested. Most of the pulmonary vessels are surrounded by moderate infiltrates of lymphocytes and plasma cells. CHF

SPLEEN: In this section of spleen the red pulp contains extensive areas of extramedullary hematopoiesis. bone marrow shuts down of [illegible] works

KIDNEY, STOMACH, SMALL INTESTINE, PANCREAS, LYMPH NODE, MYOCARDIUM, ADRENAL GLAND, OVARY, URINARY BLADDER, TONGUE, UTERUS, TRACHEA, ESOPHAGUS: No lesions are observed.

DIAGNOSIS

LIVER; focal hepatic necrosis with intralesional bacteria and adjacent fibrosis.
LUNG; mild interstitial pneumonia.

COMMENT

The primary lesion was the focal hepatic necrosis with intralesional bacteria. Presumalby, the intralesional bacteria were the cause of the hepatic necrosis. It was not determined whether this lesion was sufficient to cause the death of the animal. The cause of the mild interstitial pneumonia was not determined.
---Dr. Hoffman/lab

usually no → ? interstitial pneum cause cong heart failure
hyperplastic bile ducts
(seen ruptured gallbladder)
spleen extra medullary hematopoiesis
hepatic necrosis ? aflatoxins
liver discrete extensive area ∅ acute coagulative necrosis
scattered throughout are numerous bacterial colonies
& multiple foci ∅ mineralization
Staph enterococcus ? pathogen ?

Accession #: C97190267

***BACTERIOLOGY
7/15/97

AEROBIC AND ANAEROBIC CULTURES

ANIMAL/SPECIMEN ID: PORCINE

The following tissues/specimens were cultured:

Specimens	Isolated	Pathogenic Significance
ABSCESS SWAB	STAPHYLOCOCCUS SPP	Contaminant (2+)
ABSCESS SWAB	ENTEROCOCCUS SPP	Contaminant (2+)

COMMENTS:
--DR. WHITFORD/mm

hepatic lipidosis - starvation
rupture gb/adder ? doesn't know - appears - distend gb.
dorsal vena cava - shuts down blood flow
endotoxemia + ↓ HR. shock
gram negative abn fluid
liver lesion not consistent w aflatoxins

Talked to Dr Hoffman

TIPS ON RETAILIN GUINEA PIGS

by Julie Wright 9539 '97 OCT 24 A9:01

The purpose of this information is to help pet shop owners and managers maintain guinea pigs in optimum health and condition which increases their sales appeal and prevents mortality losses.

1. Keep them in solid floor cages with wood shavings for bedding. Guinea pig's legs can easily become caught in wire floors and broken. Wire also makes it difficult for guinea pigs to maintain body heat and leaves them prone to colds. Large aquariums are excellent for guinea pigs. If wire cages must be used, be certain the floor is 1/2 inch square mesh (NOT 1/2 " x 1" wire) and provide a solid wood resting platform.

2. Keep water available at all times via a ball-bearing-tube-type water bottle.

3. Feed high quality, fresh, Guinea Pig pellets. Make sure they contain Vitamin C (ascorbic acid) and at least 20% protein. Never feed medicated rabbit pellets. I supplement all drinking water with V.I.C 50 mg/pig changed daily (sw)

4. Provide fresh vegegables daily if possible. Guinea pigs will not stay in top condition under the stress conditions in most pet shops without this type of treat to stimulate their appetites and increase their intake of vitamin C. Some suitable fresh foods for guinea pigs are: lettuce, parsley, apples, oranges, and carrots. Don't feed: rhubarb leaves, cabbage, onions, or celery stalks. no onions others fine to use

5. KEEP MALES SEPARATE FROM FEMALES, otherwise the females will be bred before they are old enough to carry a litter and may die as a result. Even adult females will have a high mortality rate if their environment is changed during pregnancy. You will save your customers considerable heartache if you make sure the females you sell are not bred. Any females which do turn up pregnant at your shop should not be sold but rather separated in a quiet location and allowed to bear and raise their litters (weaning age is 3-4 weeks). Putting males and female together is "gang rape". sw

6. Watch older males that they do not start fighting. Mature male guinea pigs will fight to the death. The least you can expect is a lot of missing hair and some cuts that will make the animals un-saleable.

7. If hair loss is a problem, check for lice and mites. Lice are white oval parasites usually visable around the eyes and ears. They are about the size of a pin head. Mites are much smaller brown specks usually visable in the vent region. A bath in flea shampoo and very dilute flea dip is the most effective treatment. Neither of these parasites will spread to humans or other animals.

8. If colds should develop, Tetracycline added to the drinking water is usually effective. Be sure to maintain treatment for 5 days.

This sheet courtesy of THE SAN GABRIEL VALLEY CAVY BREEDERS ASSOC.

My cavies watered per bottles receive vit c, multiple vits & electrolytes from (Nutritional Research associates Inc Box 354 407 E Broad St So Whitley In. 46787 - 1 800 456 4931) daily with changes daily to every other day minimum - bottles & tubes scrubbed out with brushes & pigs are messy drinkers - blow spout back into bottles & clean & fill water. The ones on multiple vs plain vit c do better, overall. 30 can't use multi vits & lytes in auto waterers tho, they slime / plug the lines & suppertubes

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
Rockville MD 20857

Is this publication still available? Sally Winkler can get on mailing list. 3740

SEP 2 1986

'97 OCT 24 A9:02

Dear Colleague:

You can keep informed about human and animal health subjects of interest to professionals in your field. A new FDA newsletter, the FDA Veterinarian will be published bimonthly by the Center for Veterinary Medicine (CVM) as a service to veterinarians, the veterinary drug and feed industry, animal producers, and federal and state regulatory officials.

We will send you, without charge, the September/October and November/December issues of this fact-filled publication as our introductory offer. Regular newsletter articles will cover such subjects as:

- Approvals of new veterinary drugs
- Changes in FDA regulations and policies
- Scientific/research activities with relevance to agribusiness
- Announcements of new and revised guidelines, drug use guides, good manufacturing practice regulations
- Information of special relevance to small businesses
- Notices of Opportunity for Hearings
- Proper drug use/residue avoidance information and activities
- Adverse drug reaction reports and warnings of current drug and contamination hazards
- Enforcement activities regarding animal drugs and feeds

Feature articles that will be presented in upcoming issues of the FDA Veterinarian include new animal drug approval process, adverse drug experience reporting and animal drug safety policy. In addition, topics of vital importance to the nation's health (e.g., antibiotics in animal feeds; the use and misuse of sulfamethazine, dimetridazole, ipronidazole) will appear as these items are newsworthy.

The FDA Veterinarian is a nonprofit publication and is not copyrighted. You are free to reproduce and distribute copies of articles as you wish.

The first issue of the FDA Veterinarian will reach you in early September. You can be assured of receiving the newsletter after the complimentary issues by way of a subscription. Watch for details in the November/December issue.

Sincerely yours,

Mary Alice Keller

Editor
FDA Veterinarian

One college administrator from the College of Veterinary Medicine at Virginia Tech remarked concerning the FDA Veterinarian, "The CVM's multi-faceted audience--veterinarians, drug and feed manufacturers, farm feed mixers, animal producers, and health-concerned citizens will soon have an unbiased, factual source of up-to-date information concerning issues of vital interest to them."

Cavy Club
S.W. Cavy Periodical
Jan. '93

ONE GUINEA PIG'S STORY

By Josh Alan Friedman

This is an informal case history, with information that allowed me to extend the life of my guinea pig several years.

Considering the three guinea pigs of my life--all of them major love affairs--Cheerio was most like a little dog. He knew his way around the entire apartment complex, he ran up staircases and he pushed open doors with his nose. Unfortunately, he fell ill many times in his 3 1/2 years--but always made spectacular recoveries.

My wife and I found Cheerio in a shabby pet store, where he lived alone in unchanged bedding, fruit flies hovering above. He was a white and butterscotch "Aberuvian." During visits, when I held him, he walked up my chest and looked me in the eye--even though he'd had virtually no human contact in his seven pet shop months. His siblings were long since sold off. The keeper said he once jumped straight out of his aquarium into the adjacent guinea pig's cage.

One Sunday morning, in October '89, my wife woke me up and said: "Go get the guinea pig." I was still heartbroken over the loss of a Peruvian princess, Pumpkin, three months earlier. Cheerio's presence in the house lifted a black cloud. True to his pet store reputation, he was a great jumper, a reckless daredevil, who would leap off a chair to escape a haircut. He staged great escapes from the kitchen when loose on the floor, pushing garbage pails and scaling guitar case blockades. But he always came when called.

This guinea pig froze in the outdoor daylight. So we began to take late-night walks around the concrete pavement of our apartment complex, a ritual for three years. This may have been a foolish practice, exposing him to the elements. But I believe that he liked the exercise and fresh air, and especially the run back home for a carrot reward.

Three months after Cheerio's $10 purchase, the first of many health obstacles began. The vet discovered a "scrotal plug"--the area was impacted with cedar bedding. She removed the buildup, which I figured came from months of neglect at the pet store. Then the vet flushed him with a mild betadine solution, which we repeated for weeks, using a 1 cc monoject syringe. (Don't tell friends you give your guinea pig enemas; they'll think you've flipped.) Sometimes a little Q-tip dipped in betadine was all that was needed to get more bedding out of his butt. Then we would apply a veterinary ophthalmic ointment (Chloramphenicol 1%, made by Pharmaderm) around his butt. The condition never returned.

However, a more vexing ailment coincided with this--a bladder infection. A guinea pig will demonstrate this with a pitiful cry when it urinates, along with blood in the urine. Mainly, it burns.

We all know that most vets are shamefully incompetent when it comes to guinea pig knowledge. Cheerio's vet was a guinea pig owner herself, and had treated dozens. It was her belief--and that of veterinary consensus--that only three antibiotics can be used on guinea pigs. (Most vets' knowledge, if any, seems to come from the limited text, The Biology and Medicine of Rabbits and Rodents. And if you see one try to pick up a pig behind the neck, like a rabbit, then you know you are dealing with a yokel.)

CHPC was the choice antibiotic for the bladder infection. He received .5cc by oral syringe twice daily, for seven days. This seemed to cure it. However, as is often the case, the antibiotics merely suppressed it, knocked it to the ropes, but did not score a complete knockout. Every several months, his bladder infection returned, and we battled it down with CHPC, and little red Peritone pills, for straining. (Editor's Note: We have had success treating bladder infections with Flagyl syrup, along with Pyridium (crush tablet, mix with water & give orally) for alleviating the burning pain upon urination.)

Finally, after a year, perhaps four times of this treatment, the CHPC did not work. The burning came back, along with blood in the urine, both visibly and by litmus test. His days seemed numbered.

It was then, with skepticism, that I turned to a homeopathic animal nutritionist from Long Island, Kathy Berman. She had a sterling reputation for curing cats, dogs, birds and rodents that regular vets would condemn to euthanasia.

We put Cheerio on an intensive program of vitamin supplements and homeopathics. I was not eager to use Cheerio as a guinea pig To me, these were mysterious substances. But I eventually found them to be quite safe, and to have real benefits for both Cheerio, and myself.

The homeopathic medicine comes in small sugar pills, easily dissolved over lettuce.

Each homeopathic--and there are over 50--is used for many ailments, regardless of whether one ailment is advertised on a bottle. The theory is that the more diluted the homeopathic, the more potent. Supposedly, the same dosage would work on an elephant or a mouse. We began with two: Thlaspi Bursa and Urtica Urens (in a "30x" potency). Two pill of each about three times a day, melted onto wet Romaine lettuce.

The nutritionist convinced me that pet store vitamins were a joke. We all know guinea pigs need extra vitamin C, of utmost importance. But with pet store pellets that proclaim vitamin C on their label, the C fades after a month on the shelf. I would now buy all supplements from the health food store.

Each day I mixed a different combination in a pill crusher, then stirred it into aloe vera gel, administering several 1cc syringe oral feedings. The main ingredient was Earthrise brand Spirulina, a vegetable protein made of algae, beloved by many who swear by it. I would pulverize half of a 500 mg tablet.

Every day I would add a little pinch of KAL brand 100% pure crystalline Vitamin C. Every other day, a pinch from a capsule of KAL brand carrot Acidophilus. This was for "establishing favorable intestinal flora," which was weakened after antibiotics. Next, I would pulverize about a quarter of a 500 mg tablet of Bee Pollen--any reputable brand.

I mixed combinations of these each day in aloe gel, and Cheerio accepted it fairly well, allowing me to squirt it into his mouth with a 1cc syringe (the vet supplied dozens). (Editor's Note: When using a syringe for oral administration of medicine, remember to ALWAYS, ALWAYS remove the needle.) Every other day, I also gave him a little squirt of Vitamin E oil, right from the plastic bottle. All of these would rebuild his defenses after antibiotics had weakened his system. And it was my foremost mission to make Cheerio healthy, and keep him with us.

I soon saw his spirits pick up. His "Aberuvian" coat had new luster, from the aloe (which also would help heal the bladder area) and the Vitamin E. In addition to his cage dishes--pellets, alfalfa, nut bar--the nutritionist switched us to high water content fruits and vegetables (instead of just carrots and lettuce): pears, cucumbers, cantaloupe, parsley (not spinach). We gave him no more than four blades of wheat grass each day. And finally, going the extra mile, the nutritionist recommended a product called Willard Water, which supposedly increases the effectiveness of all vitamins. We shook up to two tablespoons of Willard Water into a gallon of distilled water. From this distilled water, the guinea pig's 8 oz. was changed nearly every day. A few weeks later, we shook one small drop of hydrogen peroxide into the 8 oz bottle each water change.

Within a few weeks, Cheerio stopped crying and straining when he peed. Within two months all blood had disappeared from his urine! Our vet was amazed. This bladder infection never returned for the rest of his life.

(A year later, he passed crystals, producing blood for one urination. Our nutritionist added three other homeopathic to our on-and-off-again low-maintenance regimen: Cantharsis, Hydrastis and Ferrum Phosphate.)

I used Cheerio's homeopathics and vitamins to clear up my own prostate infection after antibiotics stopped working with me also.

Of all the pigs I have known, Cheerio, when healthy, most demonstrated a sense of play--like a puppy. Maybe even a sense of humor. He engaged in hide-and-seek games around the house, played chase, running to and from me around the couch. He usually came when called. He would jump up on my chest when I lay on the floor. He instinctively figured to pee on the kitchen newspaper, when given the run of the house. If he wanted back in his cage, he stood up beside it. But his piéce de résistance, performed for a hundred friends, was galloping up the stairs and pushing open the (unclicked) door. This would take several or more seconds, depending on wind conditions. And always, whilst rounding the corner of the just opened door, he would pause to give it a quick victory bite before running along.

We celebrated Cheerio's good health. But his next major health problem concerned the dreaded "malocclusion." It manifested at age 2 1/2 years, a slow deterioration of his ability to chew. Chewing and gnawing is part of a rodent's very identity, it's their gig, essential to their survival. The teeth are always growing, and must file themselves down naturally on hard substances. Despite the often fatal nature of this condition, we kept him going another year.

Some vets, in their ignorance, don't recognize malocclusion in rabbits or guinea pigs. The animal "just stops eating." Everyone is baffled. In Cheerio's case, he began to avoid his nut bar, then pellets and carrots--in favor of softer things, like bread or bananas. A

guinea pig has perhaps the tightest mouth to examine amongst rodents. Even a little hampster's cheeks can expand. Our vet only detected an overgrown molar. With great difficulty, she clipped this overgrown back tooth. CHPC brought down the swelling, and his eating returned to normal.

Two months later, the same area abscessed. It caused a big lump on his neck, which the vet had to drain and flush several times. He went back on CHPC (a supposedly good antibiotic for bone related problems?) for a week. The huge menacing lump never returned. I resumed a low-maintenance homeopathic regimen, continuing with the nutritional supplements.

The common practice of clipping teeth--on rabbits or guinea pigs--is often done wrong by vets and owners. The assumption that front teeth can casually be clipped with wire cutters or some such device is a much abused procedure. Unless done expertly, I later learned from a veterinary dentist, it can sometimes shatter or damage lower portions of the teeth.

Cheerio's condition got to where he couldn't chew at all. We went to liquid diet. For several months, he survived on Westbrae brand Almond Malted, a high-calorie soy drink at the health food store. We pulverized all his supplements--particularly the Spirulina--into his soy malt. We made lots of vegetable and fruit juice with the juicer. On any day, Cheerio drank through a dozen or more 1cc oral syringes of carrot juice--or carrot-parsley juice, or apple, pear or cantaloupe juice from the juicer. We rotated. Of course, he got a few syringes of water through the day. Eventually he grew sick of the soy milk. He ate less and lost weight.

My vet battled aimlessly to figure Cheerio's mouth problem. A new vet instantly diagnosed malocclusion at the 11th hour. He had gone from a once robust 2 1/2 lbs. down to 1 lb. and was catatonic. At death's door, we gave Cheerio a short-term steroid shot, and went to bed praying. The next morning, Cheerio was up, trying to bite his cage bars, as if wagging a tail. He was hungry.

Unable to get tools into the tight mouth of a guinea pig, this new vet steered us to one of the country's few veterinary dentists--a new practice. My wife and I often joked, if only there were a dentist for guinea pigs. There was, and he happened to practice in Dallas: Robert Wiggs, D.V.M., Coit Road Animal Hospital.

Wiggs confirmed a malocclusion with overgrowth of all teeth--resulting in TMJ dysfunction (no movement possible). Sort of like arthritis of the jaw, which developed over time due to an inborn underbite.

I was unfamiliar with this condition, though breeders know it well. Pet stores often receive a breeder's cast-offs, due to overbreeding, an imperfect stripe or even malocclusion. And herein they show heartless disregard for some family that may soon be heartbroken, when their pig dies months or years later. Wiggs explained to look for a perfect overbite in choosing a piglet. Occasionally, even pigs born with a perfect overbite can develop a malocclusion, but this is uncommon.

I told Wiggs of Cheerio's escapades--falling off a counter or running into a wall and knocking out his front teeth. He once fell over a walkway, six feet onto the garage pavement. I expected to see him splattered. Amazingly, he shook himself off, then sped up the driveway. He was unhurt, but once again his front teeth fell out. The vet dentist said these teeth came loose easily because of the malocclusion, which he was born with--not because he was accident prone.

Wiggs needed only one dental x-ray, which came out magnified from a modern, new-fangled x-ray machine. My previous vet had struggled to get nine full-body guinea pig x-rays, at $25 a pop, none of which came out clear enough.

We visited Dr. Wiggs with the hope that a vet dentist could get into his tight mouth and trim his teeth. Indeed, Wiggs performed a delicate crown reduction in Cheerio's mouth, putting him out under isoflurane anesthesia. The teeth were trimmed to normal size. This would buy us time, not a cure, as rodent teeth are constantly erupting.

My guinea pig was catatonic for two weeks, and herein again, we suffered the ethical dilemma of coaxing and force feeding to keep him alive. I'd stay up with him all night, begging him to eat. He was in pain, I imagine, however, he finally accepted more syringes of juice, and began to eat for me. A week of the CHPC antibiotic gradually reduced the swelling in his mouth. He displayed true rodential bravery.

Furthermore, we discovered Earth's Best brand peas & rice baby food, after he'd rejected everything else. Cheerio went nuts over it, devouring up to 20 cc's at a time. He wouldn't touch any other of 10 Earth's Best varieties, just peas & rice. He loved it more

with Spirulina pulverized into it, and he received a full 500 mg tablet each day, along with vitamin C crystals and the rest. He gained back another pound. He became one athletic, mischievous guinea pig again, acting normal--except that he was hand fed a liquid diet. His stool returned to near normal, after months of diarrhea.

We hoped that Cheerio would be one of the only pigs to overcome a malocclusion and heal the bone in his jaw. With humans, the jaw could be rewired. Such a measure cannot be performed on a rodent, or even a dog. The science establishment which exploited the guinea pig for mankind's medical breakthroughs has not, of course, put any effort into research on behalf of guinea pigs.

Cheerio tried to chew pellets every day, but they fell out of his mouth. Though impressed with his amazing resiliency and his will to live, our vets, particularly Wiggs, knew we were only buying time.

Cheerio went on another three months after his dental operation. His teeth finally grew back and began to infect his mouth. He became listless and catatonic again. A few more steroid shots brought down the swelling (this time the more dangerous long-term steroids) and gave him relief, buying a few more weeks. But it was roundly decided not to put him through the hell of another crown reduction. And so, at the mere age of 3 1/2 years old, we had our beloved animal put to sleep.

As an end note, I might clarify that a guinea pig has the presence of an elephant. I once worried that we were "spoiling" Pumpkin, our previous Peruvian. My wife and I, two adults, grooming her, heeding her every squeak, running to the store for vegetables, if she turned up her nose at anything. But then, if you can't spoil a pet, who can you spoil? My wife reminded me we weren't sending the pig off to college, or out into society. I look forward to having another 2-lb. rodent take over the house.

REPORT OF LABORATORY EXAMINATION

ANIMAL HEALTH DIAGNOSTIC LABORATORY
P.O. Box 30076
Lansing, MI. 48909
Phone (517) 353-1683

PRIVILEGED INFORMATION
NOT FOR PUBLICATION

GROSS NECROPSY

Case Number: 1136344
Reported : 11/15/91
Received : 10/30/91
Pathologist: RLD
Case Origin: NECROPSY

3546 '97 OCT 24 A9:02

Client Account: 254002

TRI STATE CAVY RANCH
626 SOUTH ANGOLA ROAD
COLDWATER MI 49036

Phone: 517-278-6811

Clinic: 6391

FISCHER, ROBERT E.
FISCHER VETERINARY CLINIC
1810 WEST CHICAGO
COLDWATER MI 49036

Phone: 517-278-5992

History : The history is on file at the Animal Health Diagnostic Laboratory. The practicing veterinarian suspects pneumonia. The owner is losing 4-5 animals a day, and in all 500 guinea pigs in the colony are affected. The medications included one dose of Tetracycline.

Name : 1 Age: 1m
Breed : GUINEA PIG Sex: UNDETERMINED

Specimen: CARCASS

* GROSS LESIONS, < 200 LBS

(All 5 guinea pigs): The lungs of all 5 guinea pigs were pink to white in color in the anterior ventral region and appeared consolidated. In one guinea pig (#2), the caudal lung lobes were diffusely affected like the anterior ventral portions with the plum-colored to pink-colored tissue. In guinea pig #1, there were focal areas of hemorrhage on the right cranial and middle lung lobes. In guinea pig #5, there were 5 cervical lymph node abscesses, measuring 1 to 1.5 cm in diameter. The guinea pig #5 also had a mottled appearance to the spleen, with several pinpoint brownish/white foci. No other gross lesions were found in any other tissues or organs.

* LABORATORY FINDINGS

BACTERIOLOGY RESULTS AND COMMENTS

Specimen: SWAB (LYMPH NODE)

BACTERIOLOGY CULTURE

Micrococcus species	<5 cfu
Staphylococcus xylosus	<5 cfu

Specimen: LUNG (1-5 POOLED)

BACTERIOLOGY CULTURE

Streptococcus pneumoniae	>1,000 cfu
Bordetella bronchiseptica	>1,000 cfu
Staphylococcus xylosus	<5 cfu

SUSCEPTIBILITY PROFILE(S)

	1)S/R	2)S/R
AMIKACIN		S
AMPICILLIN	S	R
CEFOXITIN	S	R
CEPHALOTHIN	S	R
CLINDAMYCIN	S	
ERYTHROMYCIN	S	R
GENTAMICIN	R	S
KANAMYCIN		S
OXACILLIN	S	
PENICILLIN	S	
TETRACYCLINE	S	S
TICARCILLIN		R
TRIBRISSEN	S	S
SULFISOXAZOLE		S
CIPROFLOXACIN	S	S

ISOLATES >>>
1) Streptococcus pneumoniae
2) Bordetella bronchiseptica

Specimen: FIXED TISSUES

* HISTOPATHOLOGIC EXAMINATION

(All 5 reported together): Multiple sections of cerebrum, hippocampus, cerebellum, liver, lung, kidney, spleen, adrenal, heart, cervical lymph node, and thymus were examined on all 5 guinea pigs. In the liver, there was centrilobular to midzonal degeneration that was mild in nature (hypoxia?). In the lung, there was a diffuse moderately severe suppurative and granulomatous bronchointerstitial pneumonia, with multifocal hemorrhagic pneumonia characterized by patchy diffuse accumulations of neutrophils and macrophages in alveolar sacs, interstitially in alveolar walls, and in bronchioles. In a few lungs, there were multifocal areas of hemorrhage in alveolar walls and sacs. In addition, in all guinea pigs' lungs, there was a mild atelectasis and a mild peribronchiolar lymphoid hyperplasia. In the kidney of one guinea pig, there was congestion at the cortical medullary junction. In the cervical lymph node of one guinea pig, there was a large, walled-off abscess, consisting of necrotic neutrophils, fibrin, and necrotic debris surrounded by a connective tissue capsule, with extremely mild infiltration in the capsular wall of lymphocytes and histiocytes. No other microscopic lesions were found in any other tissues or organs.

Case Number: 1136344

Name : 2 Age: 1m
Breed : GUINEA PIG Sex: UNDETERMINED

Specimen: CARCASS

* GROSS LESIONS, < 200 LBS
Reported under 1136344/1.

Name : 3 Age: 1m
Breed : GUINEA PIG Sex: UNDETERMINED

Specimen: CARCASS

* GROSS LESIONS, < 200 LBS
Reported under 1136344/1.

Name : 4 Age: 1m
Breed : GUINEA PIG Sex: UNDETERMINED

Specimen: CARCASS

* GROSS LESIONS, < 200 LBS
Reported under 1136344/1.

Name : 5 Age: 1m
Breed : GUINEA PIG Sex: UNDETERMINED

Specimen: CARCASS

* GROSS LESIONS, < 200 LBS
Reported under 1136344/1.

Don't know where pg 4 is. Report sent to me by owner who was raising pigs wholesale at retail prices! Most upset never heard back on outcome but suspect he gave up on raising cavies SnWdinkler

Case Number: 1136344

COMMENTS:

1. (All 5 guinea pigs): Diffuse moderately severe suppurative and granulomatous bronchointerstitial pneumonia (with multifocal hemorrhagic pneumonia in one guinea pig).
2. Suppurative cervical lymphadenitis (one guinea pig).

[The Streptococcus pneumoniae and the Bordetella bronchiseptica are the primary cause of this full-blown bacterial pneumonia in these young guinea pigs. This is a subacute type lesion, in that we found histiocytes or macrophages in alveolar walls, along with the more acute neutrophilic inflammation. As we discussed on the phone, Tetracycline would seem to be the antibiotic of choice. The Staphylococcus and Corynebacterium pyogenes found in the cervical lymph node are somewhat surprising, since the most common cause of suppurative lymphadenitis in guinea pigs is Streptococcus sp.]

Office use only: (all 5 guinea pigs): 3600-12000.

Robert L. Doak 11/12/91
Specialist (517) 353-1683

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*SUPPLEMENTAL REPORT: Please note that a Staphylococcus was isolated in small numbers from the cervical abscess. The Staphylococcus may not be primary, but the possible Streptococcus may have been burned out. Note that the Streptococcus pneumoniae and Bordetella bronchiseptica are primary agents that caused the pneumonia in these guinea pigs, as already discussed. Refer to the bacteriology results above.

Robert L. Doak 11/15/91
Specialist (517) 353-1683

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Additional copies to: Dr. Doak, +1

Postage-paid (U.S. only) biopsy mailers may now be obtained from the laboratory at a cost of $2.50 per mailer. Mailers consist of a durable, tight sealing, plastic vial with foam packaging, a specimen label, a pre-addressed mailing sleeve, and a submittal form. The mailers will not contain formalin. However, suggestions concerning tissue preparation and a formula to prepare neutral buffered formalin will be provided.

found pg 4 This is the first culture report in 22 yrs that we seen positive for bordatella b.