NATIONAL VETERINARY HOSPITAL

DEPARTMENT OF LIVESTOCK
MINISTRY OF AGRICULTURE AND FORESTS

DoL

ANNUAL PROGRESS REPORT – 2021-2022

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1. Foreword

The provision of Veterinary Clinical Services is considered as an essential component of the animal health services. Over the past two years, it has been significantly impacted by the COVID19 pandemic. Regardless, NVH has ensured the delivery of uninterrupted Veterinary Clinical Services to our clientele, evident from a series of lockdowns in Thimphu. Similar to most of the government agencies, NVH had to re-prioritize its activities since the budget allocation received was very minimal in 2021-22. Despite inadequate financial resource and various other restrictions, we managed to provide efficient services as mandated.

I am particularly delighted to have been able to further strengthen our diagnostic capacity in the forms of digital X-ray, doppler ultrasonography, and blood analyser machine - levelling up in order to meet the demand for advanced veterinary clinical services that bolsters our image as the apex agency in the nation concerning animal health matters. While we have advanced facilities put in place, it is also important to upgrade our knowledge and skills required to use these facilities effectively. Therefore, we should explore opportunities to invite experts once the border restrictions are eased to train not just our vets and paravets but also vets and paravets from other regions and districts so that our services are standardized and enhanced.

Apart from the clinical services, NVH had been involved in supporting the National Accelerated Dog Population Management program (NADPM) in 2021-22 and I am honoured and privileged to be leading this project as per the command of His Majesty. It has been a priceless opportunity to be able to contribute towards this historic project aimed at achieving 100% sterilization coverage of stray dog population in the country. Our contribution had been particularly useful since it requires expertise in surgical skills and patient management including welfare aspects. I am happy with the dedication and hardwork put forth by all the staff of NVH who were deputed for the NADPM from as early as On-the-job trainings to the nationwide campaigns across the country. With the unwavering commitment from Department of Livestock, Desuung Office and other relevant stakeholders such as Department of Forests, Thromdes, Local governments and the community, I have no doubt in my mind that we can achieve our objective of sterilizing 100% stray dog population in the country.

While we are often challenged by resource constraints and uncertainties, I would like to urge everyone to strive hard and work with full dedication inorder to fulfil the aspirations of His Majesty.

Best Wishes!

(Dr Kinley Dorji)

2. Executive summary

The financial year 2021-22 was a successful year wherein we were able to achieve almost all the targets set in our annual performance agreement (APA) despite a host of challenges posed by the pandemic. Even during the nationwide lockdowns, NVH continued to provide emergency services to the public. During the fourth and fifth lockdowns, a total 513 teleconsultation services and 905 cases were attended.

The total number of cases (including repeat cases) received at NVH in 2021-22 was 17,281 about 146% increase compared with the previous fiscal year (11,815), attributable to the relaxation of the Covid protocols and restrictions towards the turn of 2022. Only eight cases were referred from other veterinary hospitals. The animals were presented with various disorders and digestive disorders were reported the maximum followed by musculoskeletal and skin affections respectively. The least number of cases were affections related to the urinary system followed by poisoning. A total of 172 surgical cases were reported. Cut wound suture cases were recorded the highest followed by fracture while, C-section was recorded the lowest. Specialized services such as bone pinning and dental scaling were also provided to patients.

NVH sterilized 181 animals mostly dogs and cats. In dogs and cats, highest number of female animals were sterilized in comparison to male. 94% of animals sterilized were pets and 6 % were strays that were either brought in by animal welfare organizations or by community. Alternative to surgical sterilization, non-invasive method of contraceptive birth control is also encouraged especially when the owners are unable to bring their pets to the hospital or when clients are averse towards risks associated with surgery. A total of 77 pet dogs and cats were given contraceptives (Medroxyprogesterone acetate) either as tablets or injections and the usage has increased from the previous fiscal year.

A total of 1814 pets were vaccinated with anti-rabies vaccine of which 1589 were dogs and 225 were cats. Unlike in dogs, re-vaccination in cats is not commonly practised. A total of 2608 pet dogs were also vaccinated with DHPPi+L vaccines. Besides pets, poultry birds belonging to the Royal family were vaccinated against Marek's and Newcastle diseases while, four horses received rabies and tetanus vaccines. A total of 3469 animals were dewormed amongst which 2707 were dogs and 942 were cats. During FY 2021-22, a total of 1229 pets were registered at this hospital, out of which 762 were dogs and 467 were cats. The total revenue generated from the pet registration amounts to Nu. 84,100.

Under diagnostic services, ultrasonography services were provided to 230 animals, out of which 199 were dogs and 31 were cats with an average turn-around time (TAT) of 11 minutes per animal. Ultrasonography was mostly used for pregnancy diagnosis. The laboratory service unit (LSU) received 1,138 samples and various tests were performed. 166 samples were referred to NCAH for fungal and bacterial culture/identification, antibiotic sensitivity test (ABST), histopathology, and post-mortem examinations.

The medicine utilization percentage for the fiscal year 2021-2022 is **80.35%** which is a decrease by about 4.5% compared to the previous year **(84.9%).** The reasons for the drop in drug utilization was because there was no surgery (OH/Castration) carried out in the hospital for dogs as all the dogs brought for the surgery were referred to NADPM clinics. There was slight increase in the overall supply of medicines as the Covid restrictions were lifted with the new-normal modifications and tweaking of the pandemic control protocols.

The overall CSR for the nine AHCs for 2021-22 is calculated at **89.12%.** This is higher than the previous year (86% in 2020-21). The CSR target is set at 85%, therefore, the CSR for 2021-22 has exceeded the intended target. Among the five survey questionnaire parameters, parameters such as Q1 (Friendliness/politeness of the staff), Q2 (Professionalism), Q4 (Promptness with which staff provide services) and Q5 (Waiting time) for availing the services have acquired very good ratings. For NVH, the CSR is **90.03%,** an increase from the previous year **(85%).**
For the FY 2021-22, a total of Nu. **15.893** million was approved which was a slight increase compared with the previous fiscal year (**15.427** million). Nu. 15.584M was used and the balance amount was Nu.0.309M. The budget utilization percentage was **98.05%** which was similar to that of the previous year at 98.5%.

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VETERINARIAN'S OATH!

Being admitted to the profession of veterinary medicine,
I solemnly swear
to use my scientific knowledge and skills
for the benefit of society
through the protection of animal health and welfare,
the prevention and relief of animal suffering,
the conservation of animal resources,
the promotion of public health,
and the advancement of medical knowledge.

I will practice my profession conscientiously,
with dignity,
and in keeping with the principles of veterinary medical ethics.

I accept as a lifelong obligation
the continual improvement
of my professional knowledge and competence.

6. Background

Animal health is one of the important support services under the Department of Livestock. Animal health services include clinical veterinary services, the supply of veterinary medicines, vaccines, equipment, and diagnostic services. The veterinary clinical services are being provided through a network of animal health facilities such as the National Veterinary Hospital (NVH), Thromde Veterinary Hospitals (TVH), four Regional Livestock Development Centres (RLDC), 20 Dzongkhag Veterinary Hospitals (DVH) and 196 Livestock extension centres (LEC/RNR-EC).

Ever since the establishment of animal health services in the early 1960s, we have come a long way and made tremendous progress, both in terms of infrastructure and human resource capacities. Over the years, the sole focus on treatment of animals has slowly shifted to the overall development of animal health sector in the country through the strengthening of Veterinary Clinical Services. The animal health component complements the animal production, which is one of the important contributors to the country's socioeconomic development through income generation and food self-sufficiency. Animal health (along with nutrition and management) is directly linked to the productivity of the animals. The animal health in turn relies on the quality of the veterinary clinical services.

NVH is the referral centre and lead agency for veterinary clinical services in the country and therefore, plays a major role in the delivery and development of efficient veterinary clinical services in the country.

6.1 Mission

Provide high quality and efficient veterinary clinical services to improve animal health and welfare.

6.2 Vision

Function as a model Veterinary Institution in providing the state-of-the-art Clinical Veterinary Services in the region.

6.3 Mandates

- Provide high quality clinical veterinary services.
- Function as a national referral hospital for clinical veterinary services in the country.
- Function as an institute for capacity development in clinical veterinary services.
- Plan, coordinate, monitor, and evaluate clinical veterinary services in the country.
- Support development of policies, strategies, and plans for animal health.
- Support research on animal health.
- Act as pharmaco-vigilance centre for veterinary clinical services.

6.4 Organogram

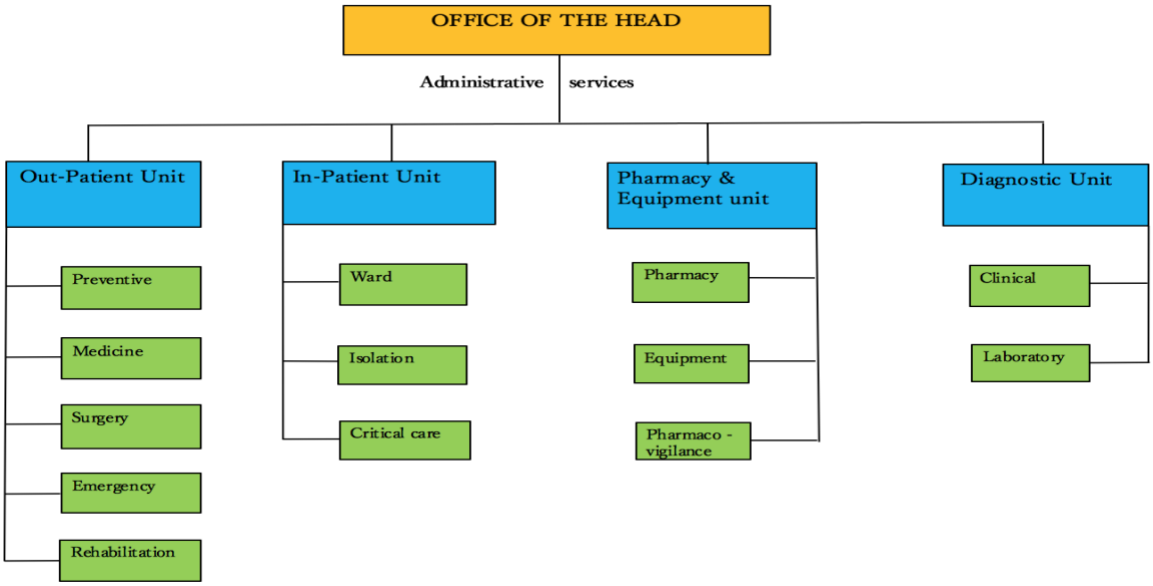

Figure 1: Organogram of NVH

There are four units; Out-Patient, In-Patient, Pharmacy and Equipment, and Diagnostics. These units are further divided into 13 Sections. The organogram is aimed at accentuating various services under these sections and to define clear job responsibilities for efficient service delivery. Out of the 13 sections, the Critical care section has not been operational due to the lack of advanced equipment required for the purpose of critical care.

6.5 Human Resources

NVH has six veterinarians, fifteen para-veterinary professionals/animal health supervisors, two assistant laboratory technicians and ten non-technical staff. The non-technical staff comprise of a senior administrative assistant and an administrative assistant/data manager. Rest of the support staff are six ESPs/animal attendants, one GSP and two drivers. Eight new staff joined NVH and five staff left (some on EOL and others for good) NVH during 2021-22.

Table 1: Details of staff who joined NVH in 2021-2022.

Sl. No.	Name of staff	Date joined	Designation	Joined from
1	Dr Karma Phuntsho	26th Feb. 2022	Sr. VO	RLDC, Kanglung
2	Wangchuk	29th March 2022	Sr. ES	Wangdue Dzongkhag
3	Karma Tshomo	2nd March 2022	Sr. LPS	Zhemgang Dzongkhag
4	Thinley Dhendup	14th March 2022	Sr. LPS	Punakha Dzongkhag
5	Wangmo	17th March 2022	Sr. ES	Punakha Dzongkhag
6	Dawa Lham	16th March 2022	ES	Mongar Dzongkhag
7	Phurb Tamang	29th March 2022	ES	Wangdue Dzongkhag
8	Tshering Dorji	1st June 2022	Driver	New appointment

Table 2: Details of staff who left NVH in 2021-2022.

Sl. No.	Name of staff	Designation	Date of departure	Remarks
1	Kiran Gurung	Driver	2021-01-12	
2	Nidup Dorji	Sr. LHS	Mar-22	
3	Pema Tshomo	Sr. Lab. Asst.	Jul-22	
4	Dr Jambay Dorji	DCVO	Jul-22	EOL

6.6 Working hours

The National Veterinary Hospital provides regular services from 9:00AM till 3:00PM during weekdays (Monday to Friday) and 9:00AM till 1:00PM during Saturdays. During the weekdays and Saturdays, a para-veterinarian attends to emergency and follow-up cases from 3:00PM till 8:00PM and from 1:00PM till 5:00PM respectively after normal hours. During Sundays and government holidays, two Para-veterinarians provide off-hour services from 9:00AM till 3:00PM. A veterinarian is called on duty when para-veterinarians are unable to handle emergency cases. For any case beyond the afore-mentioned duty hours, only emergency cases are attended 24x7. However, the hospital is planning to provide 24-hour service delivery soon.

Table 3: Operating hours of various services provided at NVH.

Sl. No.	**Day**	**Time**	**Off- hours**	**Emergency**
1.	Monday to Friday	9:00AM-3:00PM	3:00PM - 8:00PM	24 hours on call
2.	Saturdays	9:00AM-1:00PM	1:00PM - 5:00PM	
3.	Sundays & government holidays	9:00AM-3:00PM		

7. Veterinary Clinical Services

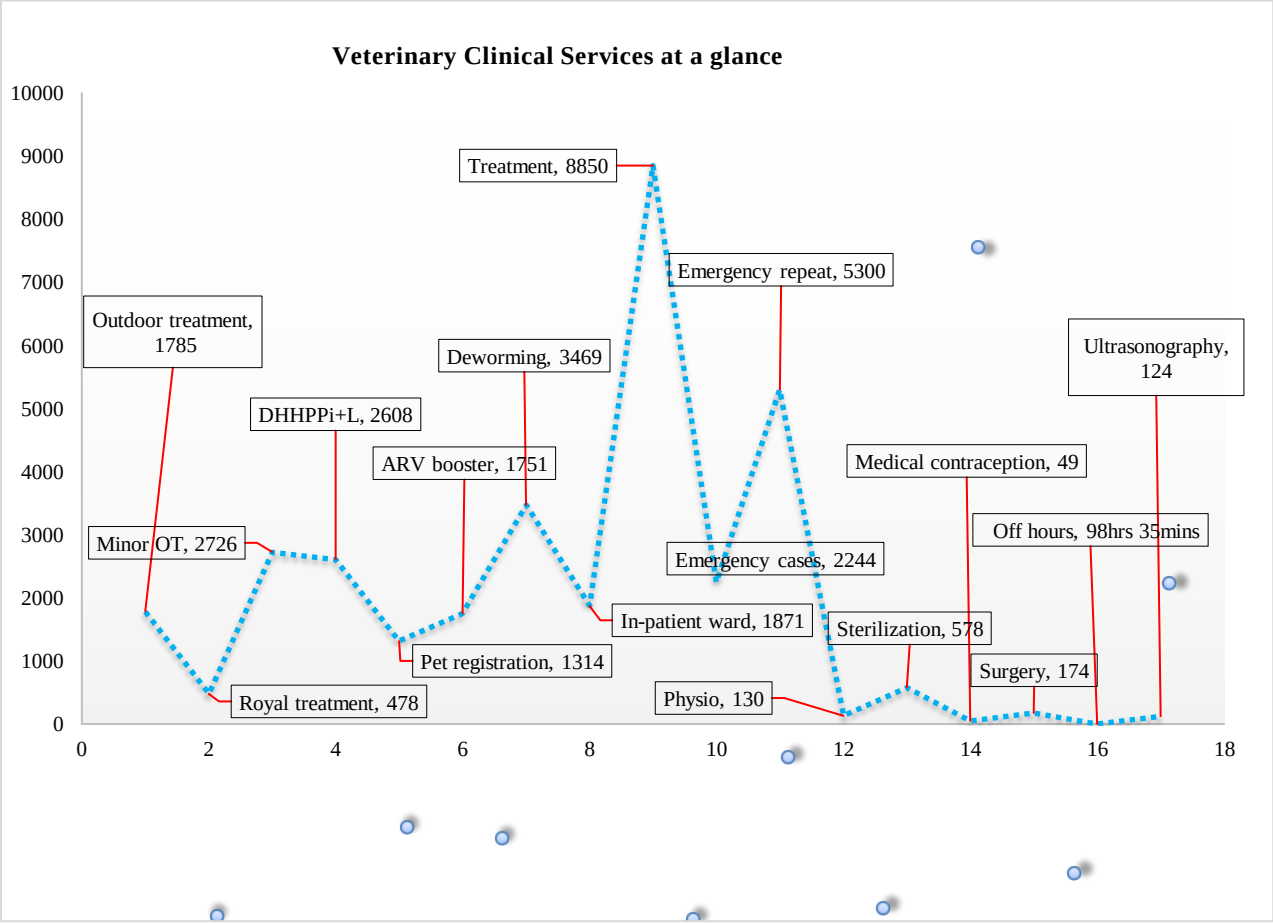

Figure 2: Veterinary Clinical services progress at a glance

The primary veterinary clinical services provided by NVH are Deworming, Vaccination, Consultation and Treatment, Surgeries including sterilization, and Pet registration. The diagnostic services are provided through both laboratory and radio-imaging modes. Additionally, NVH also provides rehabilitation services for paraplegic animals with the help of radio/light/heat therapy and treadmill. Pet registration and vaccination services are provided during normal working hours only while sterilization services are provided during Tuesdays and Fridays based on the appointment system. Rest of the services are provided during both regular and off-hours.

The total number of cases (new as well as repeat) received at NVH in 2021-22 was 17,281, which increased by about 146% compared with that of the previous fiscal year (11,815). The increase in the number of cases was due to the relaxation of the Covid protocols and restrictions towards the turn of 2022.

Various veterinary clinical services provided by NVH include (but not limited to) the following:

- Consultation/treatment of sick animals
- Surgical interventions
- Sterilization
- Deworming
- Vaccination
- Registration of pet dogs and cats
- Referral services
- Technical backstopping on clinical veterinary services
- Issuance of health certificates for pets
- Rescue and treatment (both domestic as well as wild animals) in collaboration with relevant stakeholders

7.1 Clinical cases

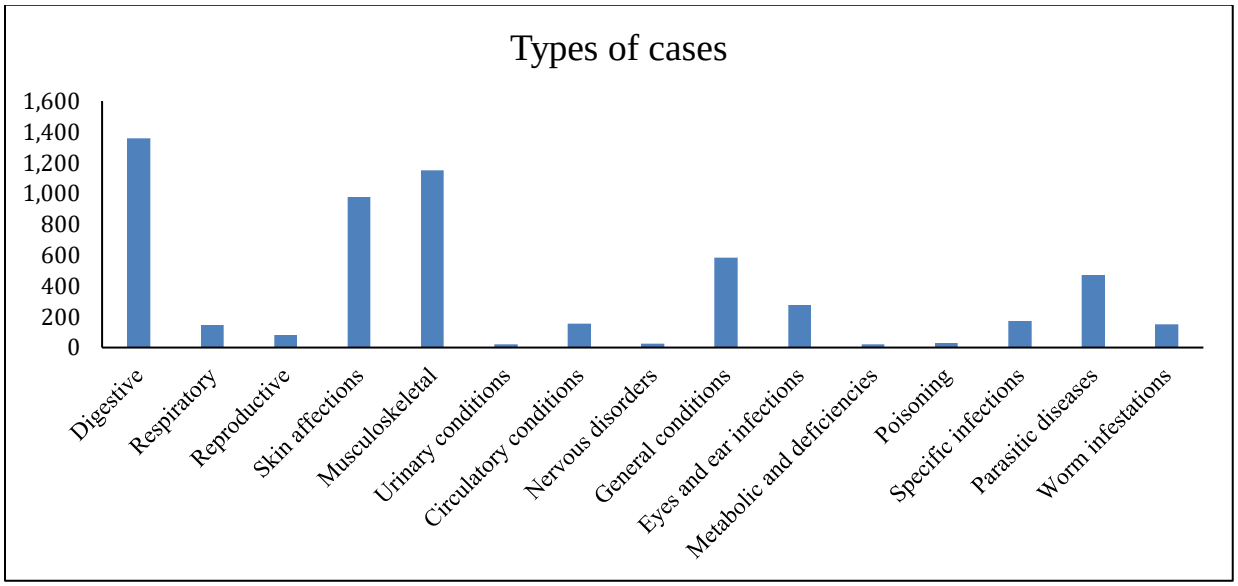

Figure 3: Various cases attended during the fiscal year 2021-22.

Of the total cases received, 7,281 new cases were brought to NVH in 2021-22. The 10,000 registered cases were the repeat/follow-up records of these new cases. The increase in the follow-up cases is mainly due to the relaxation of Covid protocols and restrictions as opposed to the previous fiscal year when there were more lockdowns where, oral medicines were prescribed to prevent clients from visiting the hospital in person for consultation/medication. As per the VIS, cases were classified into various systemic disorders. Digestive disorders were reported to be the greatest in number followed by musculoskeletal and skin affections respectively. The least number of cases were conditions relating to the urinary system followed by metabolic deficiencies and nervous disorders.

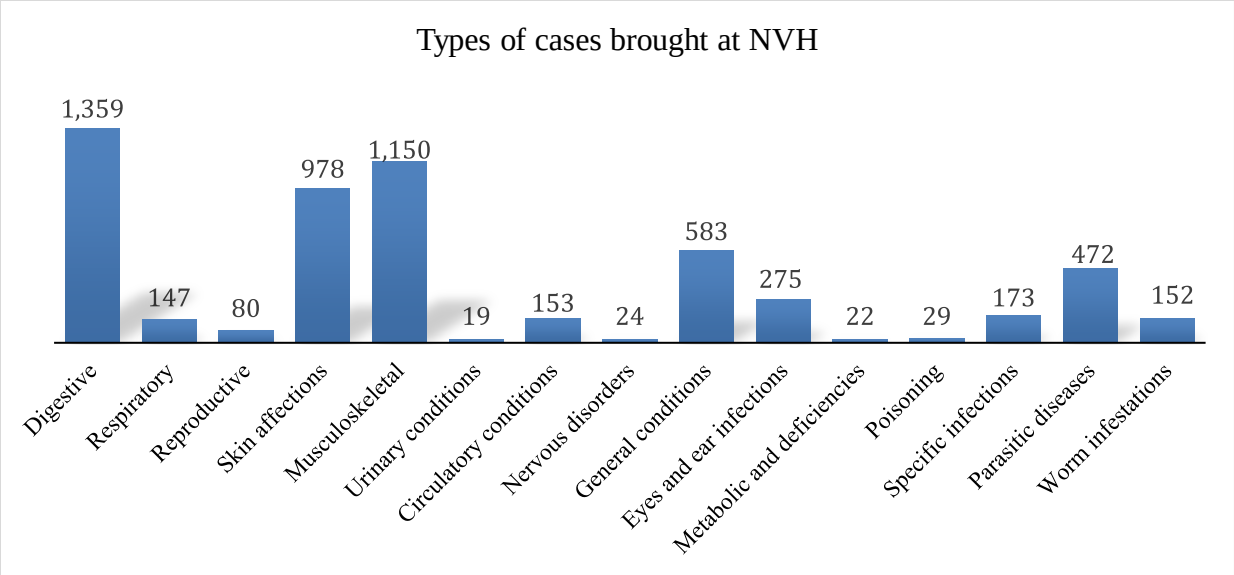

Figure 4: Type of disorders attended at NVH.

Skin allergies are the most common form of skin affections followed closely by dermatitis. Alopecia is the least common type of skin condition in pet animals.

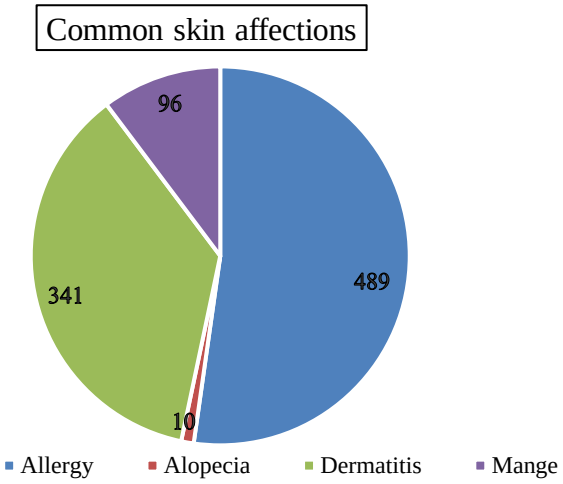

Figure 5: A pie chart showing common skin affections in dogs.

7.2 Surgical Cases

A total of **172** surgeries were done. Cut wound suture cases were recorded the highest (41 cases). It was followed by fracture at 34 cases. It was followed next by cherry eye correction surgery (24 cases) and tumour removal surgery at 21 cases. C-section was recorded the lowest (three cases). Specialized services such as bone pinning (six cases) and dental scaling (four cases) were also performed.

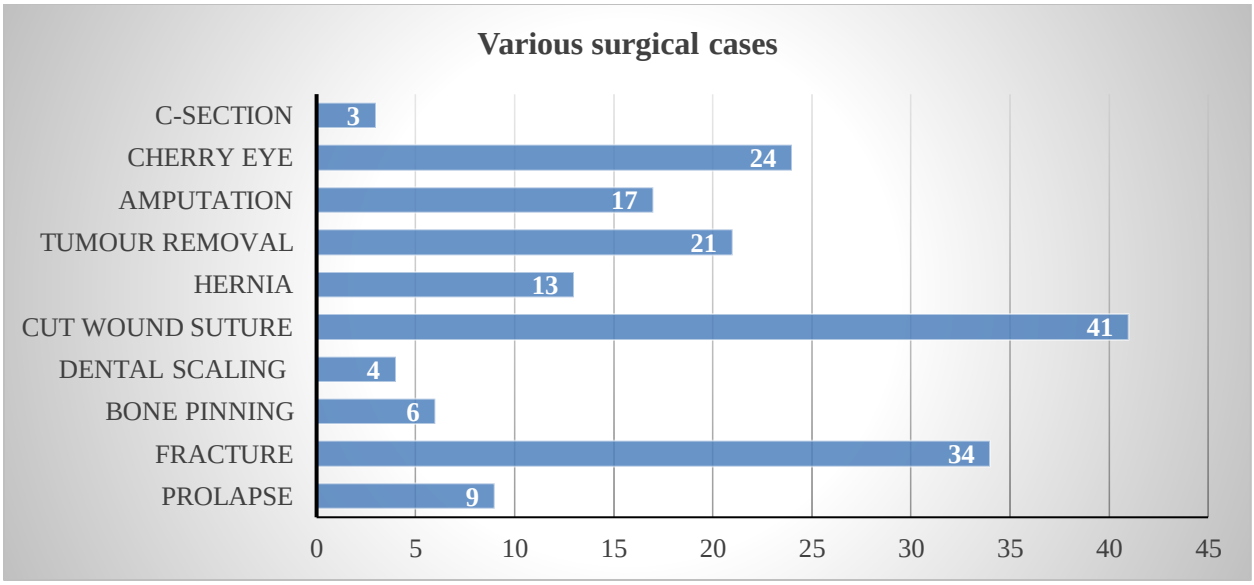

Figure 6: A chart showing various surgeries performed at NVH.

7.3 Sterilization

NVH provides routine sterilization services to the pet animals twice in a week and for farm animals, it is provided outdoors. This year, NVH sterilized **181** animals (dogs and cats).

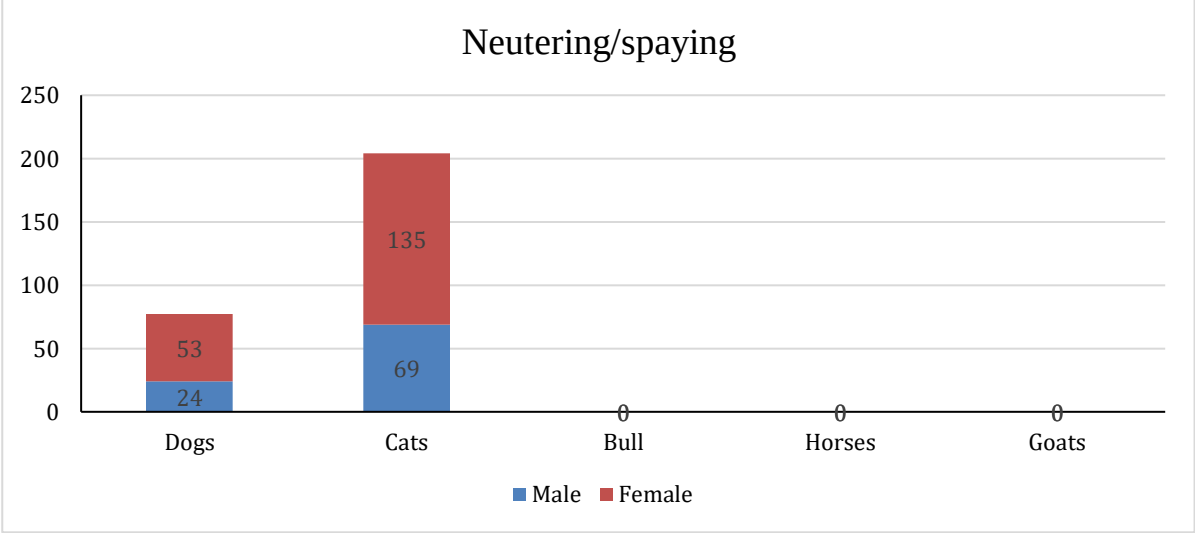

Figure 7: A stacked bar chart showing sterilization in different animals as per sex.

Among dogs and cats, a larger number of female animals (188) were sterilized in comparison to male population (93). About 93.6% of the sterilization was done on pets. There are some pet owners that prefer non-invasive method of birth control. As an alternative to the surgical method of spaying/neutering, an oral/injectable contraceptive (medroxyprogesterone drug) was also provided. A total of **49** pet dogs and cats were given contraceptive medical treatment and the usage has decreased slightly from the previous fiscal year.

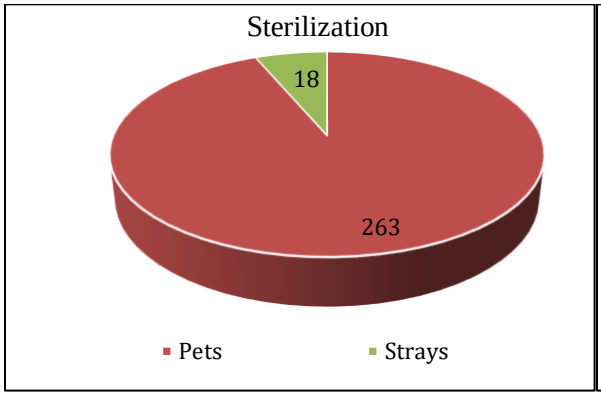

Figure 9: A pie diagram depicting sterilization of pets and stray.

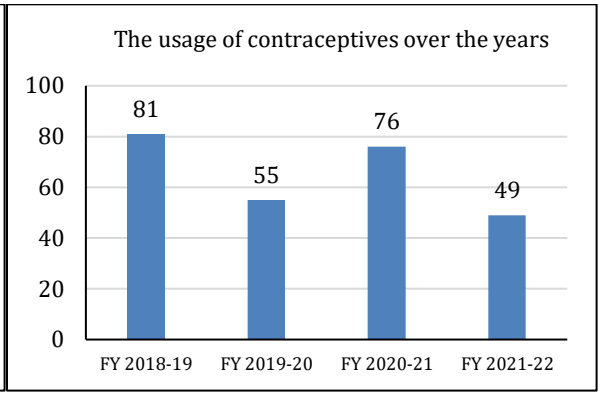

Figure 8: A bar chart showing usage of contraceptive medicines.

Vaccination is one of the most effective ways to protect animals from contracting infectious diseases. There are two types of vaccines available for dogs, namely DHPPi+L (which provides protection from canine distemper, hepatitis, canine parvo, parainfluenza, and leptospirosis) and anti-rabies vaccine (ARV) while cats are provided with only ARV. Rabies vaccine is provided free of cost because of the public health significance while DHPPi+L vaccine has to be purchased from Karma Pharmacy (sole agent for Virbac DHPPi+L).

A total of **1814** pets were vaccinated with anti-rabies vaccine of which 1589 were dogs and 225 were cats. Unlike in dogs, the re-vaccination in cats is lower than the primary vaccination indicating that the cats vaccinated in previous years do not receive the vaccines in subsequent years and consequently are left vulnerable to rabies infection. This could be due to the lack of knowledge among cat owners. Therefore, the owners need to be advocated on the importance of re-vaccination in cats.

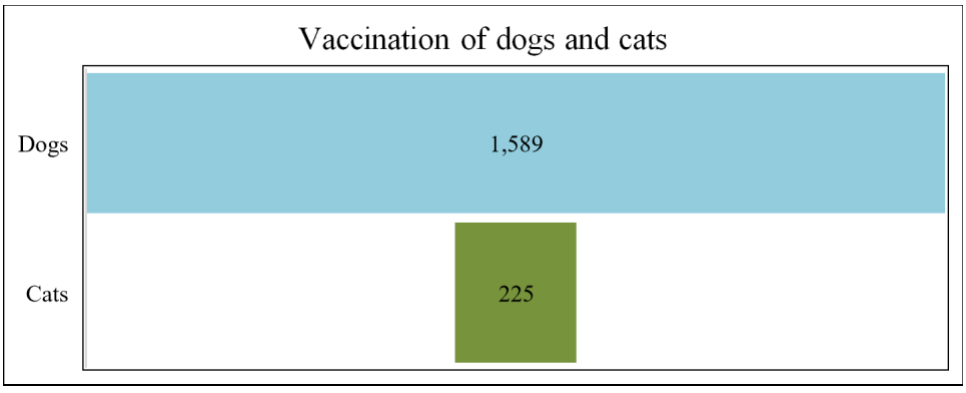

Figure 10: A tornado chart showing vaccination of dogs and cats against rabies.

A total of **2570** pet dogs were also vaccinated with DHPPi+L vaccines. The number of vaccinations increased by 121% compared with the last fiscal year possibly due to the relaxation

of the pandemic control protocols. It is also indication of the fact that the owners understand the importance of the vaccination.

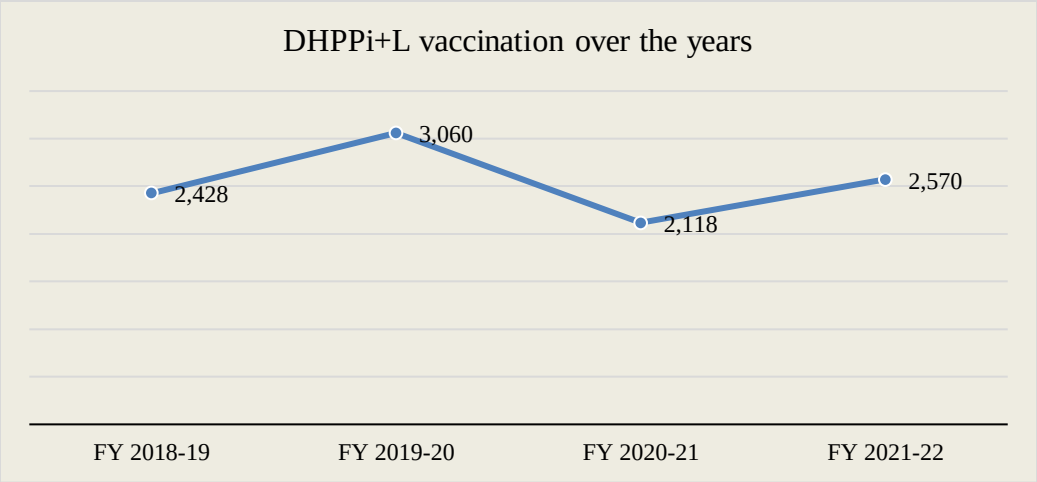

Figure 11: A line graph showing the trend of DHPPi+L vaccination over the past four years.

Poultry birds belonging to the Royal family were vaccinated against Marek's (66) and Newcastle (62) diseases. Four horse received rabies and tetanus vaccines.

7.4 Deworming

Worm infestation is a common problem in young animals causing gastrointestinal upset and can predispose it to secondary diseases. Many internal parasites of dogs and cats are also zoonotic and hence controlling intestinal parasites is a vital part of any preventative health care program.
A total of **3649** animals were dewormed amongst which 2707 (74%) were dogs and 942 (26%) were cats.

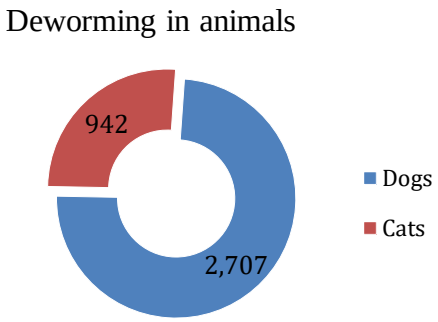

Figure 12: A doughnut chart depicting deworming in dogs and cats at NVH.

Table 4: Anthelmintics commonly used in pets.

Sl. No.	Anthelmintic	Indications
1.	Praziquantel	Tapeworms
2.	Albendazole	Tapeworms, roundworms & hookworms
3.	Piperazine	Roundworms
4.	Pyrantel pamoate, fenbendazole & praziquantel	Tapeworms, roundworms & hookworms

7.5 Pet Registration

As per the Livestock Rules and Regulations 2017, every pet shall be registered with the livestock office and ensured timely deworming and vaccination. Currently, only dogs and cats are registered at NVH. For the registration, the hospital charges Nu. 100 per animal and the amount is deposited into the revenue account. The details of owners and pets are maintained on an online database. During FY 2021-22, a total of **1229** pets were registered at this hospital, out of which 762 (62%) were dogs and 467 (38%) were cats.

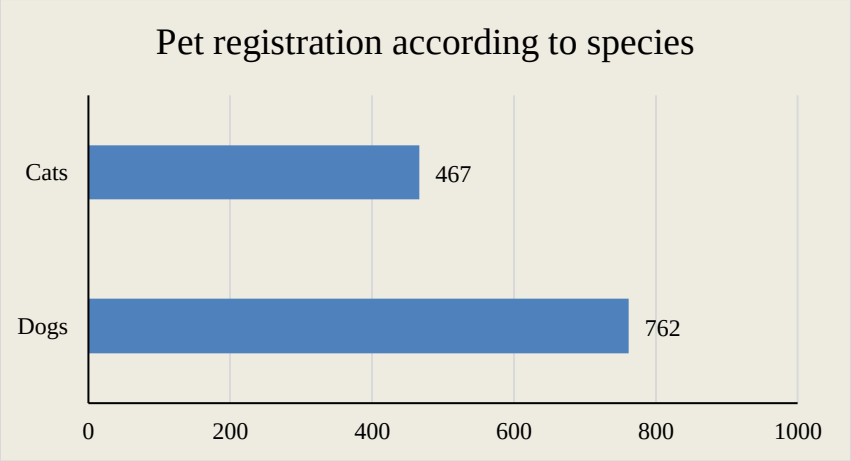

Figure 13: A horizontal bar chart showing pet registration as per species.

The pet owners keep more male dogs than female dogs but among cats they prefer female over male cats as male cats usually wander about after a certain age and do not prefer being kept in a house. Various breeds of dogs were brought for registration. The owners prefer more of exotic breeds of dogs than local breeds but in cats, the local breed of cats are more predominant. This is evinced by the data given in the figure below which also goes on to indicate that dogs remain the more popular companion animal (at 785 newly registered dogs as pets) over cats. The total revenue generated from pet registration amounts to Nu 84,100.

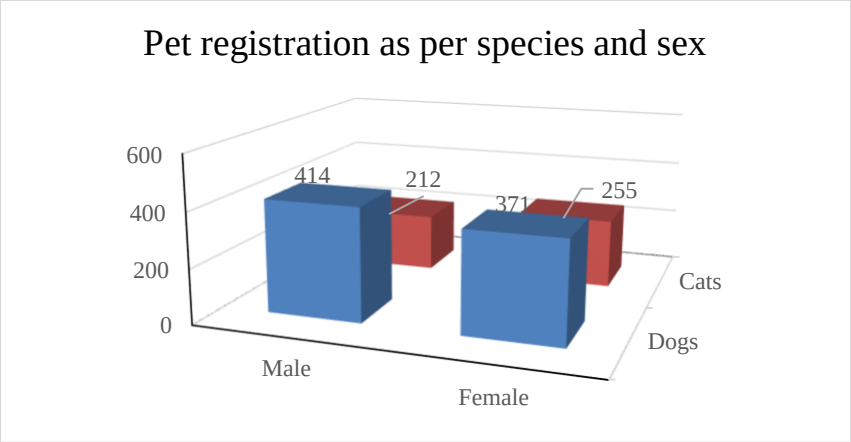

Figure 14: A 3-D bar chart of pet registration as per sex and species.

7.6 Diagnostic Services

Diagnostic services are divided into two components: Clinical and Laboratory.

Table 5: The list of functional diagnostic machines at NVH.

Sl No.	Name of machine	Status
1	Ultrasound	Operational
2	Endoscope	Operational
3	Digital x-Ray	Operational
4	Rhinoscope	Operational

7.6.1 Clinical Diagnostics

In 2021-22, ultrasonography services were provided to 230 animals of which 199 were dogs and 31 were cats with an average turnaround time (TAT) of 11 minutes per animal. Ultrasonography exanimations were used to diagnose pregnancy (PD) in 117 animals and other examinations in 113 animals.

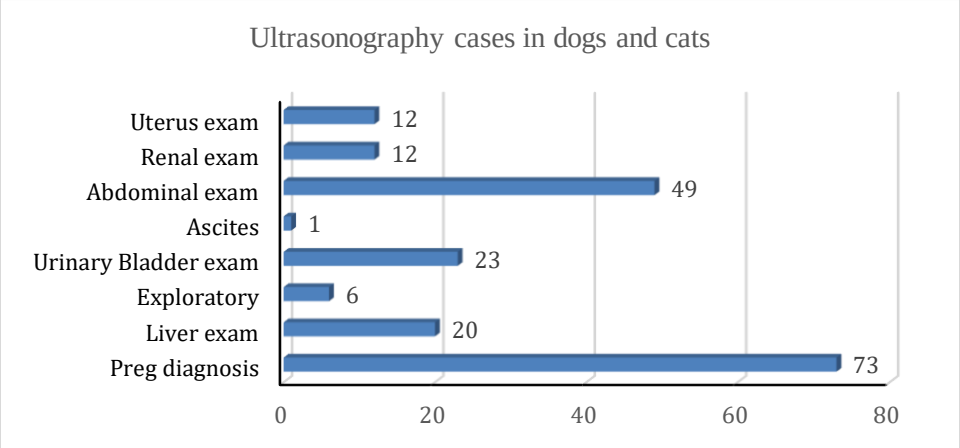

Figure 8. 1 A horizontal 3-D bar chart showing ultrasonography cases in dogs and cats.

7.6.2 Laboratory Diagnostics

The laboratory service unit (LSU) has three sections namely Parasitology, Haematology and Biochemistry. A total of 1,138 samples were collected/received and were subjected to various tests. 56 samples were referred to NCAH for fungal and bacterial culture and identification, and antibiotic sensitivity test (ABST), histopathology and post-mortem examinations.

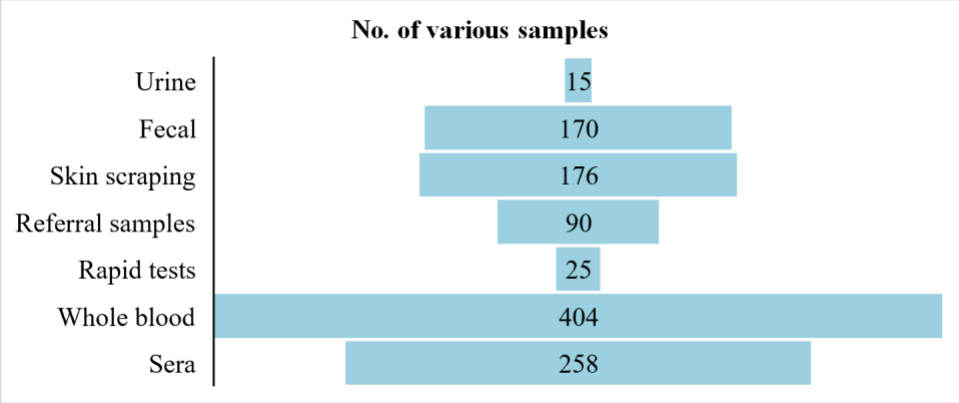

Figure 15: A funnel chart of types of samples collected species-wise.

Table 6: Types of tests performed in different sections.

Section	Specimen	Test Type
Parasitology	Faecal	Direct examination
		Stoll method
		Sedimentation method
	Skin scrapings	10%KOH Digestion method
Haematology	Whole blood	DLC
		Hbg
		RBC
		WBC
		BP
		CBC
Biochemistry	Serum	LFT
		RFT
		Glucose
		Minerals (Ca & P)
		Electrolytes (K, Cl, Na, HCO3)
		Muscle enzymes
	Urine	pH
		Specific gravity
		Leukocyte
		Protein
		Blood

7.6.2.1 Parasitology Section

A total of **170** faecal and **176** skin scrapings were collected and examined for endo-parasites and ecto-parasites. A total of 476 parasitological tests were conducted.

Table 7: Findings of faecal examinations in different animals.

Species	**Parasites**
Dog	*Toxocara canis, Isospora spp., Ancylostoma caninum,* and *Dipylidium spp.*
Cat	*Toxocara cati, Isospora spp., Dipylidium spp., Taenia spp.,* and *Spirometra spp.*
Cattle	*Strongyle spp., Fasciola spp., Paramphistoma spp.,* and *Trichuris spp.*
Horse	*Strongyle spp., Parascaris spp.,* and *Fasciola spp.*
Poultry	*Capillaria spp., Coccidia, Rallieitinia spp.,* and *Heterakis spp.*

Faecal and skin scraping samples were among the highest number of samples received while urine samples were the least in number.

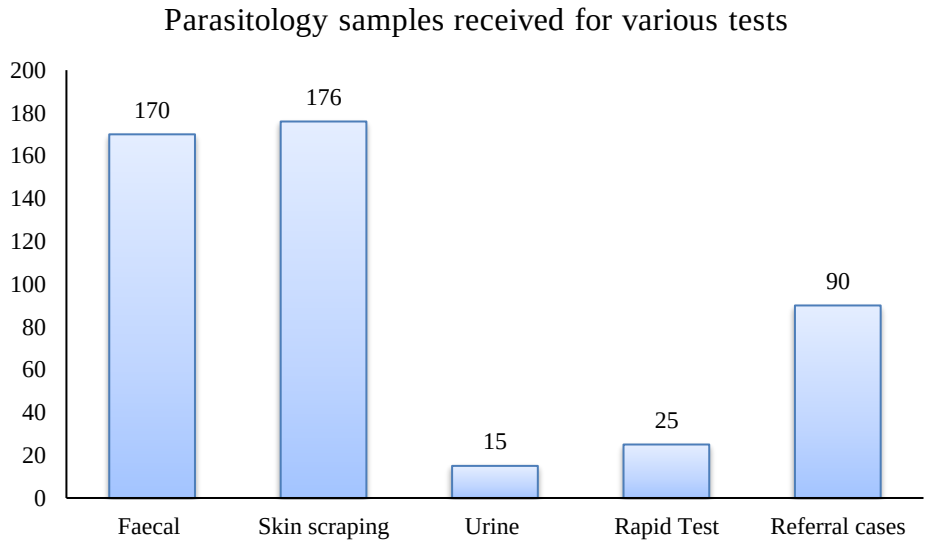

Figure 16: A bar chart showing samples received for various parasitology tests.

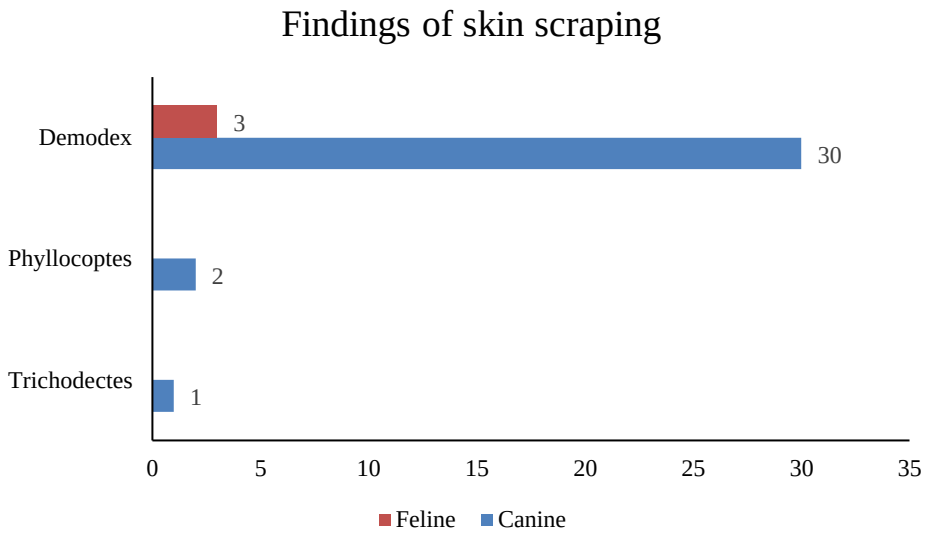

Figure 17: A clustered bar chart showing findings of skin scraping examinations in dogs.

Among findings from tests conducted on skin scraping samples, Demodicosis in dogs topped the charts with 30 cases in a year while that in cats came second with three cases in the same period. Trichodectes species infestation was the least, with only one case for the fiscal year. The negative samples suspected of fungal and bacterial infection were referred to NCAH for culturing.

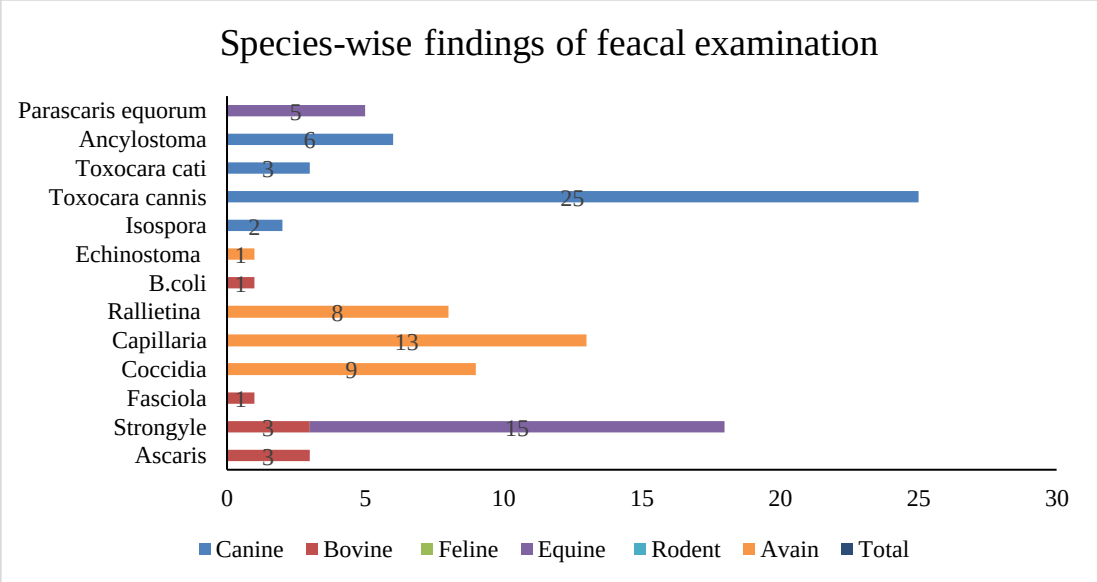

Figure 18: A horizontal stacked bar chart showing findings of feacal examinations in various species.

Toxocariasis in canines was the highest number of helminth infestation cases (at 25) detected in the faecal examination followed by Strongylosis cases (15) in the bovine species. *Fasciola* in cattle, *Echinostoma* in birds, and *Isospora* in dogs were among the least number of cases detected in the faecal examinations performed at NVH.

Table 8: Samples referred from various species to National Veterinary Hospital.

Samples referred from	Laboratory section	Species	No. of samples	Remarks
Paro	Parasitology	Avian	1	
Paro	-do-	Equine	20	
Paro	-do-	Vulture	3	
Paro	-do-	Eagle	1	
Paro	-do-	Canine	4	
Total Samples Received			**29**	

7.6.2.2 Haematology section

For haematology, a total of **437** blood samples were collected and **2516** tests were conducted. The commonly found blood parasite infection in both dogs and cats was *Anaplasma spp.*

Table 9: Summary of samples received, and tests performed in haematology.

Specimen	No. of samples received	Test type	No. of test done
Whole blood	404	WBC,RBC,PLT,BP,DLC	2468
Referral – skin scraping, whole blood, ear swabs , carcass, etc.	21	Forwarded to NCAH	NA
Urine	04	Leu, Ket, Nit, Uro, Bil, Pro, Glu, Sg, Bld, and pH	40
Rapid test (Parvo)	06		08
Rapid test (CD)	02		
Total samples collected and tests conducted	437		2516

The greatest number of samples received were from dogs, at 304 samples in the fiscal year. The least number of samples received being from the bovine species, as reflected in the chart below.

No. of samples received according to species

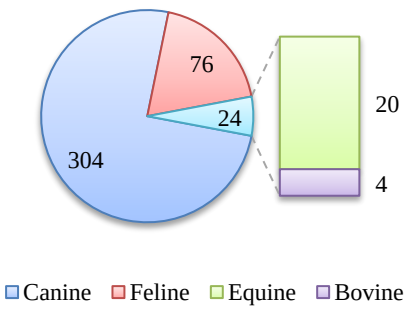

Figure 19: The species-wise breakdown of the number of samples received in haematology section.

Haematological tests performed
The section conducts WBC, RBC, PLT, blood parasite screening tests, and rapid tests. Some common tests performed in the Haematology section are:

- Direct smear method for blood parasites
- CBC conducted in Blood Analyzer
- Giemsa technique for Differential Leucocytes Count (DLC)
- Leishman's technique for Differential Leukocytes Count
- WBC examination: WBC count, Lymphocytes, Monocytes, Neutrophils, Eosinophils, Basophils.
- RBC examination for: RBC, HGB, HCT, MCV, MCH, MCHC, RDW
- PLT, MPV
- The common blood parasites observed were: *Anaplasma* and *Babesia*
- Heart Worm Examination for: *Dirofilaria immitis*
- Rapid Tests: Canine Parvo Virus and Canine Distemper Ag tests
- Rabies antigen test
- CHW Ag Test
- Canine adenovirus antigen test

Table 10: Sample referral to laboratory sections at National Veterinary Hospital.

Referred from	**Laboratory section**	**Species**	**No. of samples**	**Remarks**
Paro	Haematology	Canine	21	
Paro	-do-	Equine	45	
Paro	-do-	bovine	1	
Total samples Received			67	

Some common significant findings in the haematology
Lymphocytosis, lymphocytopenia, monocytosis, monocytopenia, neutrophilia, neutropenia, eosinophilia, eosinopenia, basophilia, basopenia, anaemia, polycythaemia, and blood parasites.

7.6.2.3 Biochemistry section

The biochemistry test involves liver function test (liver enzymes & bilirubin) and kidney function test (creatinine and BUN) along with quantification of muscle enzymes, blood glucose, cholesterol, and important minerals such as calcium and phosphorus and electrolytes such as potassium, chloride, sodium, and bicarbonate. About **258** sera samples were collected for conducting the biochemistry tests.

Significant Findings
A serum biochemistry profile can help screen for many medical conditions, including diabetes and kidney disease. In many cases, early diagnosis and management can improve quality of life and long-term outcomes for pets with chronic illnesses.
Biochemistry blood test can provide an overview of many of the body's functions, performing a serum biochemistry profile poses minimal risk for the pet, and in many cases, the information veterinarian gains from this testing is very valuable. It values

that help provide information about the liver include the **ALKP** (alkaline phosphatase), **ALT** (alanine aminotransferase), and **TBIL** (total bilirubin). Evaluating the kidneys includes the **BUN** (blood urea nitrogen) and **CREAT** (creatinine). Electrolytes is checked for quantity and for proportion to other electrolytes.
They include **Ca** (calcium), **Cl** (chloride), **K** (potassium), **Na** (sodium), and **PHOS** (phosphorus). Electrolyte abnormalities can be associated with many types of health issues. Therefore, almost all the diseases or disorders have some biochemical involvement. So, the successful diagnosis of any clinical condition should be reached at upon due consideration of the estimations of biochemical parameters of the blood.

Table 11: Table showing total samples collected and tests conducted

Types of tests	**Name of sample collected**	**Total test conducted**
Creatinine	258	258
Alkaline phosphatase	258	258
Albumin	258	258
Total Bilirubin	258	258
Total Protein	258	258
Glucose	258	258
SGOT	258	258
SGPT	258	258
Cholesterol	258	258
Phosphorus	258	258
Calcium	258	258
Triglyceride	258	258
Urea	258	258
Total sample collected and test done	**258**	**3354**

7.7 Referral cases

National Veterinary Hospital is the referral hospital for clinical veterinary services in the country. The hospital is manned by five veterinarians supported by ten para-veterinarians and three laboratory technicians. The hospital is equipped with advanced diagnostic machines such as digital x-Ray, ultrasound, endoscopy, and biochemistry services.
In the fiscal year 2021-22, a total of eight cases were referred to this hospital. The clinical conditions were chronic dysphagia, tumour, fracture, pyometra and prolapse of third eyelid. Most of the cases were referred from DVH, Paro as shown in the chart below:

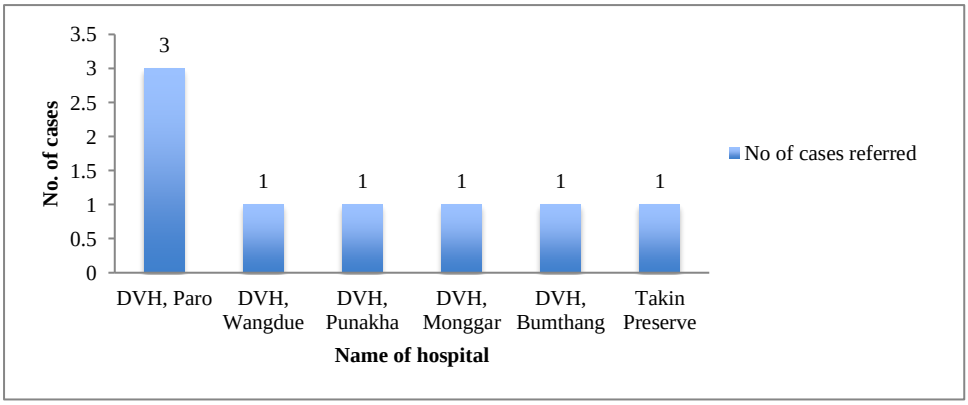

Figure 20: Details of referral cases received from various centers

7.8 Medicine utilization

The drug utilization percentage for the fiscal year 2021-2022 is **80.35%** which is a decrease by about 4.5% compared to the previous **year (84.9%).** The reasons for the drop in drug utilization were because there was no surgery (OH/Castration) carried out in the hospital for dogs because all the dogs brought for the surgery were referred to NADPM clinics. Additionally, there was increase in the supply of medicines this fiscal year as in the previous years, there was limited supply of drugs and medicines due to the pandemic taking toll on the government coffers.

The 10 most used medicines for 2021-22 are summarized in the table below. Quantitatively, cefotaxime injectable was used the most, at 528 vials. On a percent basis, meloxicam injectable and enrofloxacin tablets were used the highest (100%), followed by enrofloxacin injection (88.15%) and cefotaxime injection (86.56%). Chlorpheniramine injection was the least used drug on a percentage basis.

Table 12: Usage percentage of most medicines during 2021-22

Sl. No.	Name of medicine	Qty received (vials)	Qty used (vials)	Usage percentage
1	Cefotaxime injection	610	528	86.56
2	B. Penicillin injection (24IU)	165	112	67.88
3	Chlorpheniramine inj	157	106	67.52
4	Enrofloxacin inj	211	186	88.15
5	Enrofloxacin tablets	281	281	100.00
6	B-complex inj	165	165	100.00
7	Meloxicam inj	175	142	81.14
8	Ampicillin cloxacillin inj	210	143	68.10
9	Methylcobalamin inj	145	99	68.28
10	Gentamicin inj	104	79	75.96

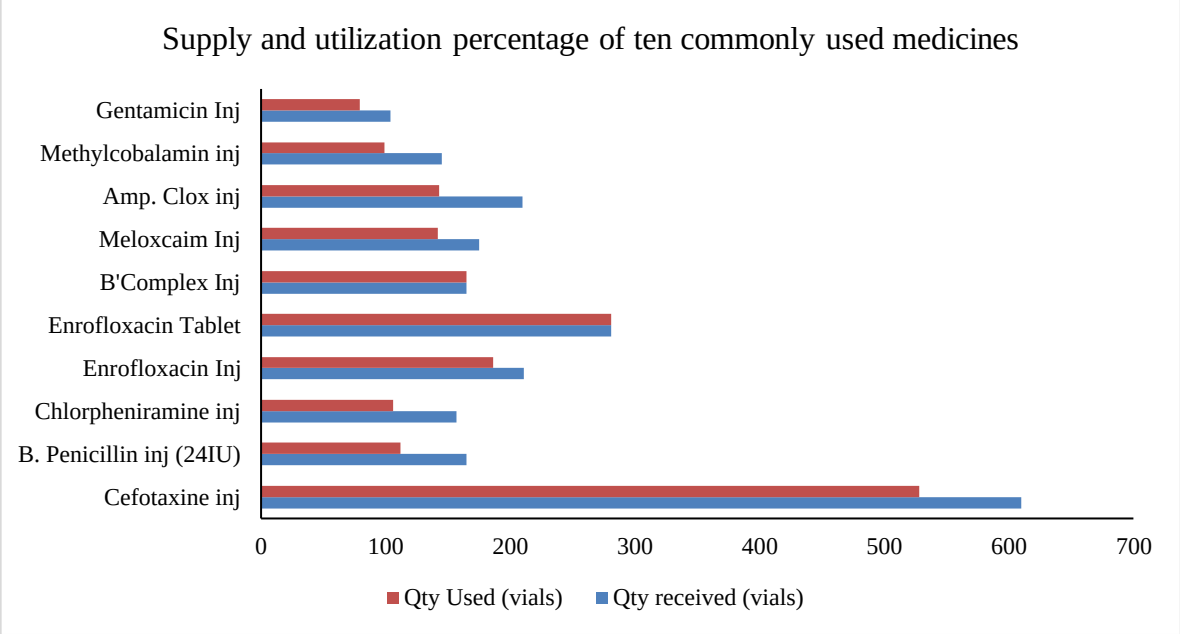

Figure 21: A clustered chart showing ten most used medicines and their usage.

Doxycycline tablets were the least used, at 7.6% of the quantity issued by the central store (not reflected in the chart above).

NVH had been supporting nearby hospitals or centres for medicines during the time of emergency such as disease outbreak or medicine shortage. In this fiscal year, medicines were issued to Thimphu DVH, DPM program, Jangsa animal shelter, and NPBC, Yusipang. The details of the quantities and names of the medicines and consumables issued are furnished in the annexure 1.

7.9 Staff coordination meetings conducted in the fiscal year 2021-22

1. 9th July 2022
2. 27th July 2022
3. 27th June 2022
4. 30th June 2022

The minutes of the meetings for the forgoing staff coordination meetings are incorporated in the annexures.

7.10 Budget Utilization

A total of Nu. **15.893** million was approved for NVH during FY2021-22 which was a slight increase compared with the previous fiscal year (**15.427** million). Nu. 15.584m was used and the balance amount was Nu.0.309m (Table 7). The budget utilization percentage was **98.05%** which was similar to that of the previous year at 98.5%.

Table 13: Details of approved budget and expenditure for NVH in 2021-22.

Printed Date: 08/07/2022

EXPENDITURE REPORT

4. REVISED BUDGET/EXPENDITURE

FISCAL YEAR 2021-2022

ADMINISTRATIVE UNIT: 204.01 MINISTRY OF AGRICULTURE & FORESTS
DEPARTMENT: 03 DEPARTMENT OF LIVESTOCK
FIELD OFFICE: 21 NATIONAL ANIMAL HOSPITAL, THIMPHU

(Nu. in Millions)

PRG	SPRG	ACT	SACT	FIC	OBC	TITLE	BUDGET	EXPENDITURE	BALANCE	%
045						LIVESTOCK SERVICES				
	027					LIVESTOCK HEALTH SERVICES				
		001				DIRECTION SERVICES (VETERINARY HOSPITAL)				
			01			PERSONNEL EMOLUMENTS (VET - HOSPITAL)				
				0001		RGOB Financing				
					01.01	Pay and Allowances	9.545	9.544	0.001	0.01
					02.01	Other Personnel Emoluments	1.015	1.015	0.000	0.02
					11.03	Travel - (LTC/Leave Travel Concession)	0.395	0.395	0.000	0.03
					24.03	Contributions - Provident Fund	1.101	1.100	0.001	0.08
					25.01	Retirement Benefits	0.597	0.596	0.001	0.14
						TOTAL OF FIC 0001	**12.653**	**12.650**	**0.003**	
						TOTAL OF SAct 01	**12.653**	**12.650**	**0.003**	
			02			OPERATION AND MANAGMENT SERVICES				
				0001		RGOB Financing				
					12.01	Utilities -Telephones, Telex, Fax, E-mail, Internet	0.100	0.089	0.011	11.26
					12.02	Utilities -Telegram, Wireless Transmission, Postage	0.002	0.001	0.001	35.05
					12.03	Utilities - Electricity, Water, Sewerage	0.290	0.260	0.030	10.28
					14.01	S & M - Office Supplies, Printing, Publications	0.110	0.101	0.009	7.86
					14.02	S & M - Medicines & Laboratory Consumables	0.336	0.331	0.005	1.43
					14.06	S & M - Uniforms, Extension Kits, Linens	0.005		0.005	100.00
					15.01	Maintenance of Property - Buildings	0.061	0.060	0.001	1.47
					15.02	Maintenance of Property - Vehicles	0.360	0.344	0.016	4.53
					15.05	Maintenance of Property - Equipment	0.005	0.002	0.003	55.00
					15.07	Maintenance of Property - Computers	0.025	0.025	0.000	1.20
					17.01	Op. Exp. - Advertising	0.005		0.005	100.00
					17.02	Op. Exp. - Taxes, Duties, Royalties, Fees, Handling Charges, Bank Charges	0.013	0.013	0.000	2.13
					18.01	Hospitality & Entertainment	0.020	0.006	0.014	67.63
					52.03	Plant & Equipt. - Power Trans. & Dist.	0.113	0.112	0.001	0.53
						TOTAL OF FIC 0001	**1.445**	**1.345**	**0.100**	
						TOTAL OF SAct 02	**1.445**	**1.345**	**0.100**	
			03			MONITORING OF PROGRAM AND MOBILITY FUND FOR NAH STAFFS				
				0001		RGOB Financing				
					11.01	Travel - Incountry	0.245	0.073	0.172	70.02
						TOTAL OF FIC 0001	**0.245**	**0.073**	**0.172**	
						TOTAL OF SAct 03	**0.245**	**0.073**	**0.172**	
			08			MOBILE CLINIC FOR MOBILE HIGHLANDERS PROGRAM				
				0001		RGOB Financing				
					17.08	Op. Exp. - Incountry Meetings and Celebrations	0.040	0.005	0.035	86.51
						TOTAL OF FIC 0001	**0.040**	**0.005**	**0.035**	
						TOTAL OF SAct 08	**0.040**	**0.005**	**0.035**	
			18			ANIMAL FEED AND FODDER				
				0001		RGOB Financing				
					14.05	S & M - Animal Feeds	0.010	0.010	0.000	2.65
						TOTAL OF FIC 0001	**0.010**	**0.010**	**0.000**	
						TOTAL OF SAct 18	**0.010**	**0.010**	**0.000**	
			21			CONSTRUCTION OF ROYAL MINI HORSES STABLE AT CHUBACHU				
				0001		RGOB Financing				
					51.08	Exp. on Structure - Others	1.500	1.500	0.000	0.00
						TOTAL OF FIC 0001	**1.500**	**1.500**	**0.000**	
						TOTAL OF SAct 21	**1.500**	**1.500**	**0.000**	
						TOTAL OF Act 001	**15.893**	**15.584**	**0.309**	
						TOTAL OF SPre 027	**15.893**	**15.584**	**0.309**	
						TOTAL OF Pre 045	**15.893**	**15.584**	**0.309**	
						TOTAL OF FO 21	**15.893**	**15.584**	**0.309**	

Page 1 of 2

ADMINISTRATIVE UNIT: 204.01 MINISTRY OF AGRICULTURE & FORESTS
DEPARTMENT: 03 DEPARTMENT OF LIVESTOCK
FIELD OFFICE: 21 NATIONAL ANIMAL HOSPITAL, THIMPHU

(Nu. in Millions)

PRG	SPRG	ACT	SACT	FIC	OBC	TITLE	BUDGET	EXPENDITURE	BALANCE	%
						TOTAL OF Dept 03	**15.893**	**15.584**	**0.309**	
						TOTAL OF AU 204.01	**15.893**	**15.584**	**0.309**	
						GRAND TOTAL	**15.893**	**15.584**	**0.309**	98.05%

15.584 ÷ 15.893 × 100

= 98.05 %

8. Critical veterinary services provided during lockdowns

Animal health services is recognized as an important public service and thus accorded special approval to operate during the lockdowns by the National COVID19 Task Force. Like the previous lockdowns, the National Veterinary Hospital had initiated its critical veterinary services delivery during the lockdowns 4.0 and 5.0 imposed in Thimphu. The services were provided as per the COVID19 contingency plan 2020 developed by NVH.
A brief summary of the services provided during the lockdowns are as under:

A team comprising of the following members were stationed at NVH to cater to emergency services:

-Veterinary Doctor - 1
- Lab Technician -1
- Driver – 1
- Para-veterinary professionals -2
- Reception - 1
- ESP (Animal Attendant) – 2

During the two lockdowns, a total of 905 emergency cases were attended by NVH. Due to movement restrictions, most people also preferred to call for consultation. A total of 513 consultations (through telephonic conversations and Facebook messenger chats) were also provided. For clients who did not have means of transportation and could not avail e-pass to transport the sick animal patients to the hospital, ambulatory services were provided. 53 ambulatory and 17 medicines delivery services were provided. Diagnostic tests for the chronic and critically ill patients were also conducted (59 numbers). Although vaccination services were suspended during the lockdown, 21 numbers of vaccination were done. This was due to the increasing number of Canine parvovirus outbreaks observed in the young puppies.
In terms of expenses, a total of Nu. 91,992 (ninety-nine thousand, nine hundred and two) was incurred to meet the food, medicines, and consumables procurement costs.
The hospital was operational from 9AM till 8PM throughout the lockdown periods. Emergency cases brought beyond these times were also attended.

Table 14: Summary of the critical veterinary services provided during the two lockdowns.

Lockdown	Clinical cases	Tele-consultations	Ambulatory services	Medicine delivery	Diagnostic tests	Vaccina-tion	Expenses (in '000)
LD 4.0 (16/1-12/2/22)	334	282	14	3	14	0	49.645
LD 5.0 (23/2-20/3/22)	571	231	39	14	45	21	42.347
Total	905	513	53	17	59	21	91.992

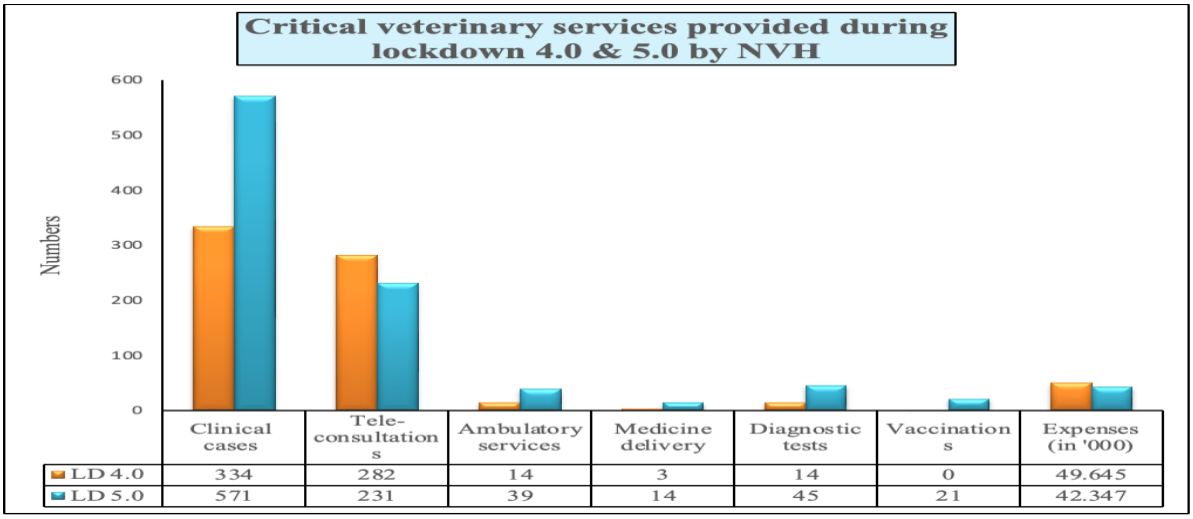

Figure 22: Various critical veterinary services provided, and expenses incurred.

Prior consultation with a veterinary doctor on duty was made to assess the need for patient pickup or drop-in by clients for each case. As per the doctor's assessment, patients suffering from various cases were provided with necessary medical intervention (table 10).

Table 15: Various services provided during lockdowns 4.0 and 5.0.

Abscesses	Acute Rhinitis	Ascites
Choke (Oesophageal obstruction)	Canine Transmissible Venereal Tumour	Dystocia
Chronic atopic dermatitis	Eczema (Severe atopic eczema)	Oesophageal diverticulitis
Eclampsia (Postpartum hypocalcaemia)	Gastroenteritis (Parvo, Haemorrhagic)	Hypersensitivity reaction
High rise falls	Idiopathic epilepsy	Nutritional deficiency
Penile deformity	Prolonged anorexia	Pyometra
Poisoning	Shock	Renal disease/ kidney failure
Vehicular trauma	Wounds (dog bites, punctured/ lacerated)	Other non- specific diseases

Ambulance services

Clients were picked and dropped by the ambulance since it was not possible to get easy movement permits for private vehicles during lockdowns. Apart from a few clients who managed to get approval, rest were picked by the veterinary ambulance. However, after relaxation of lockdowns, a greater number of clients were able to get permits to travel using private cars to the hospital. Some of the clients residing in the nearby mega-zones walked with their pets to the hospital after the relaxation of movement restrictions.

Tele-consultation

Tele-consultations over the phone and through the hospital's official Facebook messenger were assessed by the public for seeking consultation with the Veterinary doctors on duty. The tele-consultations were made available and attended to even beyond the normal schedule as much as possible. A total of 513 teleconsultations were

recorded during the two lockdowns. This number only represents the actual consultations made with the doctor on duty. It doesn't include the calls and consultations made with the technicians at the reception, otherwise the number would be higher. The teleconsultation was an important service provided during the lockdown which helped the clients to indulge in home remedies and care for their pets instead of visiting the hospital.

Medicine delivery

NVH delivered necessary medicines to clients for their sick pets during the lockdowns. The hospital also contacted pharmacies on behalf of clients for purchase of medicines which were not available at the hospital. These medicines were then delivered by the hospital to their homes. This arrangement was made for zones where pharmacies were not available/open or when the delivery was thought to be delayed. Delivery of medicines were made to patients which were of non-emergency nature. Emergency cases were picked up immediately by an ambulance.

Accommodation

The guest house at NVH was being used for accommodating the team members during their stay. All members used different toilets to prevent and ensure minimal contact between the team members. Drivers slept separately from the rest of the staff since the drivers were involved in picking and dropping off the clients.

Food

All essential food items were procured for the team members. Three meals and two teas were served daily. Designated cook was identified from each team to cook and perform the kitchen duties.

Challenges faced and lessons learnt

The hospital and its team of service providers has been fortunate enough to not encounter any major challenges while delivering critical veterinary services during the lockdowns 4.0 and 5.0. This could be attributed to the fact that the contingency plan including working modalities and SOPs on critical veterinary services delivery during times like the current lockdown were developed well before the first lockdown by NVH. It was only a matter of getting approval and implementing them.

Like all the frontline responders, the staff of NVH has also looked up to and always been inspired by the tireless efforts and sacrifices made by our King. We were constantly guided by His Majesty's wisdom to work responsibly and with utmost dedication.

The department of livestock provided us with proper directives and facilitated necessary approvals from the Central Covid19 Task Force to enable us to provide services efficiently.

From the hospital management, we have ensured that logistics for our service provider teams such as accommodation, food, and PPEs including timely testing for COVID19 were arranged at the hospital in order to safeguard the service providers as well as the

general public. Therefore, we did not face any major issues/ challenges while delivering our services during the lockdown.

Every one of us has responsibilities towards the Tsa-Wa-Sum and NVH takes pride in being identified as one of many essential service providers during the lockdown. It is a great honour and privilege to be of service to The King, the country, and the people, especially in an unprecedented time like this.

9. Turnaround time for key Veterinary Clinical Services for 2021-22

9.1 Laboratory services

9.1.1 Haematology test

The haematology section deals with collection and examination of blood samples for various haematological parameters. Turnaround time for haematological tests were instituted to improve the efficiency of laboratory services. It improves testing and rapid dispatch of results which ultimately enables early treatment and increases treatment outcome in patients. For 2021-22, a total of 397 samples were collected (as of 20/6/22). The total average of haematological test for July 2021 till 20th June 2022 was **0.89 days.** The maximum TAT was one day, and the minimum TAT was zero day.

The standard TAT for haematology test was set at one day.

9.1.2 Parasitological test

At NVH various samples are being collected for parasitological tests. The two most common samples collected are faeces and skin scrapings for examination of endoparasites and ectoparasite respectively. A total of 346 samples (170 faecal and 176 skin scraping) were collected.

For the faecal test (170 samples), the daily and total average TAT maintained was one day. Similarly, for the skin scraping test also, the daily as well as total average TAT maintained as one day. This is in conformity with the standard TAT set for parasitology test.

9.1.3 Biochemistry test

The biochemistry test is conducted using a biochemistry machine to basically evaluate liver and kidney functions. The reagents for the biochemistry tests are very expensive, thus tests are only run when adequate number of samples are collected.

For 2021-22, a total of 252 samples were collected for biochemistry examination. The average TAT for biochemistry test was **1.15 days.** The maximum TAT recorded was five days and the minimum TAT recorded was zero day. The standard TAT threshold for biochemistry test is five working days.

9.2 Ultrasonography services

For 2021-22 (July 2021 till June 24, 2022), a total of 154 ultrasonography (USG) examinations were performed at the hospital in pet animals (dogs and cats).

Table 16: TATs for USG provided during different periods of the 2021-22 fiscal year.

Period (half- yearly)	Total cases	Average TAT (in minutes)	Max TAT (in minutes)	Min TAT (in minutes	Mode (in minutes)
Jul - Dec 2021	89	14.98	120	2	5
Jan-Jun 2022	65	11.38	60	4	5
(1 yr.)					
Jul '21- Jun '22	154	13.67	120	2	5

During the first six months (July 2021- December 2021) a total of 89 cases were examined. The TAT for USG service during the first half of the year was 14.98 minutes. Highest TAT recorded during the same period was 120 minutes and lowest TAT was 2 minutes. Most cases received the services at a TAT of 5 minutes.

For the second half of the year, 65 cases received USG services. The average TAT for 65 cases was 11.38 cases which is lower than the first half average TAT. Maximum TAT recorded was also lower (60 minutes) while minimum TAT was higher than first half (4 minutes). The mode was however same for both the periods.

The total USG services for the whole year was 154 numbers. The average TAT was 11.38 minutes. The Max TAT, Min TAT and mode were same as the first half period.

Compared to the TAT target set for USG services (120 minutes), the average TAT for USG services in 2021-22 is significantly low (**13.67 minutes**). Only a single case had a TAT of 120 minutes.

9.3 Sterilization services

At NVH, the sterilization services are provided based on the appointment systems, especially for pet animals (dogs and cats). For the fiscal year 2021-22, a total of 631 sterilization appointments were made. Out of the total appointments, 307 sterilization services were provided (234 at NVH and 73 at various clinics outside NVH during the National accelerated stray dog population management program).

One day prior to the sterilization day, telephone calls are made by the hospital to the clients to confirm and call them in for sterilization at the hospital. Due to various reasons such as calls not responded (36), calls not able to connect (18), cancellation of appointments (56), postponement (13), and not turning up on the day of surgery (14), sterilization is not being done, however, they are considered as completed for the recording of TAT. Taking all into consideration, a total of 444 numbers of sterilization appointments were completed.

The average TAT for completed sterilization service was recorded at **67.33 days**. The standard target set for sterilization TAT is **90 days**.

A TAT of 193 days was recorded as the highest while a TAT of zero day was recorded as lowest.

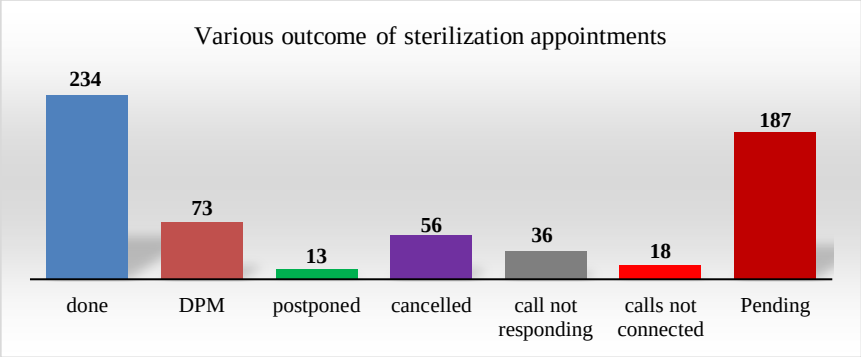

Figure 23: Graph showing various outcome of sterilization appointments.

Out of the total 631 sterilization appointments registered for 2021-22, 187 numbers are pending (as of 24/6/22). This is mainly due to the engagement of NVH staff with the Accelerated NADPM program during most part of the year.
Within the remaining week (27-30/6/22), NVH is planning to complete all the appointments that are due for sterilization.

10. Support provided to NADPM by NVH

Table 17: The table below shows details of support provided by NVH to ADPM/NADPM.

Sl. No.	NADPM Program	Venue	Date	Name of staff who attended
1.	Assist cooking and store management during the training of desuups for the implementation of Sterilization campaigns	Thimphu	1st Sept. to 10th October 2022	Sonam Zangmo, Sr. LHS Tenzin Peldon, GSP Pema Yangden, ESP
2.	Training on door-to-door pet dog survey	Thimphu	29th Sept. to 1st Oct. 2022	Tshertim Choden, LHS Neten Zangmo, Sr. Tec. Moti Maya Ghalley, LHS Kinzang Pelden, Lab. Tec. Pema Tshomo, Lab. Asst. Ludup Pelmo, Store In-charge
3.	Door-to-door microchipping of pet dogs	Thimphu	11th to 16th October 2022	Tshering Duba, LHS Tshering Yangchen, Sr. LHS Phuntsho Dema, Sr. LHS Chimi Wangmo, LHS Nidup Dori, Sr. LHS
4.	Assist in cooking for on-the-job (OJT) training on CNVR Protocols	Thimphu	3rd to 30th Nov. 2022	Karma Lekshey, ESP Tara Man, ESP
5.	OJT training on CNVR Protocols	Thimphu	4th to 17th Nov. 2022	Dr Pema Tshewang, DCVO Tshering Yangchen, Sr.LHS Tshetrim Choden, LHS Chimi Wangmo, LHS Tshering Duba, LHS
6.	Stray Dog Survey Training and Survey	Thimphu	18th to 20th Oct. 2022	Tshering Yangchen, Sr. LHS Tshetrim Choden, LHS Neten Zangmo, Sr. Tech. Kinzang Pelden, Lab. Tech. Pema Tshomo, Sr. Lab. Asst. Ludup Pelmo, Store In-charge

7.	OJT training on CNVR Protocols	Thimphu	22nd Nov. to 4th December 22	Dr Jambay Dorji, DCVO Phuntsho Dema, Sr. LHS Nidup Dorji, Sr. LHS Kinzang Pelden, Lab. Tech. Pema Tshomo, Sr. Lab. Asst.
8.	On –the-job training on CNVR Protocols	Thimphu	6th to 18th Dec. 2022	Dr Pema, DCVO Tshetrim Choden, LHS Chimi Wangmo, LHS Tenzin Peldon, GSP Pema Yangden, ESP Tenzin Lhamo, ESP Tara Man Gurung, ESP
9.	OJT training on CNVR Protocols	Thimphu	20th Dec. 2021 to 1st Jan. 2022	Dr Jambay Dorji, DCVO Moti Maya Ghalley, LHS Punya Mata Sanyasi, Lab. Tech. Karma Lekshey, ESP Tshering Zangmo, ESP
10.	Resource Person for the OJT training on CNVR protocols	Mongar	5th to 31st Jan. 2022	Dr Pema Tshewang, DCVO
11.	OJT training on CNVR Protocols	Thimphu	7th to 17th Jan. 2022	Tshetrim Choden, LHS Chimi Wangmo, LHS Ludup Pelmo, Store In-charge
12.	Data Management & Sterilization	DVH, Thimphu	26th Feb. to 26th March 2022	Ludup Pelmo, Store In-charge Dr Karma Phuntsho, Sr. VO
13.	Packing of medicines, consumables, and equipment	NCAH, Serbithang	17th March 2022	Tara Man, ESP Karma Lekshey, ESP Phub Tshering, Driver
14.	Conduct OJT for desuups and livestock officials on CNVR protocol	Wangdue	6th Jan to 3rd March 2022	Dr Meena, DCVO
15.	Conduct OJT for desuups and livestock officials on CNVR protocol	Trashigang	4th to 27th March 2022	Dr Meena, DCVO
16.	Nationwide campaign for sterilization of dog	Mongar	17th March 2022	Dr Pema Tshewang, DCVO Dr Jambay Dorji, DCVO
17.	Nationwide campaign for sterilization of dog	Lhuentse	17th March 2022	Dr Karma Phuntsho, Sr.VO
18.	Nationwide campaign for sterilization of dog	Trashigang	17th March 2022	Tshering Yangchen, Sr. LHS Phuntsho Dema, Sr. LHS
19.	Sterilization of dogs	DVH, Thimphu	29th March to 11th April 2022	Tshering Duba, LHS
20.	Data management	Paro	19th March to 11th April 22	Kuenzang Dema
21.	Data management	DVH, Ramtokto	29th March to 11th April, 2022	Ludup Pelmo, Store In-charge
22.	1st Phase of nationwide dog sterilization campaign	Trashigang	28th March to 11th April 2022	Dr Meena, DCVO
23.	Packing of medicines, consumables, and equipment	NCAH, Serbithang	7th to 14th April 2022	Tara Man, ESP
24.	2nd Phase of nationwide dog sterilization campaign	Wangdue	16th April to 3rd May 2022	Dr Jambay, DCVO Tshetrim Choden, LHS Chimi Wangmo, LHS Wangchuk, Sr. ES Phurba Tamang, ES Ludup Pelmo, Store In-charge
25.	2nd Phase of nationwide dog sterilization campaign	Chukha	16th April to 3rd May 2022	Dr Karma Phuntsho, Sr. VO Moti, LHS Tshering Zangmo, ESP Tenzin Lhamo, ESP
26.	2nd Phase of nationwide dog sterilization campaign	Dagana	16th April to 3rd May 2022	Dr Meena, DCVO

27.	2nd Phase of nationwide dog sterilization campaign	Punakha	16th April to 3rd May 2022	Tshering Yangchen, Sr. LHS Phuntsho Dema, Sr. LHS Kinzang Pelden, Lab. Tech. Pema Tshomo, Sr. Lab. Asst. Thinley Dhendup, Sr.LPS Tenzin Pelden, GSP Pema Yangden, ESP
28.	1st Phase of mop-up campaign	Samtse	21st May to June 4th, 2022	Dr Meena, DCVO Tshetrim Choden, LHS Tshering Yangchen, Sr. LHS Tenzin Pelden, GSP Tenzin Lhamo, ESP
29.	1st Phase of mop-up campaign	Punakha	21st May to June 4th 2022	Dr Karma Phuntsho, Sr. VO Phuntsho Dema, Sr. LHS Tenzin Lhamo, ESP
30.	1st Phase of mop-up campaign	Chukha	21st May to June 4th 2022	Moti Maya Ghalley, LHS Phurba Tamang, LHS
31.	1st Phase of mop-up campaign	Dagana	21st May to June 4th 2022	Dr Rinchen, Intern Vet. Dr Tshering, Intern Vet.
32.	1st Phase of mop-up campaign	Thimphu	21st May to June 4th 2022	Thinley Dhendup, Sr. LPS
33.	2nd Phase of mop-up campaign	Paro	7th to 21st June 2022	Dr Meena, DCVO Dr Karma Phuntsho, Sr. VO Tshering Yangchen, Sr. LHS Phuntsho Dema, Sr. LHS Tshertrim Choden, LHS Chimi Wangmo, LHS Pema Yangden, ESP Tenzin Pelden, GSP
34.	2nd Phase of mop-up campaign	Haa	7th to 21st June 2022	Dr Rinchen, Intern Vet. Dr Tshering, Intern Vet.
35.	2nd Phase of mop-up campaign	Thimphu	7th to 21st June 2022	Wangchuk, Sr. ES Tshering Duba, LHS

11. Client Satisfaction Rate survey

Introduction

Client satisfaction rate is "a measure of how products and services provided by a centre meet or surpass client expectations. It is about if a service provider succeeds in making the clients happy. Since we are public servants, we must ensure that the services that we provide to our clients are of high standard and that they are satisfied with the services received.

Clients' satisfaction rate (CSR) is determined by the service providers' work ethics, professionalism, and integrity at an individual level. At the agency level, it is determined by the facilities and the overall management system. The level of the CSR will help in making assessment and recommendations to the animal health centres for improving the efficiency of their services.

It is not straight forward to come up with good indicator for the veterinary clinical services at the national level. Suggestions were provided by colleagues working at national, regional and Dzongkhag veterinary hospitals (DVH) to come up with a national indicator. Prior to 2017, the indicator for veterinary clinical services was "no

of cases". This indicator had both pros and cons. The increase in the "no. of cases" could mean that there are frequent outbreaks of diseases and therefore the numbers are increasing. At the same time, it could be correlated to improved accessibility of animal health facilities for their pets/farm animals.

Therefore, at the Department and Ministry level, it was recommended to keep CSR as an indicator to measure the success of veterinary clinical services. Subsequently, a random survey to determine the baseline for client satisfaction rate survey was carried out at NVH in 2017. Similar surveys were then carried out which included selected Thromde veterinary hospitals (TVH) and Dzongkhag veterinary hospitals (DVH), to determine the CSR for subsequent years.

Methodology
The CSR is determined through a set of questionnaires filled by the clients availing the veterinary clinical services at the animal health centres in the country.

Questionnaire
A set of five questions are designed to enable clients to provide their ratings. The criteria for the questions are based on the following parameters:

a. Friendliness/ politeness of the staff
b. Professionalism
c. Facilities available at the hospitals
d. Promptness with which staff provide the services
e. Waiting time for availing the services

Each question (Q1 to Q5) has a scoring scale from 1 to 10, 1 being "very poor" and 10 being "excellent". Question 6 is an open-ended question to collect comments and suggestions to further enhance the services.

Animal health centres
Till 2019-20, only six identified animal health centres (NVH/TVHs/DVHs) were included based on location and number of cases being reported. For 2020-21, 15 animal health centres were identified for the survey based on the presence of a Veterinary officer. However, only four DVHs and NVH completed the survey. For 2021-22, 18 AHCs were identified but only 11 AHCs completed the survey. The non-participation of other AHCs could be attributed to their engagement in the ongoing National accelerated dog population management program.

Number of clients interviewed
Although the number of clients filling in the survey was predetermined as per the AHCs, a few of the AHCs did not fulfil the requisite number, which could be due to low client turnout. The numbers were based on the caseloads received at the respective AHCs.

Table 18: AHCs and number of clients filling the questionnaires.

Sl. No.	Animal Health Centres	Number of clients interviewed
1.	NVH, Motithang	70
2.	TVH & SL, Phuentsholing and Gelephu, DVH Paro	50 each
3.	DVH, Trongsa and Mongar	30 each
4.	DVH Tsirang	24
5.	DVH T/ Yangtse and S/Jongkhar	20
6.	DVH Wangdue	19
7.	DVH P/Gatshel	17

Entry of clients' response in spread sheet

The responses to the questionnaires were filled in the excel spread sheet (as numerical rating) by the concerned AHCs and sent to NVH. The information received from the AHCs were collated in a single Excel spreadsheet and further validated. The responses were tabulated in the Excel sheet and percentage CSR calculated for the year. A generic analysis was carried out to achieve the individual as well as overall CSR for the Department of Livestock.

Result and discussion

The overall CSR for the nine AHCs for 2021-22 is calculated at **89.12%.** This is higher than the previous year (86% in 2020-21). The CSR target is set at 85%, therefore, the CSR for 2021-22 has exceeded the intended target. With respect to the individual AHCs, the highest CSR is obtained by Samdrup Jongkhar DVH (95.30%) and the lowest by TVH & SL Gelephu (80.40 %). Except for Gelephu TVH & SL (80.40%), other AHCs have obtained CSR above the threshold target of 85%.

Among the five survey questionnaire parameters, Q3 (facilities available at the hospital) has acquired the lowest score (76.06 %), while other parameters such as Q1 (Friendliness/ politeness of the staff), Q2 (Professionalism), Q4 (Promptness with which staff provide the services) and Q5 (Waiting time) for availing the services have acquired very good ratings.

Due to changing times, the clients (pet owners and farmers) are more aware and demand for specialized services which require advanced facilities. With exception to NVH, all the AHCs across the country are not equipped with even the basic diagnostics such as Ultrasonography, X-ray and laboratory facilities and the low rating on the facilities is true reflection of the current situation. Ever since the initiation of CSR survey, Q3 parameter has invariably scored less.

The highest rating amongst the five parameters is for the "Friendliness/ politeness of the staff".

Table 19: AHCs and their CSR scores.

Agency/Q	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Average**
NVH Motithang	93.57	90.29	89.29	90.00	87.00	90.03
TVH & SL P/ling	90.00	89.00	82.60	87.20	84.00	86.56
TVH & SL Gelephu	82.00	80.60	74.20	83.80	81.40	80.40
DVH Paro	94.40	95.00	87.40	92.40	93.60	92.56
DVH Trongsa	94.00	89.00	86.33	91.67	95.00	91.20
DVH Mongar	100.00	99.00	38.67	98.67	99.33	87.13
DVH Tsirang	93.75	90.42	73.75	87.92	92.92	87.75
DVH T/Yangtse	96.00	94.5.00	78.00	93.50	92.50	90.90
DVH S/Jongkhar	98.00	97.00	86.00	97.50	98.00	95.30
DVH Wangdue	92.11	92.63	91.05	90.53	90.00	91.26
DVH P/Gatshel	92.29	97.06	49.41	97.65	96.47	87.18
Average	**93.28**	**92.23**	**76.06**	**91.89**	**91.84**	**89.12**

The Question 6 was an open-ended question to collect comments and suggestions. Most clients were appreciative of the hard works and services being provided. They were also aware and sympathetic up to some extent with regards to the challenges and conditions under which the services are being provided. The most common feedback/ comment received across all the AHCs were shortage of staff to cater to increasing number of cases, shortages of spaces due to poor infrastructure development and lack of advanced facilities.

Conclusion

The overall CSR is satisfactory which is indicative of the hard work and efforts put in by animal health workers across the country to provide efficient veterinary clinical services. However, rest of the AHCs at the Thromde and districts need to be equipped with at least a set of basic facilities if not for advanced facilities in order to provide accurate disease diagnosis and prompt treatment. Hospital services, be it human or animal health, are predominantly dependent on diagnostic and treatment facilities. If basic hospital facilities are lacking, service delivery will always be affected.

12.Report on Adverse drug reaction and adverse event following vaccination

Table 20: The table below shows ADR & AEFV case reports (2021-2022) in veterinary field.

Name of the pet/ case number	Species	Age (in yrs)	ADR	AEFV	Name of the medicine used	Batch number	Type of reaction	Date of start of reaction	Date reaction stopped	Medicine given to counteract the reaction	Outcome of the reaction	Reported by	Causality analysis (ABON)
Yangchen	feline	5	-	Yes	Raksharab	ARV: B-03RAB0012	Facial swelling pyrexia	17.09.21	17.09.21	Inj.CPM Inj. meloxicam	Recovered	Tshering Yangchen	Possible
Gatsho/ 6607	Feline	1.4	-	Yes	Raksharab	ARV: B-03RAB0012	Lump at the site of inj	13.06.22	-	-	Recovered	Dr.Pema Tshewang	Possible
Bella	Feline	-	-	Yes	Raksharab	ARV: B-03RAB0012	Vomiting, diarrhea	25.05.22	25.05.22	Inj. metoclopramide Inj. CPM	Recovered	Dr.Pema Tshewang	Possible
Rocky/ 5304	Canine	6	Yes	-	Vincristine sulphate	VC12029ac	Phlebitis and sloughing off of skin at the site of inj	13.05.22	-	ASD	Recovered	Tashi Thinley	Possible
Eday/Eday /314	Canine	1.5	Yes	-	Enrofloxacin	-	Facial swelling Inappetence vomiting	15.07.22	21.07.22	Inj. DNS Inj. RL Inj. meloxicam Inj. Metoclopramide Inj. B. complex	Recovered	Tshering Yangchen	Inconclusive
3963	Feline	2	Yes		-	Meloxicam, Gentamicin	Sudden collapse, salivation, general body stiffness	-	-	-	-	Dr. Pema Tshewang	Inconclusive
Nalley Pem/ 314	Canine	0.3	-	Yes	DHPPi+ L	-	Vomiting, pyrexia	-	-	-	-	Chimmi D. Wangchuk	Inconclusive

Observations

- Most of the cases reported (4/7) in felines and the canines (3/7).
- Out of 7 reported cases, most of the cases were reported from NVH (6/7) and only one was from the field (Paro, DVH).
- Maximum of the reported cases were that of AEFV (4/7) and only 3 were ADR.
- AEFV was commonly reported after administration of anti-rabies vaccine (Raksharab). The events were transient and sustained injection – site reactions, transient non-specific systemic effects, and allergy-mediated reactions. All of the reported AEFV cases had favorable outcome after medication.
- ADR was reported after administration of inj. vincristine sulphate, inj. gentamicin, tab. enrofloxacin, inj. B-complex and inj. meloxicam. The reported ADR reactions were dose dependent and unpredictable.
- The line of treatment to counteract these adverse reactions/events was scientific in most of the occasions.

Causality Assessment of the reports (ABON coding system)

- The Causality Assessment of three reported AEFV was ‘Possible’ and one was “Inconclusive”.
- The Causality Assessment of one reported ADR was ‘Possible’ and two “Inconclusive”.

Recommendations

- Extensive awareness needs to be carried out for all veterinary drugs/biological users to enhance spontaneous reporting of ADR/AEFV from the field.
- The reporters must send duly filled forms as all the information are crucial in performing Causality Assessment.
- Details of the drugs and vaccines with the reported cases of ADR/AEFV to be evaluated if it is necessary for the NVDF to be revised.

13. Update on pet registration services in Veterinary Hospitals (VHs) in the country

Background

The Pet Registration database was developed by the Department of Livestock in consultation with National Veterinary Hospital (NVH) and the pet booklet was reviewed by NVH and distributed to all the centres. After the launch of pet registration database in 2016 and subsequent training of veterinary professionals in the operation of database and SOP on pet registration, teams from NVH visited veterinary hospitals and animal health centres across the country for monitoring in 2018. However, in the following years, due to the pandemic, field visits could not be materialized.

Pet registration is one of the main activities across the hospitals and animal health centres and this also contributes to revenue generation. By recording the pet details in the database, the total pet population as well as the kind of breeds kept by the public could be determined and helps in planning and coming up with reliable disease prevention and control program for pets as well as for indenting of medicines and vaccines. This also promotes responsible pet ownership.

Update

The offline pet registration database was integrated with VIS database, which functions online. The key features include registration of the pet, ownership transfer, renewal of registration and pet information.

The development of the database involved preparation of user requirement, prototype presentation, demonstration of the database, user acceptance test (UAT) and finally the UAT sign-off. The UAT sign-off was carried out between Program Director, NCAH and database developer (NGN) on 20th May 2022 at NCAH, Serbithang.

The training of the users on the operation of the database was taken over by NADPM as it is one of the main activities of the program.

Registration and fees

All 13 DVHs provide pet registration service to the public and out of which, while only five veterinary hospitals (Bumthang, Sarpang, Punakha, Samdrup Jongkhar and Wangdue) charge the owners for registration as per the prescribed rates for urban and rural areas. The hospitals provide the service free of cost because of the difficulties in getting the revenue receipts, no executive order to charge for the service and staff

shortage. Out of five hospitals that charge for the services, only three hospitals (Bumthang, Sarpang & Punakha) issue the money receipts and the fee collected through registration is deposited in the revenue account or revolving account or is kept at DVH. All the hospitals follow the standard format during the allocation of registration numbers except DVHs of Trashiyangtse and Zhemgang where the numbers are allocated serially. The details of pet owners and pets are recorded in a register maintained at the respective hospital as well as pet booklets issued to clients.

The usage of database

DVHs of Paro and Wangdue use the pet registration database while the remaining DVHs do not. The reasons for not making use of the database were the lack of training, the database was found to be not user-friendly and staff shortage.

Vaccines

All the hospitals provide Anti-Rabies and DHPPi+L (Distemper, Hepatitis, Parvo, Parainfluenza and Leptospira) vaccines in dogs but the latter can be arranged by clients. In cats, only rabies vaccine is used.

14. Workshops /meeting and training attended by NVH staff (in-country)

Table 21: The workshops and trainings attended by NVH staff (2021-22)

Sl. No.	Name of Workshop/Training/meeting	Venue	Date	Name of Staff who attended
1.	TOT training on G2C database	Punakha	12th to 13th July 2022	Dr Jambay Dorji, DCVO Phuntsho Dema, Sr. LHS
2.	Training on prescription survey on AMR and AMU	Paro	4th to 9th July 2022	Dr Pema, DCVO
3.	To develop the RFP for the (LIMS)	Paro	6th to 10th July 2022	Dr Jambay Dorji, DCVO Kinzang Pelden, Sr. Lab. Tec.
4.	QGIS training at Debsi	Thimphu	4th to 10th October 2022	Dr Pema, DCVO
5.	UAT workshop	Paro	11th to 15th October 2022	Dr Jambay Dorji, DCVO
6.	Consultative meeting on CBF for Livestock Supervisors	Paro	29th to 30th November 22	Dr Jambay Dorji, DCVO
7.	Training on international and domestic sample transportation	Paro	10th to 12th January 2022	Kinzang Pelden, Lab. Tech. Pema Tshomo, Sr. Lab. Assit
8.	Training on Clinical SOPs, Sensitization on animal welfare standards and guideline, Veterinary Legislation and Veterinary Association	Gelephu	5th to 8th May 2022	Dr Pema, DCVO Dr Meena, DCVO Dr Karma Phuntsho, Sr. VO
9.	Workshop for UAT sign-off of VIS DPM/MDV App	Thimphu	18th to 20th May 2022	Dr Jambay Dorji, DCVO
10.	Consultative meeting to debug the mobile app for the antibiotic guidelines of animal and human health malfunctions and rectify the content discrepancies in the app	Paro	8th to 13th May 2022	Dr Pema, DCVO

15. Meetings hosted by NVH (Conference Hall)

Table 22: The list of meetings hosted at NVH.

Sl No.	Name of Workshop/training/meeting	Date	Organizer
1.	APA meeting	3/8/2021 to 10/8/2022	DOL, HQ
2.	NADPM meeting	11/8/2021	NCAH, Serbithang
3.	Desuups training	1st to 5th Sept. 2021	NADPM & RCP
4.	NADPM meeting	2/10/2021	NADPM & RCP

16. Coordination of clinical scientific knowledge enhancement programmes

For the very first time in the country, NVH took in two veterinary doctors on an internship after they have completed their course work at the respective university. Since there were challenges associated with the pandemic and travels to the university, they were given the opportunity to complete their required internship term at this hospital and they have involved with the consultation/treatment of clinical cases at NVH essentially and also with the National Accelerated Dog Population Management Program (NADPM) at length.

The second-year students of BSc Animal Science of College of Natural resources visited this hospital for block week on Clinical Veterinary Medicine to gets hands-on training and field exposure on attending clinical cases. A presentation on the background, vision and mission and mandates of the hospital was made to the students. The students were divided into groups and were allocated to consultation rooms, vaccination room, treatment room, operation theatre, and laboratory rooms.

In the consultation rooms, the students were taught how to examine an animal, history taking, to record the physiological parameters and writing the prescription. They got exposure to different examination equipment such as pulse oximeter, BP machine and otoscope and diagnostic machines such as endoscope and ultrasound. They learned about common cases that are presented to the hospital and the line of treatment for such disorders. They also learned about different medicines available at the hospital along with its dosage and indications.

In the treatment room, they learned to administer medications to the animals through intramuscular, intravenous, and subcutaneous routes. They carried out wound dressing in animals. They also learned about the different vaccines available for dogs and cats and the vaccination and deworming schedules. The students witnessed different surgeries performed in OT as well as got opportunity to assist the vets during surgery. In the lab, they learned the procedures for faecal examination, skin scrapping, blood staining and counting, and biochemistry test.

The students were provided with case scenarios where they were required to diagnose the condition/disorder and provide the line of treatment. This was followed by

presentation and discussion among other students. Lastly, evaluation of the students was done through a test where majority of them performed exceptionally well.

Table 23: The list of clinical/knowledge enhancement programmes by NVH.

Sl. No.	Particulars
1.	Vet Interns (two)
2.	CNR interns for one month
3.	CNR 2nd year students for one week
4.	Desuup training for five days

17.Case studies

17.1 Soft tissue sarcoma

Karma Phuntstho[1]

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Introduction

It is a type of rare tumour that begins in the connective and other soft tissues including muscles, fat, blood vessels, nerves, tendons, and the lining of joints. These cancers can be difficult to diagnose because they can be mistaken for various other kinds of growths. They can occur anywhere in the body, but the most common types occur in the arms and legs, and in the abdomen.

Causes

In most cases, it is not known clearly what causes soft tissue sarcoma (STS). Generally, tumours occur when mutations happen due to the development of errors in the DNA of cells. These errors create uncontrolled cell growth and division leading to the accumulation of abnormal cells which forms a tumour that can invade nearby structures and can spread to other body parts in the form of metastasis.

The type of cell that develops the genetic mutation determines what type of soft tissue sarcoma you have. For example, angiosarcoma begins in the lining of blood vessels, while liposarcoma arises from fat cells. Some types of soft tissue sarcoma include:

- Angiosarcoma
- Dermatofibrosarcoma protuberans
- Epithelioid sarcoma
- Gastrointestinal stromal tumour (GIST)
- Kaposi's sarcoma
- Leiomyosarcoma
- Liposarcoma
- Malignant peripheral nerve sheath tumour
- Myxofibrosarcoma
- Rhabdomyosarcoma

- Solitary fibrous tumour
- Synovial sarcoma
- Undifferentiated (pleomorphic sarcoma)

Risk factors

The following factors increase the risk of a soft tissue sarcoma:

Inherited syndromes- A risk of soft tissue sarcoma can be inherited from parents. Genetic syndromes that increase the risk include hereditary retinoblastoma, adenomatous polyposis, neurofibromatosis, and tuberous sclerosis.

Chemical exposure- Being exposed to certain chemicals such as herbicides, arsenic, and dioxin, may increase the risk of soft tissue sarcomas.

Radiation exposure- Previous radiation treatment for other cancers can increase the risk of soft tissue sarcomas.

Case presentation

An Apsoo dog about eight years of age was presented to the National Veterinary Hospital with a small lumpy growth on its right hind limb the size of a walnut. On palpation, it was warm and hard to touch. The animal didn't evince pain upon palpation of the tumour. The dog was reportedly having difficulty and discomfort caused by the swelling while walking. Regardless, the pet was apparently healthy with normal appetite and general appearance. Its vaccination and deworming were up to date.

Figure 24: A soft tissue sarcoma on a hindlimb of the Apsoo dog.

Symptoms/observations

A soft tissue sarcoma may not cause any signs and symptoms in its early stages. As the tumour grows, it may cause:

- A noticeable lump or swelling was observed.
- Pain, if a tumour presses on nerves or muscles but as far as this case was concerned, the animal did not seem to be in pain.

Treatment

Surgical removal is the most common treatment, although radiation and chemotherapy also may be recommended — depending on the size, type, location, and aggressiveness of the tumour.

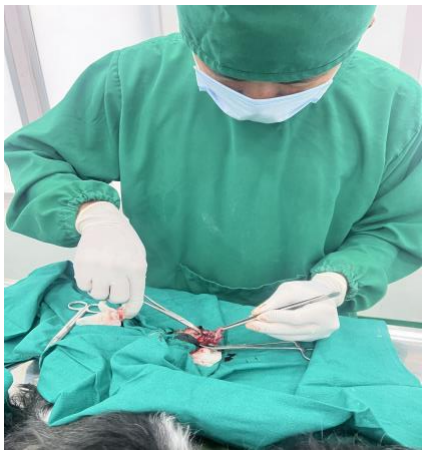

Figure 26: A resection surgery of STS in an Apsoo dog.

Figure 25: The patient in the recovery room after successful resection of STS.

Surgical removal

A General Anaesthesia was given using Inj. Xylazine @ 1mg/kg, Inj. Ketamine @ 10mg/kg, and Inj. Diazepam @0.5 mg/kg. The site was prepared for the surgery. A resection margins were made using a marker. An incision was made at the base of the tumour mass along the drawn margins and using blunt dissection, the tumour mass, which was observed to be a **liposarcoma** tumour, was removed. Blood vessels were ligated using polyglycolic acid absorbable suture thread size 2.0.

The subcutaneous tissue and fascia were closed and sutured using polyglycolic acid 2.0 in a simple continuous fashion in order to obliterate dead space. The skin was sutured using polyglycolic acid 2.0 with a simple interrupted technique.

Post operative care

1. The dog was given a course of Inj. Gentamicin @ 4mg/kg for five days.
2. Inj. meloxicam @ 0.3mg/kg for three days.
3. Advised to keep the pet on an E-collar for a week.
4. Advised the owner to apply ointment Scavon b.i.d., for seven days post-surgery coupled with antiseptic dressing of the suture site for five days.

Discussion

In veterinary medicine, only surgery is the most effective strategy in the management of STS. Standard recommendations for resection of STS require wide local excision of the tumour en bloc with minimum margins of 3 cm of normal tissue laterally and one clean fascial plane deep to the tumour but this requirement has been challenged recently. The wide surgical excision margins aren't necessary, with some studies indicating that the extent of resection did not influence the disease-free interval or

overall survival. Despite this evidence, due caution was exercised before drawing surgical margins.

The patient showed successful recovery and it did not relapse on a short-term follow-up within two months.

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17.2 Unilateral sacroiliac luxation fracture (SILF) in a cat

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Introduction

Of all fractures among cats, pelvic fractures comprise approximately 32% and 59–93% of reported pelvic fractures in the feline are sacroiliac luxation fractures (SILFs). About 27–46% of the SILFs are bilateral. SILF is defined as the separation of the iliac wing from the sacrum often due to a traumatic injury. As the pelvis is like a box, for the bones to be rendered unstable, it must be fractured din at least one or more places in the pelvis. Unilateral SILF can only occur with concurrent pelvic fractures, owing to the rigidity of the pelvic box. Some of the common fracture combinations observed along with SILF are pubic symphyseal separation, ipsilateral pubic and ischial fractures, and SILF with contralateral ilial body and pubic fractures. Although bilateral SILF can occur without any concurrent pelvic injuries, cats often have pubic fractures along with it. If both sides of the pelvis are dislocated, the pet may not be able to walk at all.

Anatomy

The anatomy of the pelvis is similar to a rectangular box, and the entire pelvis should fit within the rectangle. If a portion of the pelvis is seemingly lying outside of the box, either a fracture or dislocation of the pelvis is present.

The anterior portion of the pelvis is attached to the sacrum at the sacroiliac joint. The colon, urethra, and vagina pass through the pelvic canal. The sciatic nerve extends from the lower spine and runs just below the sacroiliac joint and then passes through the canal of the pelvis to the hind limbs. The sciatic nerve is critical for hind limb muscle function.

Case presentation/signalment

A one-year-old male feline pet was presented to NVH with the anamnesis of having fallen off a four storeyed building. It was reported to be able to walk and bear weight on all the limbs but was limping on hind limbs (ambulatory but lame). There was no abnormal deviation in the other body parameters, feeding, and voiding habits (normal urination and defaecation). Owner-based questions reporting lifestyle alterations and changes in demeanour due to the recent trauma were collected. It had good tail tone and urinated voluntarily. The cat showed altered behaviour, with the owner reporting that it was less active.

Upon physical examination and palpation of the animal, it exhibited some degree of lameness on objective gait examination and evinced pain in the lower dorsum (lower back region of the body). Physical examination and assessment of pain are generally more challenging in cats compared to dogs. Gait analysis yields less observational data owing to their unwillingness to walk on the lead or be guided.

Radiographic assessment

Figure 27: Ventrodorsal radiograph showing displacement/luxation

X-rays are important to make a diagnosis of fracture at a sacroiliac joint. Direct trauma to the pet during an accident may damage the sciatic nerve which may occur from the nerve getting trapped between fractured bones. The careful evaluation of the nerve function prior to surgery is essential.

The surgeon will also evaluate the urinary tract to make sure that the bladder has not been ruptured. In addition, chest X-rays are made to ensure that there is no trauma to

lungs, ribs, or diaphragm. Should there be significant trauma to these other organs, surgery may be delayed so that your companion can safely undergo surgery.

Treatment/correction

There are some experts that advise surgical stabilisation of all SILF cases because the sacroiliac joint forms part of the pelvic limb weightbearing axis, and there is a lack of evidence to support conservative management of SILF. But others contend that the indications for conservative management of SILF are patients that are ambulatory, displacement of less than 50% of the joint surface, minimal pain or instability, absence of concurrent fractures of the weightbearing axis, absence of neurological deficits and less than 45% narrowing of the pelvic canal.

The conservative management of feline pelvic fractures generally entails cage rest for two to four weeks, analgesia, and monitoring of voiding habits in the form of urination and defecation. Conservative management for SILF in cats has a good outcome and lameness is absent at short-term follow-up of about within weeks. Pelvic canal stenosis and obstipation or constipation can be complication associated with conservative management of pelvic fractures owing to displacement of pelvic fragments and in certain cases, prolonged recovery.

The cat was advised a cage rest of four weeks after Inj. meloxicam @ 0.3mg/kg for three days. Tab. Neurobion forte ½ tab orally once a day for four weeks was prescribed and urged to strictly monitor micturition and defaecation.

Follow-up

The normal activities in a cat's lifestyle such as running, climbing, jumping up, jumping down, walking, playing, and grooming including the height of jump, demeanour, defaecation and urination, concurrent medical conditions, ongoing medication, and concurrent orthopaedic conditions would be assessed in a short term (four weeks) to see the improvements made or if fully recovered.

Discussion

This case study has demonstrated that a cat treated conservatively for SILFs had an excellent clinical outcome. This cat was not showing any neurological deficits and it was presented 12 hours post trauma. It was ambulatory at that stage, which justified the clinical decision to proceed with conservative management.

It was treated with non-steroidal anti-inflammatory drugs short term and after repeated assessments and consultation with the owner if the cat was still experiencing pain (which indicated otherwise), it was discontinued after three days and advised cage rest. The limitations of this study include the lack of medium- and long-term follow-up data, and the absence of long-term veterinary examination or radiographic follow-up.

Conclusions

In this case study, conservative management of unilateral SILF produced a good outcome. It supports the current guidelines for the conservative management of SILF. Because this is a single case of SILF correction using conservative management method, it cannot be recommended for all cases of SILF.

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17.3 Feline Panleukopenia Viral Infection – an overview

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Introduction

Feline Panleukopenia (FP) is considered as the most important disease of cats worldwide[1]. FP is a highly contagious and potentially fatal disease of cats. In the past, FP was a leading cause of death in cats[2]. Today, it is an uncommon disease in large parts of the world due to the availability and use of very effective vaccines. Mortality from panleukopenia is higher in young kittens (90%) but slightly lower in older cats (50 or 60%).

The disease is known by a variety of names such as feline distemper, feline infectious enteritis, feline parvoviral enteritis, pseudomembranous enteritis, laryngoenteritis, feline agranulocytosis, and show fever, among others.

During 2021-22 NVH has recorded a total of 1247 cat for treatment. About 200 cats had exhibited signs and symptoms that were peculiar of FP virus (FPV) infection. During outbreaks, confirmatory diagnosis was made using Rapid antigen test kits. However, only handful of samples were tested due to shortage of test kits.

Causative agent

FP is caused by a small, single-stranded DNA virus and is closely related to canine parvo virus (CPV). FPV is a parvovirus that causes enteritis and panleukopenia in domestic and wild cat species worldwide[3].

It has also been associated with disease in raccoons, mink, foxes, and a monkey, and can replicate in ferrets without causing disease. Cats with FPV infection may also be infected with CPV strains (namely 2a, 2b, and 2c).

Epidemiology

The virus has been distributed worldwide irrespective of geography, climate and temperature. Common reservoirs of FPV are kennels, pet shops, stray cats, animal shelters, and unvaccinated feline populations[1].

Feline panleukopenia is most likely to occur in cats younger than 1 year of age, but it can occur in unvaccinated or improperly vaccinated cats of all ages. Outbreaks of panleukopenia in cats correlate seasonally with increases in susceptible newborn kitten numbers.

Transmission and pathophysiology

Transmission is through direct contact with infected cats or via fomites (bedding, food dishes); fleas and humans. Infected cats shed enormous numbers of FPV virions in the feces, vomitus, urine, nasal secretions, and saliva which are found active up to 6 weeks after the onset of clinical signs. Since the virus survives for few days up to a year in the environment, cats may be infected from the environment even without direct contact with an infected cat. When susceptible cats come in contact with these secretions, or even the insects or fleas from infected cats, infection occurs. Other sources of infection are bedding, cages, food bins, and contaminated persons. Therefore, infected cats should be isolated and treated separately at the hospital. The caretaker/ staff must ensure proper sanitation and disinfectants are used to prevent spread of virus to healthy cats. Deaths in kittens have been reported in households of fully vaccinated kittens, possibly because of exposure to large amounts of virus in the environment[4].

Diagnosis

Diagnosis of the disease can be made through combination of history, signs and symptoms and laboratory examinations.

Signs and symptoms

The FPV causes damage to the cells that line the intestines. It also attacks the bone marrow and lymph nodes, resulting in shortages of all types of white blood cells (panleukopenia) and of red blood cells (anemia). The first visible signs an owner might notice include generalized depression, loss of appetite, high fever (103°F to 107°F or 39.5°C to 42.5°C), lethargy, vomiting, severe diarrhea, nasal discharge, and dehydration. Sick cats may sit for long periods of time in front of their water bowls but not drink much water. In some cats, the fever will come and go during the illness and

abruptly fall to lower-than-normal levels shortly before death. In young kittens, the virus can also damage the brain and the eyes[1].

Pregnant female cats that are infected with the virus and become ill (even if they do not appear seriously ill) may abort or give birth to kittens with severe damage to the cerebellum, a part of the brain that coordinates nerves, muscles and bones to produce body movements. These kittens are born with a syndrome called feline cerebellar ataxia, and their movement is accompanied by severe tremors (shaking). FP may be suspected based on a history of exposure to an infected cat, lack of vaccination, and the visible signs of illness. When that history of exposure is combined with blood tests that show severely reduced levels of all white blood cell types, FP is likely the cause of the cat's illness. FP is confirmed when the feline parvovirus is found in the cat's stool, but the results might be falsely positive if the cat was vaccinated for FP within 5-12 days prior to the test[5].


Figure 28: Blood tinged diarrhea.


Figure 29: Vomitus with bile.

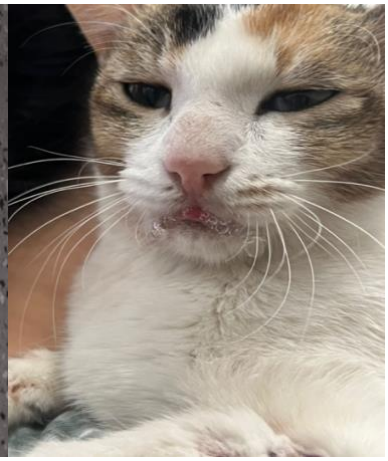
Figure 30: FPV infected cat

Laboratory testing

Complete blood count

The most common abnormality on the CBC in feline panleukopenia is leukopenia, which is due to a neutropenia and lymphopenia. Total leukocyte counts may be as low as 50 cells/µL, and toxic band neutrophils may be present.

Serum Biochemical Tests

Serum biochemistry analysis may show hypoalbuminemia, hypoglobulinemia, and/or hypocholesterolemia; electrolyte abnormalities such as hyponatremia or hypernatremia, hypochloremia, hyperkalemia, or, less commonly hypokalemia. In severely affected cats, azotemia, increased serum AST or ALT, or hyperbilirubinemia may be present. Hyperglycemia or hypoglycemia may also be identified.

Antigen Detection Enzyme Linked Immunosorbent Assay

FPV can be detected in feces or rectal swabs using antigen assays designed to detect CPV[6] .

The steps include faecal swab collection, mixing of swab in buffer solution, putting three drops of the mixture in specimen well of the cassette and reading of result in five minutes. The sensitivity and specificity of these assays varies from one assay to another and with the stage of infection, because virus shedding may be transient. In general, false-negative results are common with these assays, but false positives are uncommon, so a positive test result in a cat with consistent clinical signs suggests a diagnosis of feline panleukopenia.

At NVH, Parvo Test kits used to detect Canine Parvo virus in dogs were used to diagnose the CPV infection in cats (Fig 31).

Figure 31: FPV positive on rapid test kit.

*CPV Rapid test kit was used to detect presence of FPV in the sick cat. Line at the T represents positive infection.

Treatment

As FPV infection is a virus-induced situation, there is no specific treatment. Therefore, treatment should be aimed at controlling the secondary bacterial infection and providing symptomatic treatment with supportive care[1]. This includes fluid therapy to correct dehydration and electrolyte abnormalities, antibiotics to treat the secondary bacterial infections, and antiemetic and antidiarrheal medicines to control vomiting and diarrhea. If there is significant leukopenia and the rapid parvo test is positive, the success of treatment relies on catching the disease in earlier stages and proceeding with aggressive treatment and care.

The outcome of the treatment also heavily relies on the stage of infection and how early the treatment is being initiated, which is in turn dependent on promptness with which the disease is diagnosed.

Prevention and control

The first step in preventing the disease spread is through effective vaccination against the virus. Kittens should be vaccinated every 3 to 4 weeks from 6 to 8 weeks of age, and it is recommended that the last vaccine in the kitten be given no earlier than 14 to 16 weeks of age. When there is a history of an outbreak situation, the final booster could be given no earlier than 18 to 20 weeks of age[7].

In all situations, a booster should be administered at 1 year, and every 3 years thereafter. New kittens should not be introduced into households that previously contained cats infected with FPV unless they are fully vaccinated. Prevention of FP should also

include proper disinfection with disinfectants that are effective against parvoviruses, such as bleach, accelerated hydrogen peroxide, or potassium peroxymonosulfate.

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17.4 Management of hypersensitivity reaction in a dog

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Introduction

Hypersensitivity is technically an immune response exhibited when exposed to allergen or antigen which could be insects, pollen, food and even drugs. Pet dogs and cats are common victims of stings from bees, wasps, and ants or bites from spiders. Understanding of the hypersensitivity reactions and their causes in pets is important inorder to provide prompt treatment to achieve quick recovery and comfort.

There are four types of hypersensitivity; Type I: reaction mediated by IgE antibodies, Type II: cytotoxic reaction mediated by IgG or IgM antibodies, Type III: reaction mediated by immune complexes and Type IV: delayed reaction mediated by cellular response.

Case presentation

An adult mixed breed dog weighing about 15kg was presented to the hospital with a swollen face. One of the most common dog allergic reactions is a swollen face. The lips and eyelids were also swollen and the swelling was symmetrical along both sides of the face. As per the owner, the dog had lost its appetite and refused to eat or drink. The dog looked listless but was able to stand and move around.

Physical exam and diagnosis

A thorough examination of the face was conducted. Oral exam did not reveal any abnormalities. Palpation around the face did not indicate any pain either. Other physiological parameters such as rectal temperature, heart rate, and respiration rate were within the normal range. The symptom typically represented an allergic reaction due to insect bite. Although the entire body was inspected for bite marks it was not observed due to the thick dusty hair, unclean and dark skin. Laboratory tests were not advised.

Treatment

Typically, hypersensitive reactions are commonly treated with antihistaminic. The dog was administered with Chlorpheniramine maleate @ 1.5 ml through intramuscular route for three days. The swelling had subsided and the dog started eating and drinking after the second day of treatment. By the third day, the swelling had completely receded. The dog made uneventful recovery with antihistaminic treatment alone.

Discussion

Allergic reactions can be minor as well as major depending on the severity of allergens exposed. Most dogs stung or bitten by an insect don't get the severe allergic reaction unlike humans. But if the dog is having any problems breathing that could indicate a full blown anaphylactic reaction and should be treated immediately.

Generally, simple allergic reactions resolve on their own even without treatment. However, treatment speeds up the recovery time providing the animal with relief from discomfort. Treatment with antihistaminic alone is effective.

Figure 32: First day of case presentation.

Figure 33: Two days after treatment

Conclusion

It is important to identify different types of allergic/ hypersensitivity reactions in dogs so as to provide the treatment interventions as per the type of reactions. Minor hypersensitivity reactions can be easily treated with antihistaminic alone and is found to be effective.

18. Annexures

Annexure 1: Medicines mobilized to other centres

Table 24: Details of drugs mobilized to other centres

Sl No.	Name of medicine	Qty distributed	Name of centre issued to
1	Iron Injection	5 ampules	
2	OTC (SA) inj	2 vials	
3	Meloxicam	5 vials	
4	amp. Cloxacillin inj	10 vials	
5	Strepto-penicillin inj	10 vials	
6	Metoclopramide inj	10 vials	
7	Venuron inj	5 vials	
8	Deltamethrin solution	1litre	
9	B-complex inj	5vial	NPBC, Yusipang
10	Sodium chloride inj (NS)	2 cartons	
11	Ringer's Lactate (RL)	2 cartons	
12	Dexamethasone inj	5 vials	
13	Vit. A inj	10 ampules	
14	Venuron inj	10 vials	
15	Frusemide	1 vial	
16	Piperazine	1 bottle	
17	Adenochrome inj	12 vials	
18	10ml syringes	1 box	
19	2ml syringes	1 box	
20	Green scrub	3 Nos	
21	Ivermectin inj	8 vials	
22	Meloxicam inj	40 vials	
23	Ketoprofen inj	20 vials	DPM, Thimphu
24	Calcium magnesium boro-gluconate inj	1 bottle	
25	Meloxicam inj	2 vials	
26	B-complex inj	15 vials	
27	Cefoperazone sodium intramammary suspension	10 tubes	DVH, Thimphu
28	Methylcobalamin inj	30 vials	Jangsa, Serbithang

29	Gentamicin cream	20 tubes
30	Metronidazole inj	50 bottles
31	Ivermectin inj	10 vials
32	Benzathine penicillin inj	30 vials
33	Gentamicin inj	25 vials
34	Turpentine oil	1 bottle
35	Chlorpheniramine maleate Inj	25 vials
36	Phenylbutazone inj	3 vials
37	Strepto-penicillin inj	50 vials
38	Cefotaxime inj	50 vials
39	Enrofloxacin inj	25 vials
40	2ml syringe	5 boxes
41	10ml syringe	5 boxes
42	Examination gloves	5 pkts
43	DNS	5 cartons
44	RL	5 cartons
45	NS	5 cartons
46	Spirit	2 bottles
47	Gamma ointment	20 tubes
48	bandage	50 pkts
49	Fino-P2 tablet	30 pkts
50	Cotton	5 rolls
51	Praziquantel Tab	5 jars
52	Adenochrome inj	20 vials
53	Lignocaine HCL inj	5 vials

Annexure 2: Samples referred to NVH for biochemistry testing

Table 25: Samples referred for Biochemistry tests

Month/date	***Referred from***	***Laboratory section***	***Species***	***No. of samples***	***Remarks***
6/8/2021	Paro	Biochemistry	Canine	2 (Kezang Choden)	
6/08/2021	Paro	-do-	Equine	10 (Jammy)	
6/08/2021	Paro	-do-	Canine	2 (Jammy)	
13/8/2021	Paro	-do-	canine	1 (Yeshi Lhaden)	
16/8/2021	Paro	-do-	canine	1 (Namgay Zam)	
27/8/2021	Paro	-do-	canine	1 (Tshering Dorji)	
11/10/2021	Paro	-do-	canine	1 (Karma Choden)	
23/10/2021	Punakha	-do-	canine	1 (Kamala Subba)	
26/11/2021	Gasa	-do-	Canine	1 (Tibetan Mastiff Farm)	
3/12/2021	Tsirang	-do-	Canine	1 (Pema Wangchen)	
7/12/2021	Paro	-do-	Canine	1 (Deki Pelden)	
18/12/2021	Paro	-do-	Canine	1 (Rinzi)	
4/1/2021	Paro	-do-	Canine	1 (Jammy)	

4/1/2021	Paro	-d0-	Canine	1 (Jammy)	
5/3/2022	Paro	-do-	Canine	1 (Karma Wangchuk)	
4/4/2022	Paro	-do-	Canine	1 (Sherub Younten)	
9/4/2022	Paro	-do-	Canine	1 (Dzongrab Namgay Dorji)	
27/4/2022	Paro	-do-	Canine	1 (Tshering Deki)	
3/5/2022	Dawakha	-do-	Canine	1 (Ugyen)	
20/5/2022	Paro	-do-	Equine	2 (Jammy)	
				Total samples received=32	

Annexure 3: Samples referred to NVH for Hepatology examination

Table 26: Samples referred for hematological examination

REFFERED FROM	***LABORATORY SECTION***	***SPECIES***	***No of samples***	***REMARKS***
Paro	Haematology	Canine	21	
Paro	-do-	Equine	45 (Jammy)	
Paro	-do-	bovine	1 (Jammy)	
Total samples Received			**67**	

Annexure 4: Samples referred to NVH for parasitology examination

Table 27: Details of samples referred for parasitology examination

SAMPLES REFFERED FROM	***LABORATORY SECTION***	***SPECIES***	***No of samples***	***REMARKS***
Paro	Parasitology	Avian	1	
Paro	-do-	Equine	20 (Jammy)	
Paro	-do-	Vulture	3 (Jammy)	
Paro	-do-	Eagle	1	
Paro	-do-	canine	4	
Total samples Received			**=29**	

Annex 5: 1st Staff coordination meeting

Date: 9/7/2021
Venue: conference hall, NVH

Agenda:

1. Allotment of section Incharges for FY 2021-22
2. TOR for section In-charges

1. Allotment of section Incharges for FY 2021-22

The reshuffling of section incharges on annual basis is done to provide opportunity for staff members to gain knowledge and experience in various clinical sections at the hospital. This is also aimed to provide shared understanding amongst staff on the different roles and responsibilities. For 2021-22 financial year, the following changes were made.

Table 28: Details of Sections and their incharges

Sl. No	Section	Incharge
1.	Vaccination	Ms. Leela Maya
2.	Medicine/ equipment	Phuntsho Dema
3.	Treatment	Neten Zangmo
4.	Minor OT	Tshering Yangchen
5.	X-ray	Mr. Nidup Dorji
6.	Ultrasonography/ Endoscopy	Chimi Wangmo
7.	Surgical section	Moti Ghalley Tshering Duba (Assistant)
8.	Inpatient Ward	Sonam Zangmo
9.	Critical care	Tshetrim Choden
	Emergency	
10.	Physiotherapy	Tshering Duba

The handing taking of the sections shall commence on or before 31st July 2021. Until that time, the would-be section Incharges shall familiarize themselves with their new sections and get necessary information or help from the Incumbent Incharges. The Section new Incharges shall not be changed but under genuine circumstances, the change can be made amongst the staff members after getting prior approval from the Head.

Annex 6: 2nd Staff Coordination meeting

Venue: NVH Conference hall
Date: 27th July 2021

Minute keepers:
1. Phuntsho Dema, Sr. LPS
2. Tshering Yangchen, Sr. LPS

Meeting agenda
1. IWP Achievements 2020-2021
2. APA achievements
3. IWP Target Setting (2021-2022)
4. APA target setting (draft)

Welcome Remarks and Adoption of Agenda
Dr. Pema Tshewang welcomed all the participants to the meeting and briefed on the meeting agenda.

1. IWP Achievements 2020-2021

He also congratulated all the staff for having completed the financial year 2020-2021 successfully. All the staff had fulfilled their IWP targets and praised the hard work and dedication with which everyone carried out their works. For the information of all the staff, it was shared that the hospital receives about 50-60 cases a day, register more than a thousand pet animals every year and conduct about 500 sterilizations in a year. It was felt important to be well informed inorder to promptly answer to queries that may be asked by the public.
Individual IWP achievements were presented and concerned staff were asked to cross check for any errors in the data and subsequently submit in the Max online system for final rating.

Discussion:
While rating for IWP, monthly progress report completion and signing of attendance would be taken into account. The additional hours accumulated for working off hours would be claimed as leave and the remainder hours (if any) for the particular year shall be included in the adhoc activity as additional hours of service provided. This would also carry some weightage while rating.
Leaves claimed as a result of off-hours accumulated has to be first verified by the "Emergency Section-Incharge" who is responsible for compiling and maintaining the off hours records. After verification from the section incharge only, the leave shall be approved.
It was noted that most staff report to sign the attendance by 9:10am. Some staff who report to duty early do not sign the attendance and gets marked as late. Therefore, everyone was reminded to be mindful of signing the attendance register and report to duty on time since the services that the hospital provide is critical and delay in providing services due to late reporting by staff could not only lead to loss of life but also criticism from the clients.

2. APA achievements
The floor was also briefed on the achievements made on the APA targets for 2020-21. It was shared that while most of the activities were successfully completed, a few of the activities could not be completed due to various reasons.
A brief presentation was made about the APA achievements for the year 2020-2021. The overall achievements were satisfying yet the floor discussed on ways to improve the outputs.
The client satisfaction rate was achieved at 85%. Though achieved, the staffs were briefed on how to bring changes at individual level and as a unit to achieve greater client satisfaction rate in the future. The floor also discussed on streamlining the referral cases from other Dzongkhags since the hospital encountered cases which could be treated at Dzongkhag level instead of being referred causing trouble and inconveniences to the clients.

Table 29: Summary table of discussion and resolution of meeting

Sl. no	Agenda	Discussion	Resolution	Action
1.	IWP Achievements 2020-2021	Everyone was applauded for the hard work and achieving their set targets for the given year On an account, it was declared that about 50-60 cases are handled every day at the hospital A reminder was made to all the staffs about the attendance register signing and time for reporting to work	While availing the off hour leave, the concerned staff should get verification from the emergency section In-charge. All the staffs should be ready for work by 9 am.	All staffs and Concern In-Charge
2.	APA achievements	A brief presentation was made about the APA achievements for the year 2020-2021. The overall achievements were satisfying yet the floor discussed on ways to improve our outputs. The client satisfaction rate was achieved at 85%. Though achieved, the staffs were briefed on how to bring changes at individual level and as a unit to achieve greater satisfaction by the clients. The floor also discussed on streamlining the referral cases from other Dzongkhags since the hospital encountered cases which could be treated at Dzongkhag level instead of being referred. The TAT for the sterilization of pet dogs at the hospital was set at 60 days. The hospital generated revenue of Nu. 137000/- (One lakh thirty seven thousand) through pet registration. The hospital used 98% of its allocated budget of the year.	Dropping of cost sharing mechanism Refreshers course for the staffs will remain as annual activity henceforth The receptionist should inform the OT in charge/head (Dr. Meena) when the registration for the sterilization appointment reaches 60 nos. The referral cases which are treatable at Dzongkhag level will be re-discuss with respective Dzongkhag Veterinarians.	Dr. Pema Dr. Jambay Receptionists
3	IWP Target Setting (2021-2022)	Draft IWP was set as per last financial achievement and APA target of 2021-22.	IWP target setting for all technical staff will be discussed and finalized in consultation with individual concerned for uniformity and accountability	Dr. Pema and all technical staff
4	Any other business	Room allocation for paravets and section In-charges were discussed. Previous working environment issues were	The IWP plans needed five major activities and therefore, the daily routine works decided to be	Tshering Yangchen to prepare roster

		raised by In-charges and proposed for one year term for respective sections.	scheduled for 2 weeks instead of one year.	with immediate effect
4.1	Case Study/ research	With increasing numbers of pets in the society, there are lots of challenging cases encountered in our hospital. To keep ourselves updated with knowledge and new cases, the floor highlighted on the need to conduct case studies as a part of continuing professional development.	Each Paravet will get one topic for case study to present as a part of updating their knowledge and skills on clinical veterinary services. Researches could also be undertaken and it was recommended that for research purposes, paravets/ lab techs would be attached with a vet to assist in the research activities.	All Drs and technical staff
4.2	Section In-charge rating	In every meeting same issues about working environment in different sections were raised and not much improvement was achieved so far. The section In-charges requested everyone to be responsible for smooth functioning of hospital.	The ratings will be based on How the Sections are maintained by the respective section In-Charges. The timely compilation and submission of progress report. Section heads should also monitor their sections once every day if possible. They should also compile section progress report every month without fail.	Section Incharges
4.3	Outcalls	Misuse of medicine and misplacement of surgical instruments were some of the issues discussed.	OT section head agreed to sterilize and mark different instrument sets for outdoor activities.	OT section head/incharge with immediate effect
Conclusion: The Management has thanked all the participants for having participated mesmerizingly with willingness. Also wished everyone a happy new financial year 2021-2022.				

Annex 7: 3rd Staff coordination meeting

Venue: NVH Conference hall
Date: 27/06/22

Minute keepers:

- Dr. Karma Phuntsho
- Tshering Yangchen

Agenda

1. Review of APA activities and achievements for 2021-22
2. Discussion on proposed APA activities for 2022-23
3. Discussion on IWP targets for 2021-22
4. Reporting of progress for APR 2021-22
5. 24 hr services
6. Leaves
7. AOB

1. Review of APA activities and achievements for 2021-22

The APA activities were presented to the floor and key achievements were highlighted. A few of the activities which remained pending were discussed for immediate implementation. The activities which had to be dropped during the mid-term review were also presented. The activities which were cancelled during the mid-term review of APA were:

Table 30: APA activity proposed for dropping during mid-term review

Sl. No	Activity	Remarks
1.	Development of electronic reporting format for ADR	Focal person fully engaged with NADPM project
2.	IPC guideline development and finalization	Focal person fully engaged with NADPM project

2. Discussion on proposed APA activities for 2022-23

The draft APA activities of NVH for the fiscal year 2022-23 were also presented for additional inputs. Since, the NADPM project is scheduled to end by December 2022, the cancelled APA activities for 2021-22 were added and carried forward for 2022-23.

Visit to Highlands for Veterinary Mobile clinic awareness

- For two consecutive years, this particular activity could not be carried out. As such, the rating during APA evaluation is affected. Since, this particular activity was conceptualized from His Majesty's recommendation, it was felt necessary to fulfill this activity henceforth with proper planning. Until now, this activity was mostly tied up with the Royal Highland Festivals. However, due to the pandemic, the Royal Highland Festivals were not organized and therefore, the mobile veterinary service to highland area was cancelled. For the 2022-23, this activity should be conducted irrespective and without dependence on the Royal Highland Festival.
  Action: Dr. Pema Tshewang

To develop hospital infection prevention and control measures

- Hospital infection prevention and control guideline (IPC) is an important component for not only preventing disease spread and control at the hospital but also to address the antimicrobial resistance issue. The IPC guideline development was initiated in 2020 but could not be finalized due to various reasons. Due to its importance, the IPC development, finalization and endorsement activity is included again as an important activity for 2022-23. Action: Dr. Meena to re-work and finalize the document after the completion of NADPM project in December 2022.
  Action: Dr. Meena Devi Samal

Development of electronic reporting format for ADR

- Since the focal for pharmacovigilance was fully engaged with NADPM project throughout the 2021-22 Fiscal year, this activity could not be completed and therefore, was dropped in 2021-22. However, it is included for 2022-23 APA since, it requires developing a simple recording format in the Excel sheet.

Action: Dr. Meena Devi Samal/ Tshering Yangchen

Sensitization on Animal Welfare Guidelines

- Sensitization on Animal Welfare standards and guidelines was conducted for Veterinarians at Gelephu. Sensitization to Paravets, farm managers and other relevant stakeholders were felt important and proposed to be included as an activity for 2022-23 APA.
  Action: Dr. Pema Tshewang

Web-page development and implement

- A draft webpage for NVH has been developed. Pending minor incorporations/ inputs, the webpage is ready to be launched. This activity is also proposed to be incorporated in the 2022-23 APA for NVH.
  Action: Dr. Pema Tshewang

Checklist for vaccination and surgery

- Concerns were raised regarding complications encountered during vaccination and surgeries sometimes leading to death of the patients. Although they could be attributed to underlying disease condition of the pets, it affects the morale and reputation of the hospital when clients make accusations. Inorder to prevent such incidents in the future, a check-list to screen the animals fit for vaccination/ surgery needs to be developed. The check-list development will also be an important activity for 2022-23.
  Action: Dr. Pema Tshewang/ Dr. Karma Phuntsho/ Dr. Meena Devi Samal

3. Discussion on IWP targets for 2021-22

Almost all NVH staff were engaged in the NADPM project for a considerable period of time and therefore, the IWP targets might not have been fulfilled. The staff were urged to review their targets and work towards fulfilling them during the remaining week as much as possible.

Since most section in-charges were also engaged with NADPM and out of station, they were asked to update the individual progress reports for their respective sections and at the same time, oversee the cleaning/ stocking of medicines/ removal of expired drugs/ other arrangements as may be necessary.

Action: All section in-charges

4. Reporting of progress for APR 2021-22

As practiced every year, the section in-charges were urged to provide the section progress reports for compilation and inclusion in the annual progress report (APR) of the hospital. Since the dateline for submission of the APR is 1st of August, the section reports as per the formats (to be collected from Ludup) are to be submitted to by second week of July 2022.

The progress report was being compiled and analyzed by Dr. Jambay Dorji for 2020-21. Since he is leaving on EOL, Dr. Karma Phuntsho was entrusted with the responsibility for compiling the reports for APR.

Action: All section in-charges/ Lab techs/ Ludup/ Dr. Karma Phuntsho

5. Proposal for 24 hours services at NVH

As directed by the Veterinary Superintended, the floor was informed of the proposed 24 hr services to be provided by NVH from July 2022. A timetable was drafted to be endorsed and implemented. However, due to the on-going combing NADPM activity and probable engagement of NVH staff for the project, the implementation was recommended to be kept on hold till the completion of NADPM project in December 2022 to avoid inconveniences.

Table 31: Draft timetable for 24 hr services

Days	**Time**		
Monday- Friday Sunday/holidays	9am-3pm	3-8pm	9pm-9am
Saturday	9am-1pm	1pm-8pm	9pm-9am
*For the staff on night duty, night duty allowances as approved for health staff will be explored and proposed for NVH staff if applicable. *The duty shall be performed on a rotation basis, for a period of 1 week each. *Vets/ lab and X-ray/USG tech shall be available on the On-call basis.			

6. Leaves

The staff were informed to be mindful of the leaves they avail. For casual and earned leaves, prior application must be submitted inorder to avoid inconveniences. During emergencies or ad hoc leaves, even if the leave is approved over the phone, leave applications must be submitted when the staff join office.
For availing off-hour duty leaves, it has to be verified by the Emergency section In-charge and then only put forth for approval.

7. Any other business

Dr. Jambay Dorji's Farewell

- A date and time for Dr. Jambay Dorji's farewell was fixed. The contributions for the farewell was agreed to be met from Staff welfare scheme since the bank balance of the Staff welfare scheme fund was able to meet the expenses.

Annex 8: 4th Staff Coordination Meeting

Venue: NVH Conference Hall
Date: 30/06/2022

Minute Keepers:
- Dr. Karma Phuntsho
- Tshering Yangchen

Agenda
1. Change of section In-charges/ unit heads. Sensitization on the TOR of Section In-charges.
2. Staff welfare scheme – brief summary update, review of document, change of members
3. Conflict review committee
4. AOB

1. Change of Unit Heads/ Section in-charges and distribution of Job responsibilities

As is customary every year, Unit heads and section in-charges were nominated. TORs for various section in-charges were also presented.

Table 32: Allocation of Units/ Sections In-charges

Sl. No	Name	Units/ Sections		Remarks
		2021-22	2022-23	
1	Dr. Pema Tshewang	OPD/overall administration	OPD/lab & overall administration	
2	Dr. Meena Devi Samal	OT/ Laboratory	OT/ Minor OT	
3	Dr. Jambay Dorji	Lab/ inpatient/ medicine	NA	EOL
4	Dr. Karma Phuntshok		Inpatient/ medicine	Newly joined
5	Leela Maya Sharma	Vaccination	Vaccination	
6	Tshering Yangchen	Minor OT	Treatment	
7	Sonam Zangmo	Inpatient	Physiotherapy	
8	Phuntsho Dema	Store	Store	Availed G2C training
9	Tshetrim Choden	Emergency	Inpatient	
10	Chimi Wangmo	USG	Minor OT	
11	Moti Ghalley	OT	OT	On request from Dr. Meena
12	Tshering Duba	Physiotherapy	Emergency	
13	Neten Zangmo	Treatment	X-ray/ USG	Asst. incharge
14	Wangchuck	NA	Inpatient	Asst. Incharge
15	Thinley Dhendup	NA	Store	Asst. incharge
16	Wangmo	NA	Emergency	Asst. incharge
17	Karma Tshomo	NA	Treatment	Asst. incharge
18	Dawa Lham	NA	Minor OT	Asst. incharge
19	Phurpa Tamang	NA	OT	Asst. incharge

20	Kinzang Pelden	Biochemistry	Biochemistry/ skin scraping	Shared Parasitology tests since Pema Tshomo resigned
21	Punya Mata Sanyasi	Hematology	Hematology/ fecal	
22	Pema Tshomo	Parasitology	NA	Resigned
23	Kuenzang Dema	X-ray/ USG	X-ray/ USG	X-ray Technician

Table 33: TOR for section In-charges

Section	Duties (Roles and Responsibilities)
Vaccination	- Prepare Monthly progress for ARV/ DHPPi+L, deworming, Pet registration, Renewal, booster (sign and verify from Head) - Maintain Royal vaccine stock/ pet registrations - Maintain AEFI/ AVE kit - Prepare vaccine requisitions as and when necessary (ensure vaccine stock balance) – both ARV and DHPPi+L - Enter pet registration details in the pet registration database (to collaborate with Ms. Ludup) - Ensure temperature records are maintained on a daily basis - Ensure equipment/ furniture in the room are cleaned/ maintained properly - Ensure proper segregation of syringes/ needles/ vials/ plastics etc and arrange for their disposals when the bins are full - Display and follow the Vaccination/ Deworming SOPs
Treatment	- Maintain the treatment registers properly - Prepare monthly treatment progress for individual staff - Ensure equipment/ furniture are maintained/ arranged properly - Ensure cleanliness/ disinfection of floor/ treatment tables - Ensure medicines/ consumables are well stocked in the room - Ensure medicines are properly arranged and stored (e.g.: in the fridge/ medicine cabinet) - Ensure temperature records are maintained daily - Ensure proper segregation of wastes (Sharps- syringes/ needles/ broken vials; Infectious- blood/ pus, other body fluids, vomit/ feces including contaminated materials like gloves/ cotton/ gauzes/ bandages; Non-infectious or General – plastics, papers, clothes etc.) and arrange for proper disposals
Minor OT	- Maintain the Minor OT registers - Prepare monthly progress for individual staff - Ensure equipment/ furniture are maintained/ arranged properly - Ensure routine cleanliness/ disinfection of floor/ treatment tables - Ensure medicines/ consumables are well stocked for use - Ensure medicines are properly arranged and stored - Ensure proper segregation of wastes (Sharps- syringes/ needles/ broken vials; Infectious- blood/ pus, other body fluids, vomit/ feces including contaminated materials like gloves/ cotton/ gauzes/ bandages; Non-infectious or General – plastics, papers, clothes etc.) and arrange for proper disposals
Endoscopy/ ultrasound	- Prepare monthly progress for individual staff - Maintain the USG register as per the standard format - Maintain/ ensure equipment are dusted/ cleaned regularly - Ensure equipment are kept in good working conditions at all times and arrange for repair/ replacement when broken - Ensure cleanliness of the room at all times (disinfect the patient table and floor after use
	- Prepare monthly progress for individual staff - Update stock registers (Anesthetics including Narcotics) after every use - Ensure surgical instruments are properly cleaned and maintained - Ensure adequate stock of surgical sets at all times

OT/ Preparation room	- Maintain adequate stock of medicine/ consumables used in the OT - Maintain equipment/ furniture in the OT are properly cleaned and in good working conditions - Ensure OT floor is Clean and disinfected as and when necessary - Ensure drapes/ surgical gowns are washed and disinfected regularly - Ensure proper segregation of wastes (Sharps- syringes/ needles/ broken vials; Infectious- blood/ pus, other body fluids, vomit/ feces including contaminated materials like gloves/ cotton/ gauzes/ bandages; Non-infectious or General – plastics, papers, clothes etc.) and arrange for proper disposals
Inpatient ward/ isolation/ feline	- Prepare monthly progress for individual staff - Maintain adequate stock of medicine/ consumables - Ensure tables/ floors are properly cleaned/ disinfected - Maintain separate records of rescue/ strays kept in wards and those handed over to Jangsa - Ensure temperature records are maintained daily - Ensure proper segregation of wastes (Sharps- syringes/ needles/ broken vials; Infectious- blood/ pus, other body fluids, vomit/ feces including contaminated materials like gloves/ cotton/ gauzes/ bandages; Non-infectious or General – plastics, papers, clothes etc.) and arrange for proper disposals
Physiotherapy	- Prepare monthly progress for individual staff - Ensure physio equipment are cleaned and arranged properly - Ensure cleanliness/ disinfection of room/ furniture/ equipment/ floor regularly
Critical care unit	- Prepare monthly progress for individual staff - Maintain adequate stock of medicine/ consumables - Maintain/ ensure equipment are cleaned and arranged in order - Ensure cleanliness/ disinfection of room/ furniture/ equipment regularly - Ensure temperature records are maintained daily - Ensure proper segregation of wastes (Sharps- syringes/ needles/ broken vials; Infectious- blood/ pus, other body fluids, vomit/ feces including contaminated materials like gloves/ cotton/ gauzes/ bandages; Non-infectious or General – plastics, papers, clothes etc.) and arrange for proper disposals
Emergency	- Prepare monthly progress for individual staff - Maintain registers - Verify off-hours/emergency services including extra hours attended by staff - Verify leave applications proposed from extra hours attended, make deductions and keep record - Maintain/ ensure equipment are cleaned and arranged in order - Ensure cleanliness/ disinfection of room/ furniture/ equipment regularly
Medicine store/ equipment store	- Maintain stock registers regularly - Prepare medicine/ equipment/ consumables requisition as and when necessary - Update staff on medicine arrivals/ stock balance and expiry - Segregate expired medicines for proper disposal - Arrange medicines/ equipment in proper order - Ensure regular cleaning of equipment/ medicine racks/ floors - Assist in preparing annual indenting - Mobilize 'out of stock medicine/ consumables' from other centers - Distribute near expiry medicine to other centers/ animal shelters etc. - Receive/ arrange reception of medicine/ equipment consignments

Table 34: Duties and Responsibilities for Laboratory Section In-charges

Section	Responsibilities
All Laboratory sections - Biochemistry - Hematology - Parasitology	- Maintain records properly - Prepare monthly progress report - Maintain/ ensure equipment are cleaned and arranged in proper order - Ensure cleanliness/ disinfection of room/ furniture/ equipment regularly

	- Put up requisition for laboratory consumables/ reagents - Ensure/ maintain/mobilize adequate stock of reagents and consumables - Arrange sample referral to NCAH and follow up on the reports - Compilation of referral reports - Arrange maintenance of broken equipment/ furniture etc. - Practice proper laboratory waste segregation and disposal SOPs	
Sl. No	Section	Incharge
1	Biochemistry - Biochemistry analysis (LFT/RFT etc.) - Referral Parasitology - Skin scraping - Urinalysis	Kinzang Pelden
2	Hematology - TLC/DLC/Hb - Blood parasites - Microbiology - Referral Parasitology - Fecal - Urinalysis	Punya Mata Sanyasi

*Section in-charges shall also help or carry out the sampling/ examination of samples in absence of the other incharge. Therefore, both section in-charges should be aware of the basic/ necessary operations of every laboratory test performed in various sections inorder to provide continued services in absence of the other section in-charge.

Table 35: TOR for receptionist/ Data manager

Section	Duties
Reception	- Practice customer care - Function as help desk - Maintain registers kept at reception - Draw lines and verify serial numbers on the registers kept at reception - Make prescriptions and direct the clients to consultations rooms - Attend telephone calls and connect to relevant officials - Make surgical appointments - Ensure cleanliness of the reception area - Any other works assigned by the superiors
Data Management (Ludup)	- Help at the reception - Collect/ deposit and update pet registration fees - Arrange for printing of prescriptions/ pet registration booklets - Update pet registration database - Update VIS on a monthly basis - Assist in administration activities (Prepare official correspondences with Asst. Adm, Prepare/translate official correspondences in Dzongkhag) - Any other works assigned by superiors

2. Briefing on expenditure of staff welfare scheme and nomination of new members

The expenditure statement on the Staff welfare scheme (SWS) was presented to inform the staff, especially the new staff who had joined NVH during 2021-22. As per the record, fund support was provided 28 times since its inception (table) as per the provisions of the SWS. A total of Nu. 181350/- were given out. The highest support

was provided during hospitalization/ treatment of the staff/ their family members followed by Refund for SWS contribution made by staff leaving NVH due to various reasons. One-time expenditure was made to support arrangement for promotion. As per the directives of the RCSC, agencies are responsible for support such expenses during official staff promotion and therefore, the expenditure is no longer met from SWS.
For farewell of staff member, contributions are usually made by the staff to organize the farewell dinner and gifts. However, upon the discretion of the board members and proposal from members, expenses are made from the SWS fund, provided the accumulated amount balance in the SWS is permissible.

Table 36: Expenditure details of the SWS

Sl. No	Staff Welfare Scheme particulars	No. of times
1.	Hospitalization/ treatment	12
2.	Demise of family members	2
3.	Patient Referrals	2
4.	Baby shower	4
5.	Refund of contribution	5
6.	Farewell adjustment	2
7.	Promotion	1

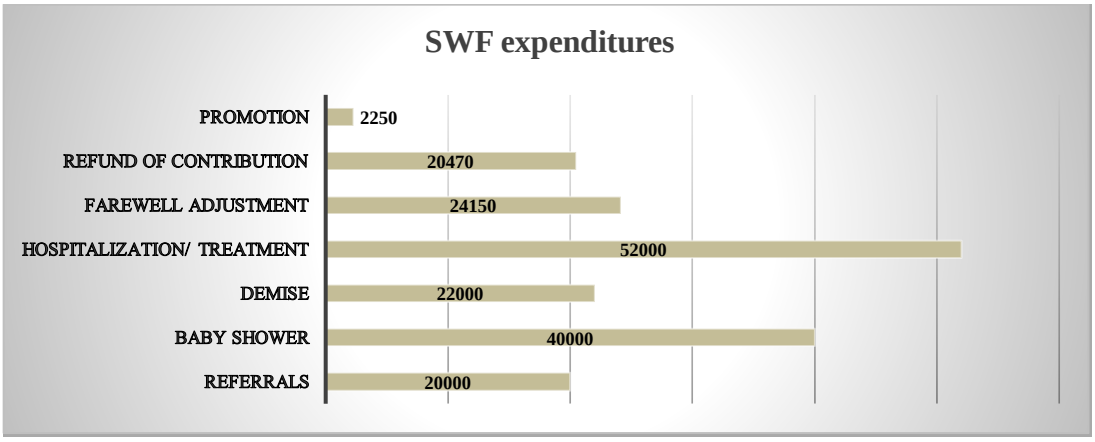

Figure 34: Expenditure incurred against each activity

The SWS document was also run down and several amendments in the provisions of the SWS were proposed. The following additional clauses were discussed and agreed to be incorporated into the existing document. Where necessary, certain clauses would be scrapped:

i. Referred outside the country (whether officially or self-referred) shall be entitled to equal benefits.
ii. Member who does not have living biological parents can nominate nearest kins/guardians/adopted parents in their stead.
iii. In case of demise of a direct member or biological parents, the benefit would be increased to 20,000/- from 15,000/- w.e.f 1st July 2022)
iv. Hospitalization, irrespective of case severity shall be eligible for full benefit i,e Nu. 5000/-
v. On a condition that the scheme is able to maintain a minimum balance of Nu. 50,000 at all times, farewells and similar events can be billed on to staff welfare scheme collection account, with the expenses for any single event not exceeding Nu.35,000. This is because, contributing individually can be cumbersome at times due to a number of obvious reasons. It is premised on the idea that an equal

contribution is made by every member. This will preclude the individual/personal collection.

Claims on any form of severance from NVH (Transfer/ superannuation/ Resignation etc):

vi. A member who had not benefited even once from the SWS shall be eligible for refund of 80% of the total contribution accumulated with the SWS Fund.
vii. If a member have made two or more claims shall be eligible for 80% of the total contribution made less the total claim amount. If the claim exceeds the amount accumulated, then the member shall not be eligible for any benefit.
viii. No limit to the number of times claimed as long as such claims are permissible by the stipulated terms of the scheme and so long as the claims are made with valid evidences.
ix. The amended document shall be circulated within the members for feedbacks and finalization.

Changes to the office bearers of the scheme

- Since the inception, there has not been any change in the committee members. The floor proposed for change in the member and proposed the following new members:

Chairman	: Dr. Kinlay Dorji (Chairman shall always be the Head of the agency)
Deputy Chairman	: Dr. Pema Tshewang (unchanged)
General Secretary	: Dr. Karma Phuntsho (replacement for Dr. Jambay Dorji)
Welfare Secretary	: Mr. Wangchuk (replacement for Mr. Nidup Dorji)
Treasurer	: Ms. Kuenzang Dema (Replacement for Ms. Ludup Pelmo)

3. Conflict Review Committee/ grievance redressal committee

A proposal was made to form a conflict review committee/grievance redressal committee to tackle issues concerning public service delivery, clientele and individual's grievances addressed either on social media or to any staff in person, as well as for smooth functioning of the duties within this agency, a form of a feedback culture. A draft TOR shall be developed and circulated for feedbacks.
Action: Dr. Pema Tshewang/ Dr. Karma Phuntsho

4. Any other business

a. Attendance

- Hospital is not like other offices where staff can afford to report late to office. The implications can be quite serious if staff do not report in time since emergency cases can be brought in at the hospital. Inorder to improve punctuality amongst staff, signing of attendance register shall be made mandatory for all staff. Everyone has to put their initials on the attendance register at 9:00AM on the dot, on a weekday.
- The attendance register shall be kept at the reception before 9am and submitted to Dr. Pema's chamber at 9:10am.
- Those failing to arrive for duty on time shall get dots (a form of remark) against their names, which can be accounted for during the consideration of leave at a later time and administrative action may also be taken for repeat offenders.

b. Tender committee formation

A designated tender committee was proposed to be formed inorder to carry out have efficient tendering processes required at the hospital. The draft committee maybe drafted and circulated for finalization.
Action: Madam Tula Maya Sharma

TASHI DELEK PHUENSUM TSHOK!