

# CHAPTER 1

## INTRODUCTION

Bangladesh is most densely populated country in the world. Per capital income of its population is very low. It is a developing country in South Asia having tropical climate. The total population is about 16 crore (BBS., 2017). The economy of Bangladesh is mainly depends on agriculture. Among all agricultural sectors, livestock is one of the most potential sub-sectors which plays an indispensable role in promoting human health and national economy of the country by providing egg, milk, meat, leather, drought power.

It generates 13% of foreign currency and provides 20% fulltime employment and 50% partial employment of rural population (Alam, 1993). Livestock not only assists to upgrade the financial condition but also makes a substantial contribution to human nutrition. Bangladesh earns foreign currency by exporting several byproducts such as hides, skin, bone and other animal byproduct. Recently, biogas is also becoming a promising byproduct of livestock contributing on alternative energy sources of Bangladesh .Most importantly; livestock became an integral part of farming system which has direct contribution of sustainable economy of Bangladesh.

There are about 23.19 million cattle, 1.44 million buffalo, 25.56 million goat, 3.08 million sheep, 242.47 million chicken and 45.84 million duck present in Bangladesh (DLS, 2011). In case of mixed farming system livestock is an important component. However, cattle and goats are dominant in farm animal of Bangladesh and about 80% rural people rear indigenous cattle (Siddiki et al, 2009) whose are the vital component of rural economy of Bangladesh by performing multifarious functions such as provisions of food, draft power and transport.

In Bangladesh, livestock practices are generally smallholder traditional system in which management is not as scientific and hygienic as standard procedure in respect of drainage, water facilities and environment. Due to the this practices and geo-climatic conditions animal get infected with various diseases like endo and ecto parasitic infestation, nutritional deficiency diseases, reproductive diseases, metabolic diseases, bacterial and viral diseases etc. Diseases and disorders of animals are the most important hindrance towards livestock development in our country. Most of the animals are weak, emaciated and non-satisfactory productive performance due diseases and deficiencies.

Disease is an abnormal condition caused by various agents such as virus, bacteria, mycoplasma, parasite, rickettsia, trauma, protozoa, and deficiency due to imbalance dieting and low standard of management. Among the various constraints diseases are the most important factors causing significant morbidity and mortality in livestock population each year (Debnath et al., 1995).

A disease is very important to farmers due to its direct relation on profit and loss of farm. It could increase the cost of production, decrease the level of production, reduce the quality of products and generally causes great loss to the farmer (Rabiu et al., 2013). Diseases have a major impact on morbidity and mortality rates, with annual losses as high as 30–50% of the total value of livestock products (Tibbo et al., 2003). Though, in our country, the population of livestock is comparatively higher in number, the economic benefits remain marginal due to diseases, poor nutrition, and poor reproductive efficiency. Occurrences of various diseases and disorder in different species are depending upon the diverse intrinsic and extrinsic epidemiological and biological factors associated with them (Sardar et al 2006).

Diseases and disorders of livestock has already been reported in various parts of Bangladesh (Samad et al. 2002). The highest prevalence of common diseases in livestock were digestive (45.14%) followed by parasitic diseases (30.64%) and infectious disease (9.5%) Badruzzaman et al., (2015). It has been shown that, in cattle digestive disorders (47.01%) were highest in percentage, then parasitic diseases (26.58%), reported in Chittagong and Sylhet areas respectively. However, there is very little study performed on the occurrences of clinical diseases in different species at Comilla district veterinary hospital, Bangladesh. Veterinary hospital is an ideal and reliable source of information about animal diseases with their treatment. Analysis of the clinical cases gives a comprehensive idea about the disease problems at local areas (Sarkar et al., 2013).

Moreover, the occurrence and prevalence of different diseases not yet well documented. It is important to report the disease status for a particular region which may help other to study and take necessary action for control and prevention of diseases. Therefore, present study was undertaken to investigate the occurrence of diseases and disorders considering species, age, and sex based on cases attended and recorded in Comilla district veterinary hospital during the placement of my internship program. The current investigate will give an overall idea about the diseases and disorders that are commonly occurred in different species in the region which may

will assist the clinicians forecasting diseases and conscious the farmers to take appropriate control measures against diseases occurrence. This study was designed with following objectives.

**Objectives:**

1. To investigate the clinically occurring diseases and disorders in different species in Comilla district.
2. To classify nature and type of diseases and conditions in animals presenting to the veterinary clinics.

## **CHAPTER 2**

### **MATERIALS AND METHODS**

#### **2.1 Study Area:**

This clinical study was performed at the District Veterinary Hospital (DVH), Comilla.

#### **2.2 Study period and Population:**

Total 309 animals were examined on clinical cases during in March 2017. The clinical history, clinical findings and relevant laboratory tests were considered for the diagnosis of diseases. The data were recorded properly in the particular register book at District veterinary hospital, Comilla.

#### **2.3 Study Method:**

To diagnose diseases and disorders clinical examinations of animal were conducted on the basis of diseases history, owner complaint, symptoms. History of each animal (present and past) was taken carefully. Clinical history was helpful because it gave a guideline for examination of the animals. According the merit of the individual case, general clinical examination were conducted on the basis of disease history and owners complaint, symptoms and techniques such as microscopic examination, common fundamental techniques are used to diagnosis the cases like animal's body condition, behavior, posture, gait, locomotive disturbance, pulse, respiration, temperature, abdominal distension, defecation etc. were observed and recorded.

Examination of different parts and systems of the body of sick animals were performed by using the procedure of palpation, percussion, auscultation, needle puncture and walking of animals. Specific bacterial, viral, and fungal diseases were diagnosed on the basis of specific clinical signs and gross lesions like in case of PPR in goat (stomatitis ,respiratory syndrome and diarrhoea),Newcastle disease in bird (bending of neck, greenish diarrhea), pigeon pox (pock lesion in non-feather part of the body),arthritis in calf ( swollen joint) , coccidiosis (blood in feces), avian leucosis ( swollen liver), the udders of the cows were palpated to detect any enlargement, reddening or pain. The body surface of animals was examined for any swelling, wound etc. Parasitic infestations were diagnosed by feces examination under microscope. Abnormal sound of respiratory tract was detected through stethoscope.

Diagnosed diseases were categorized as infectious disease, parasitic disease, digestive disorder, respiratory disease, surgical affection, obstetrical cases and other diseases for analysis. The groups of infectious diseases are FMD, Arthritis, Navel ill, pink eye, Dog bite ,Mastitis, ND , Avian influenza, Duck plague, pigeon pox, PPR ,digestive disorder are Indigestion, enteritis bloat and Diarrhoea, surgical affections are Wound, Abscess, dermoid cyst ,castration, fracture and mamactomy in goat. The respiratory disorder was diagnosed on the basis of owner's complaint & recording abnormal functions respiratory system like polypnea, dyspnea, coughing, thoraco-abdominal breathing and by examining the entire respiratory tract

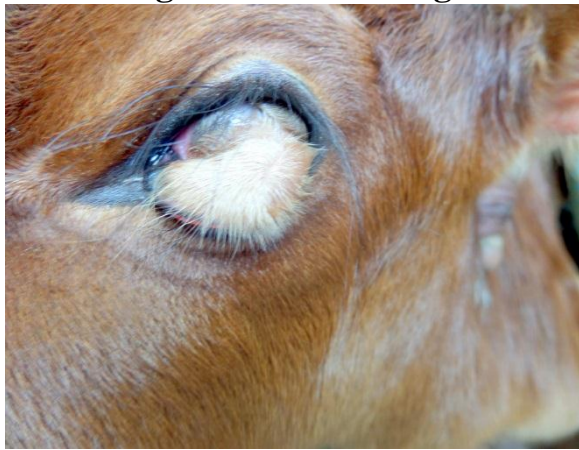
#### **2.4 Data compilation:**

The author of this manuscript complied the collected primary and secondary data after necessary drafting and sorting. The extreme values were deleted from the data series.

#### **2.5 Data analysis:**

Diagnosed cases were categorized into different diseases like gastrointestinal disorders, respiratory diseases, parasitic diseases, skin disease, reproductive problems, surgical cases and other clinical disorders for all livestock species mentioned in this study. Cases were also categorized according age and sex for cattle and goat. In case of bird, we considered age and species for the species of chicken, duck, quail, pigeon and turkey. Age of animal is categorized into three sub-groups <1 year, 1-2 year, >2-4 year. Data were managed and analyzed using Microsoft word and Excel.

**Figure 1: Clinical Sign of diseases and disorders in cattle**



**Dermoid Cyst**



**Arthritis**



**Knuckling**



**Atresia Ani**



**Wound Dressing**



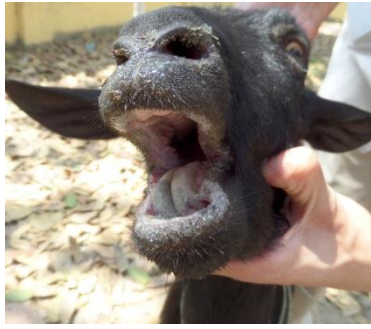
**Pink Eye**



**Figure 2: Clinical Sign of diseases and disorders in goat**



**Alopecia**



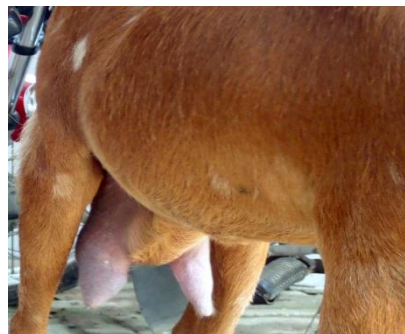
**Peste des Petits Ruminant (PPR)**



**Fibrous Osteodystrophy**



**Hypomagnesemic Tetany**



**Mastitis**



**Mammectomy**



**Castration**



**Fracture Management**



**Dystocia Management**



**Figure 3: Clinical sign of diseases & disorders in bird**



**Avian Influenza in Chicken**



**Duck Plague**



**Newcastle disease in Pigeon**



**Pigeon Pox**



## CHAPTER 3

### RESULTS

Out of 309 cases; 99 cases (32%) were cattle among them male 56 (18%) and female 43(14%) were investigated. In case of 87(28%) goat 54 (17.4%) male and 33 (10%) female were recorded Table 1. Among 122 (39.4%) bird cases chicken were 30 (9.7%), duck were 13 (4.2%), pigeon were 43 (14%), quail were 1 (0.32%) and turkey were 2 (0.6%) Table 2.

**Table 1: According to sex percentages of cattle and goat**

Animal (n=309)	Sex			
	Male		Female	
	Total	%	Total	%
<b>Cattle (n=99)</b>	56	18	43	14
<b>Goat (n=87)</b>	54	17.4	33	10

(n=Number, %=Percentage)

**Table 2: According to species percentages of bird**

Animal (n=309)	Chicken		Duck		Quail		Pigeon		Turkey	
	Total	%	Total	%	Total	%	Total	%	Total	%
<b>Bird (n=122)</b>	30	9.7	13	4.2	1	0.3	43	14	2	0.6

(n=Number, %=Percentage)

**Table 3: Systemic distribution of diseases in cattle according to age and sex**

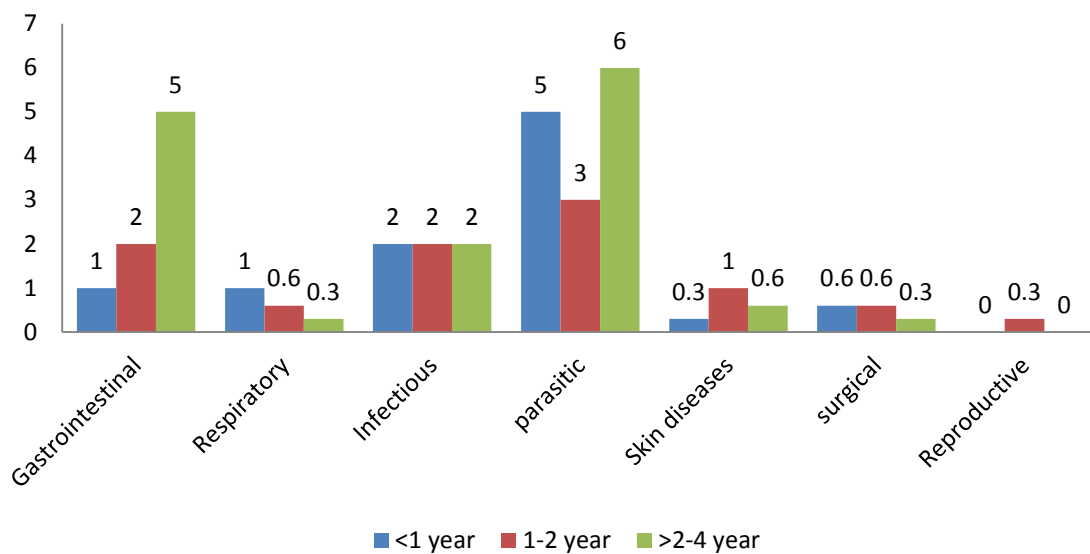
Parameter	Age (Occurrence %)			Sex (Occurrence %)	
	<1 year	1 -2 year	>2-4 year	Male	Female
<b>Gastrointestinal disorder</b>	1	2	5	6	3
<b>Respiratory diseases</b>	1	0.6	0.3	1	1
<b>Infectious diseases</b>	2	2	2	2	4
<b>Parasitic infection</b>	5	3	6	7	9
<b>Skin diseases</b>	0.3	1	0.6	0.3	2
<b>Surgical cases</b>	0.6	0.6	0.3	1	0.3
<b>Reproductive problems</b>	0	0.3	0	0	0
<b>Total</b>	9	9	14	18	18

(%=Percentage)

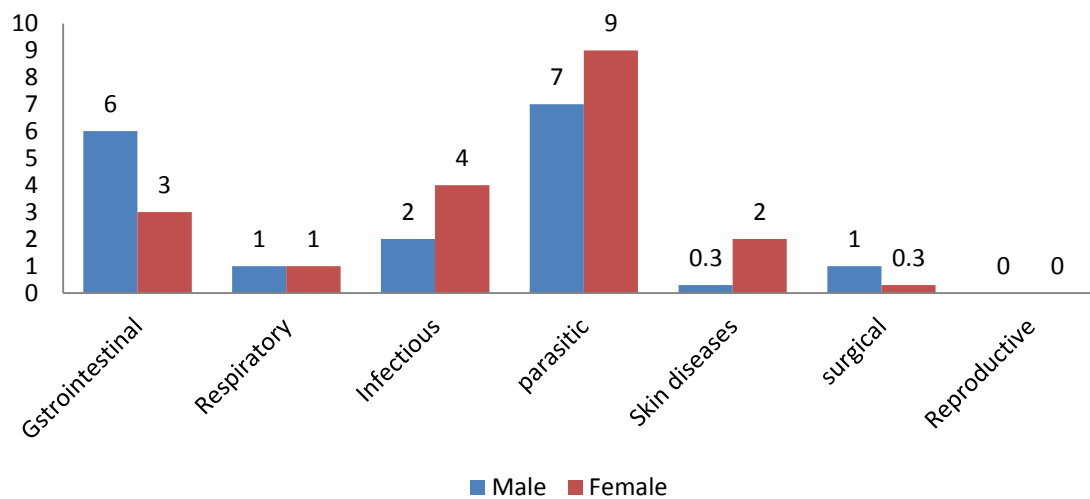
#### According to age and sex distribution of diseases and disorders in cattle:

In Table:3, the study total 309 animals were studied where 99 cattle were detected as diseases in different system in the body. In the study it was found that cattle of different ages were suffering from various diseases and disorders, where parasitic infestation were 42(14%) which is highest in compare to other diseases (Graph 1). This study also revealed that, most of cattle of all aged group were affected with gastrointestinal diseases (Table 3). It was exerted from the study that infectious diseases and gastrointestinal diseases also occurred as well as some respiratory diseases like pneumonia in cattle. Worm infestation was more frequent in all aged group of cattle as compared with other diseases and disorders. Table 2 expressed that cattle of below 1 year and 2 to 4 years old were mostly affected by parasitic diseases in contrast of cattle of other age group (Graph 1)Sex wise diseases and disorders in cattle were presented in the Table 2. The study revealed that diseases occurrence in both male (18%) and female (18%) were same in cattle (Graph 2). It was reported from the study that gastrointestinal diseases in male (6%)was higher in compare to female (3%) whereas parasitic diseases in female (9%) was higher than male (7%) in cattle (table 3) (Graph 2).

**Graph 1: Systemic distribution of diseases in cattle according to age**



**Graph 2: Systemic distribution of diseases in cattle according to sex**



**Table 4: According to age and sex distribution of diseases and disorders in goat**

Parameter	Age (Occurrence %)			Sex (Occurrence %)	
	<1 year	1 -2 year	>2-4 year	Male	Female
<b>Gastrointestinal disorders</b>	1	0.3	0	1	0.6
<b>Respiratory diseases</b>	3	0.3	0.3	0.6	2
<b>Infectious diseases</b>	6	5	2	7	6
<b>Parasitic infections</b>	0.6	0	0	0.6	0.3
<b>Skin diseases</b>	0.3	0	0	0.3	0.6
<b>Surgical cases</b>	7	0.6	0.3	7	0.6
<b>Reproductive problems</b>	0	0	0.3	0	0.3
<b>Nutritional deficiencies</b>	0.3	0.6	0.3	0.6	0.3
<b>Total</b>	18	6	3	17	10

(%=Percentage)

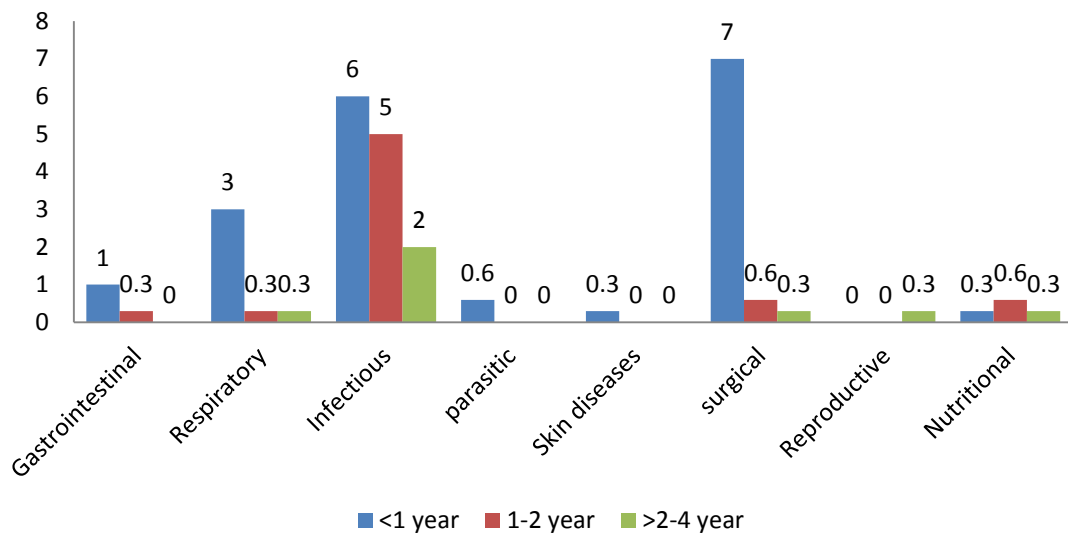
#### **According to age and sex distribution of diseases and disorders in goat**

The diseases and disorders observed in the different systems of goat are shown in the Table 4. A total of 309 animals were studied of which goats 87(28%) were recorded with different diseases of different system in the body. Different aged group suffering from various diseases and disorders were also investigated. In the cage of diseased category 39(13%) were affected by infectious diseases and surgical cases were 24(8%) (Graph 3). Diseases like respiratory disorder, coughing and little nutritional deficiency (1.2%) were recorded in this study in goat. Surgical cases mainly castration (7%) was more frequent in below 1 year aged goat (table 4)

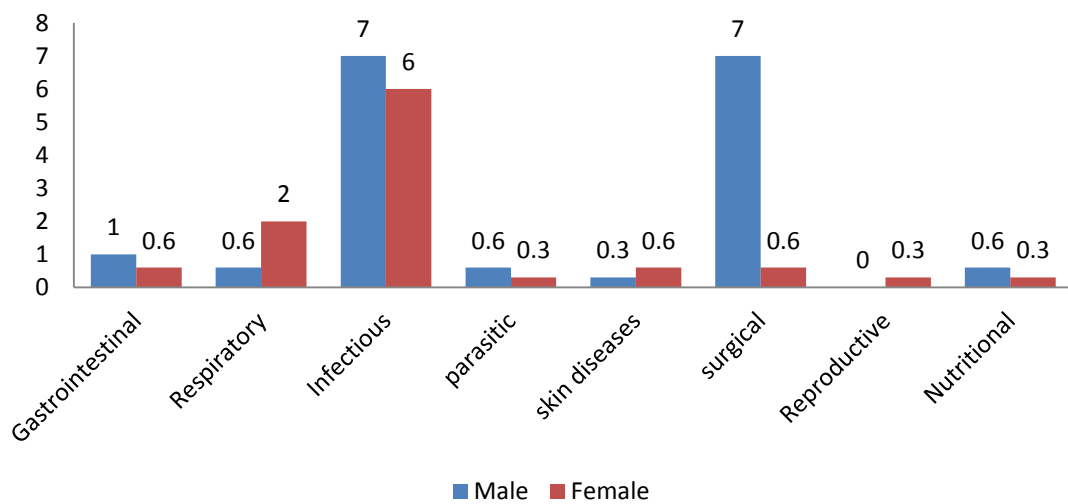
Sex wise diseases and disorders in goat were presented in the Table 4. This study showed that, occurrences of diseases in male (17%) goat were higher than female (10%) goat. In case of surgical cases male were more prone 7% (castration) and in case of infectious diseases, both male (7%) and female (6%) were more or less similar (Graph 4).



**Graph 3: Systemic distribution of diseases in goat according to age**



**Graph 4: Systemic distribution of diseases in goat according to sex**



**Table 5: According to age and species distribution of diseases and disorders in bird**

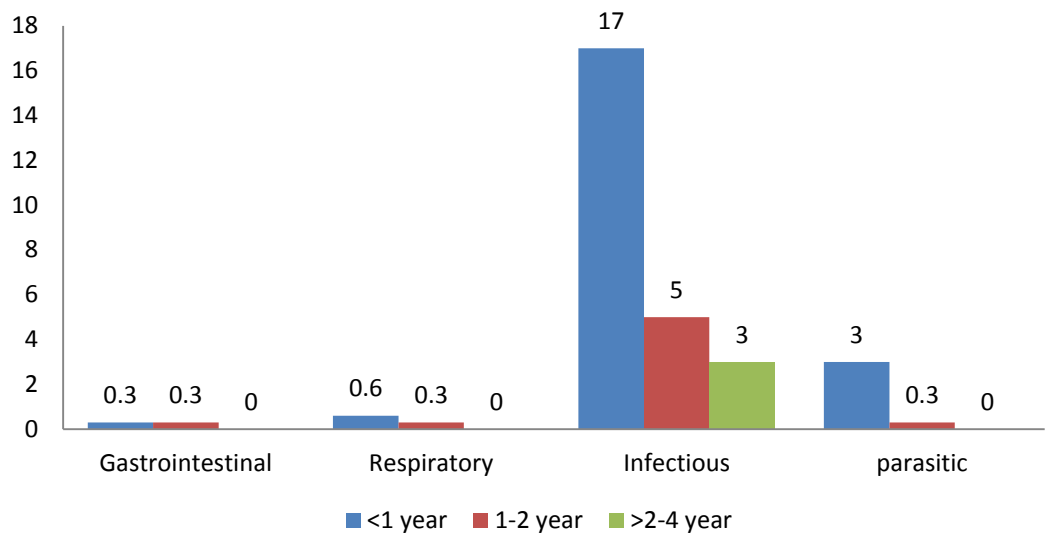
Parameter	Age (occurrence %)			Species (occurrence %)				
	<1 year	1-2 year	>2-4 year	Chicken	Pigeon	Duck	Quail	Turkey
<b>Gastrointestinal disorders</b>	0.3	0.3	0	0.3	0.3	0	0	0
<b>Respiratory diseases</b>	0.6	0.3	0	0.3	0.6	0	0	0
<b>Infectious diseases</b>	17	5	3	7	12	4	0.3	0.6
<b>Parasitic infections</b>	3	0.3	0	2	2	0	0	0
<b>Total</b>	20	6	3	10	14	4	0.3	0.6

(%=Percentage)

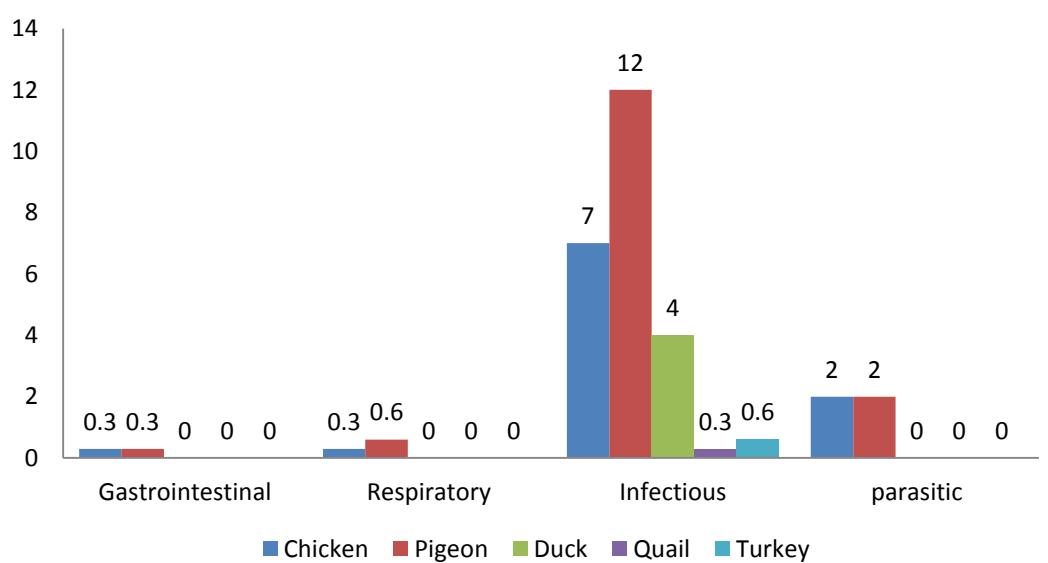
#### **According to age and species distribution of diseases and disorders in bird**

The diseases and disorders observed in the different systems of bird are shown in the Table 5. Out of 309 animals cases bird 122(39.4%) were detected with diseases in different system in the body. In the study it was found that bird of different aged were suffering from various diseases and disorders, where maximum no. of birds 74(25%) was affected by infectious diseases (Graph 5). Common infectious diseases like Newcastle Disease, pigeon pox, avian influenza, bronchitis etc. were reported from the study It was found that bird of below 1 year of age were more susceptible to infectious diseases (17%) in compare to other age group Table 5. Diseases and disorders of different species in bird were presented in the Table 3. It was found that, diseases occurrences in pigeon (14%) were higher than chicken (10%) and then duck (4%). In case of pigeon infectious diseases (12%) were higher than other bird species like chicken (7%) and duck (4%) (Table 5, Graph 6)

**Graph 5: Systemic distribution of diseases in bird according to age**



**Graph 6: Systemic distribution of diseases in bird according to species**



**Table 6: According to Species distribution of particular diseases and disorders in bird**

Parameter (Diseases)	Species (Occurrence %)				
	(n=122)				
	Chicken	Duck	Quail	Pigeon	Turkey
Newcastle Disease	4	0	0	16	1.6
Fowl Cholera	2.4	0	0	0	0
pox	2	0	0	18	0
Infectious coryza	0	0	0.8	0	0
Bronchitis	0.8	0	0	1.6	0
Worm infestation	0.8	0	0	2.4	0
Duck plague	0	10	0	0	0
Necrotic enteritis	0.8	0	0	0.8	0
Coccidiosis	4	0	0	0	0
Avian leucosis	4	0	0	0	0
Salmonellosis	3.2	0	0	0	0
Haematoma	0	0	0	0.8	0
Avian Influenza	1.6	0	0	0	0
<b>Total</b>	21.6	10	0.8	39.6	1.6

(n=Number, %=Percentage)

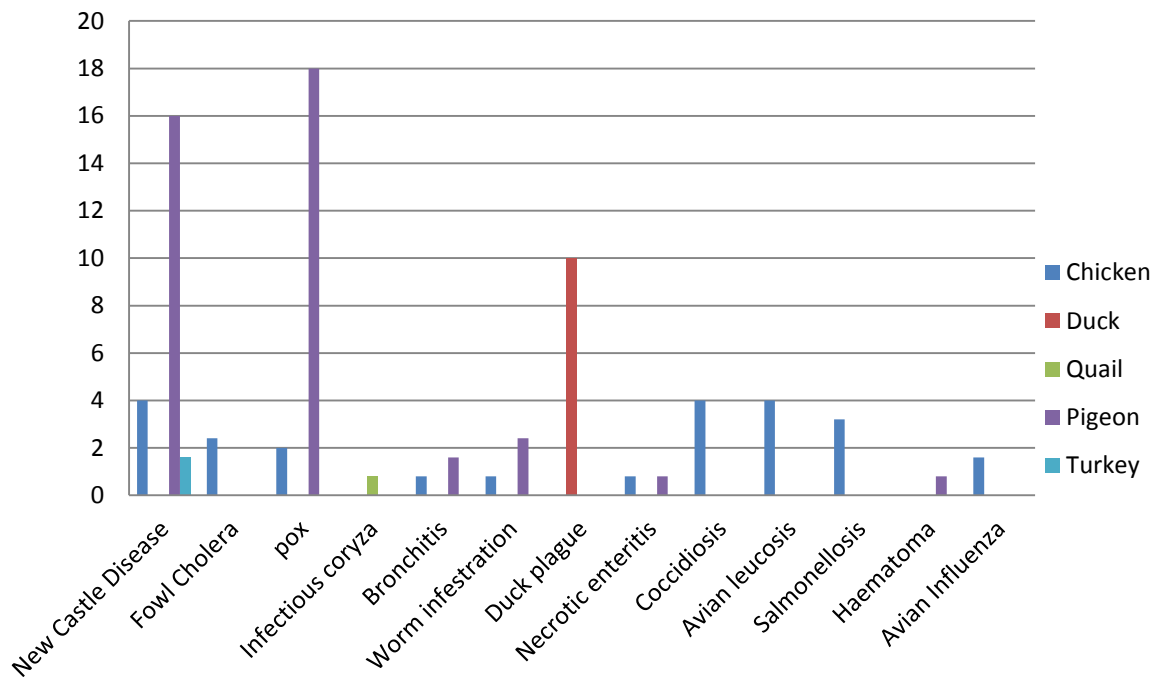
#### According to Species distribution of particular diseases and disorders in bird:

In the table 6 distributions of particular diseases and disorders according to the species were observed in bird. In the study total 309 animals were studied of which birds 122(39.4%) were infected by various diseases. In the table 6, it was shown that, disease percentage was higher in pigeon 39.6% among 122 birds then 21.6% in chickens and lower in quail 0.8% (Graph 7)

The present study revealed that, 18% pox and 16% Newcastle disease in pigeon, whereas in the case of chicken 2% pox and 4% Newcastle. But in case of duck common diseases was duck plague 10% among 122 birds table 6 and graph 7.



**Graph 7: Particular diseases and disorders in bird according to species**



## CHAPTER 4

### DISCUSSION

Disease is a state of illness, which implies that some parts of the body are not functioning as they should (Henderson, 1990). The occurrence of diseases and disorders in animals depend on the environment (Dela-Fuente *et al.*, 1997). A disease of animal is very important to farmers due to its direct impact on profit and loss of the farm. It could increase the cost of production, decrease the level of production, reduce the quality of products and generally cause the death of their animal (Rabiu *et al.*, 2013). Here, the study was conducted to investigate the occurrence of diseases and disorders in different species considering their ages, and sex based on cases attended and recorded in Comilla district veterinary hospital during the placement of my internship program.

A total of 309 clinical cases were diagnosed during my one month internship program at March 2017. Diseases were categorized as gastrointestinal disorder, respiratory disorder, infectious, skin disease, surgical cases and reproductive problems among which the occurrence of parasitic diseases (14%) and gastrointestinal disorder (8%) were significant in cattle whereas previous study reported that, the prevalence of digestive disorders were 45.14% and parasitic diseases were 30.64% in cattle among 2614 of clinical cases (Badruzzaman *et al.*, 2015). Similar study were also reported that, digestive disorders and parasitic infestations were as 47.05% and 26.79% respectively among other diseases in cattle (Pallab *et al.*, 2012). Prevalence of digestive disorders (32.16%) and parasitic diseases (32.01%) were also reported by Juli *et al.*, 2015. The occurrence of digestive disorder and parasitic infestations shown to be higher by others in compare to our findings may be due to number of cases studied and period of study. Other factors may influence the findings could be the environmental factor, improper disease diagnosis, inappropriate data collection and analysis etc. we only observed clinical cases for one month (March 2017).

In the case of goat, total number was 87(28%) among 309 total cases of which 39(13%) was affected by infectious diseases where Unigwe *et al.*, 2016 reported that 28(38%) goat were affected by infectious diseases among 72 cases at Mokola Veterinary Hospital, Ibadan, Nigeria, from January 2009 –June 2013. Surgical affections were higher in goat which was 24 (8%) in compare to cattle (1.5%) and bird (0%). Most of the surgical cases of goat were castration (8%) in the age of below one month. This findings is contradicts with the reports of karim *et al.*, 2014

WHO reported 44% cases and 33% cases in urolithiasis and myiasis respectively whereas in our study urolithiasis case were 0.7 % and no myiasis case were recorded during my study period. Reproductive diseases in goat were about 0.3% in our study. This findings similar with Karim et al., 2014 who reported the reproductive disease were about 0.9% his one year study period at Upazilla Veterinary Hospital, Mohammadpur, Magura during his one year of study period.

In our study, total 309 animals were studied where 122(39.4%) diseased birds were detected. In the study it was found that bird of different aged were suffering from various diseases and disorders, where maximum no. of bird 74(25%) was affected by infectious diseases. Common infectious diseases were reported from the study like Newcastle Disease, pigeon pox, avian influenza and bronchitis. Bird of below 1 year of age (17%) were more susceptible to infectious diseases. our study revealed 20% Newcastle disease and 4% coccidiosis were recorded among 122 bird in the contrary, Islam et al.,2003 reported 6.73% New castle Disease and 9% coccidiosis among 1352 birds and Abbas et al., 2015 reported 9.20% Newcastle Disease and 4.20 % coccidiosis . In our study New castle disease was higher than other study; it may be due to different environment in our study area, managerial factors, feeding, poor disease diagnosis, vaccination etc. In this study, among 122 birds we found 20% duck was found to be infected by duck Plague virus and occurrence of pox 20% which was comparatively higher in pigeon 18%. It may be due to owner's were not conscious about vaccination schedule to prevent disease, did not maintain proper housing, feeding, environmental management etc.

## **CHAPTER 5**

### **CONCLUSION**

The study provides an overall idea on the occurrences of diseases and disorders in different species in comilla region. From our study we found that parasitic infections are high in aged cattle. In case of goat, surgical cases like castration and infectious diseases like PPR are high in percentage in below one year goat and in bird; infectious diseases occurred higher percent in compare to other diseases in the age group of below one year of age. It may be occurred due to lack of knowledge about the disease occurrence and its causes, clinical sign, control and prevention. Most importantly, farmers are not aware of taking any preventive step to control infectious diseases and parasitic infections. Environmental factor like temperature, humidity, housing, feeding, watering, and drainage may also be responsible for highly occurrence of infectious diseases. Therefore, we think farmers' training on management; disease control and prevention of livestock species could be beneficial.

## **CHAPTER 6**

### **LIMITATIONS**

1. My study period was too short.
2. Sample number of my study was small.
3. Sometimes diseases could not diagnosed accurately due to lack of facilities in the hospital.



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## **BIOGRAPHY**

I am Aparna Datta, daughter of Mr. Pijush Kanti Datta and Mrs. Archana Rani Datta. I passed secondary School Certificate examination in 2009 followed by Higher Secondary Certificate examination in 2011. Now I am an intern doctor under the Faculty of Veterinary Medicine in Chittagong veterinary and Animal Sciences University. In future, I want to develop myself as a veterinary practitioner. I have immense interest to work in the field of Medicine and Surgery.



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