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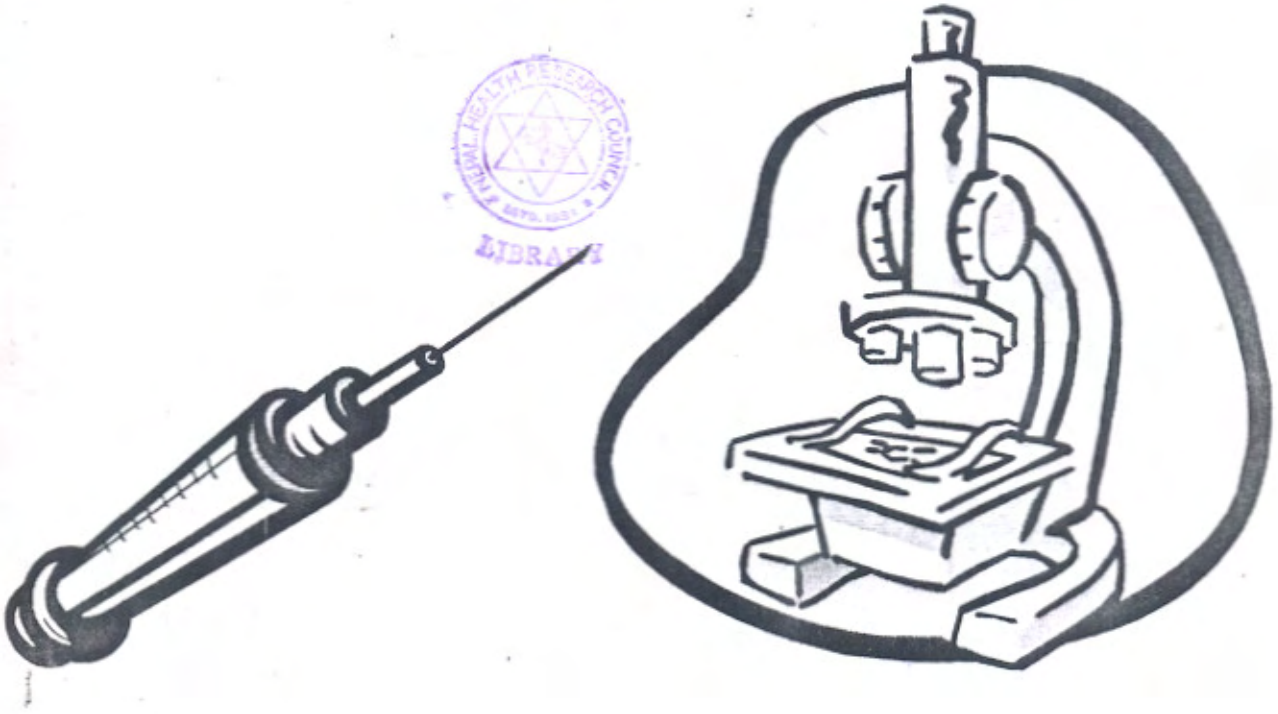
Rapid Diagnosis of Kala-azar in Dhanusha (2057-2058)



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PREFACE:-

It is a great opportunity for me to perform success research programme of rapid diagnosis of Kala-azar in Dhanusha electoral constituency area number five with my genuine friends. I am glad because I got good chance to learn lots of things besides research programme. This activity provided me a moral intelligency and how to perform a good research programme. For this I had to work hard, be punctual,and honest in the community work..

Leishmaniasis is a vector borne zoonotic disease caused by obligate intracellular protozoa of the genus Leishmania. The genus is specifically characterised by having two alternate form of development,i.e, "amastigote"form that occur in man and reservoir animal and "promastigote"form that develop in the invertebrate host, the sand flies.Phlebotomus spp.(sand flies) are responsible vector for all types of Leishmaniasis.

JANUARY, 2002

NARAYAN PURBE

ACKNOWLEDGEMENT:-

I am most grateful to NHRC for financial support and appreciation to the Life Care Hospital, Sundhara, Kathmandu, Kantipur Health Care Center, Chakrapath, Kathmandu and students of Institute of Medicine, who helped me to bring out this success.

I acknowledge Dr. Ravi Rauniyar, Mr. Hari Narayan Purbey, Mr. Bindeshwar Prasad Yadav, Dr. Ana Duwadi, Mr. Sanjay Kr. Shah, Mr. Raj, Kumar Shah and Mr. Shree Ram Mahaseth who helped all the time from very beginning of this study I also thank all the data collectors and analyzers for the for their genuine work. My special thanks goes to Prof. Jeevan bahadur Sherchand to provide me an opportunity for performing Urinary Antigen Detection Test free of cost in Infectious and Tropical Disease Research Centre, I.O.M., Maharajgunj, Kathmandu.

ABSTRACT:-

Dhanusha is one of the endemic districts of Kala-azar .I n our studies , out of 265 cases of patients with fever, darkening of skin, loss of weight, anaemia and usually spleenohepatology, 110(41.50%) cases were diagnosed as Kala-azar. laboratory investigations like bone marrow examination, K-39 dipstick test positive results diagnosed 41.5% cases as Kala-azar. so these two laboratory investigations are recommended as confirmatory tests in our study because of their high sensitivity(100%) and high specificity(100%). the main objective of our study is to investigate the possible early diagnostic tests about kala_azarin the context of Dhanusha district and to determine knowledge ,attitude, perception , prevention and control of Kala-azar by cases and surroundings . Our findings reveled that disease is progressively increasing from falgun to baisakh and decreasing slowly onwards. increasing numbers of cases are reported from Sakhuwa, Chandrapur,Sitapur,Mahendranagar,Dhalkebar,Sapahi and sinurjoda like villages which are Northern parts of Dhanusha districts near endemic areas of Siraha. Though the disease has been reported throughout the year, 45.45% of disease were reported from Falgun to Baisakh. It has been found males are affected (63.63%) more than female(36.37%) M:F=1.75:1. 55.45% of cases are found in age below 20 yearsthrough the age group above 20 years, 44.555 were affected. there were two mortalities during our study.

90.94% oeople have heard about Kala-azar. 56.60% people know about the spreading of disease by bites of sand-flies . 61.15% people can guess about the patient of Kala-azar by presence of fever , blackening of faces, heaviness of abdomen and weight loss. 86.79% are willing to treat the disease in hospital. 64.90% people know the prevention of disease by protecting from the bites of

sand-flies. Only 38.86% people know about the breeding of sand-flies in the crack and crevices in the room. 40.38% people know about the prevention of breeding of sand-flies by insecticide spray and burying cracks and crevices in the room. 79.62% people do not believe about the disease is fate of past event. Only 32.45% people believe about Kala-azar is a congenital disease in utero.

High incidence of disease is due to not aware of spreading of disease, habitat of sand fly, risk factors, protective device and proper treatment.

Though the disease is more common among in farmers ,Students group also bears high incidence of Kala-azar cases. Regarding ethnic group like Donwar, Sada, Mochi, Muslim, Teli, Suri, Yadav, Mandal, Paswanare mostly affected by disease.

Government policies are not sufficient to cope with the situation in the district. Active community participation, in planning, implementation, supervision and monitoring is necessary for successful implementation of Kala-azar control activities in the district

Key words: Leishmaniasis, Kala-azar.

DEFINITION OF LEISHMANIASIS:-

The term Leishmaniasis refers collectively to various clinical syndromes that are caused by obligate intracellular protozoa of the genus Leishmania. Leishmaniasis is endemic in diverse etiologic settings in the tropics and sub-tropics, ranging from deserts to rain forests and from rural to periurban areas. It typically is a vector-borne zoonosis, with rodents, small mammals, and canines as common reservoir hosts and humans as incidental hosts. In humans, visceral,cutaneous mucosal Leishmaniasis result from infection of macrophases throughout the mononuclear-phagocyte system, in the skin ,and in the naso-oropharyngeal mucosae, respectively. The age range of infected people depends on such factors as the duration of Leishmaniasis endemicity in the specific geographic area , sand fly behavior and host behavior,and immunity. Regarding types of Leishmaniasis, cutaneous type is caused by Leishmania tropica major and Leishmania tropica minor, mucocutaneous type is caused by Leishmania braziliensis, Leishmania mexicana; and visceral Leishmaniasis is caused by Leishmania donovani.Phlebotomus spp.(sand flies) are responsible vectors for all type of Leishmaniasis. The genus is specifically characterised by having two alternate form of development ,i.e. "amastigote" form (Leishmanial or aflagellate form) that occurs in man and reservoir animals and "promastigote" form (leptomonad or flagellate form) that develop in the invertebrate host ,the sand flies.

Leismaniasis gives rise to important public health problems in Dhanusha district electoral constituency area number five.

PROJECT TITLE:-

Rapid Diagnosis of Kala-azar in rural area of Nepal

BACKGROUND:-

Kala-azar is one of the re-emerging disease in Nepal. Eleven Terai districts bordering the

Indian state of Bihar are selectively affected by Kala-azar .Currently a total of 5.5 million people are at risk of disease.

In Nepal during 1980-1998 (till November), total of 13,251 cases and 320 deaths have been recorded and the case fatality rate was varied from 0.23% to 13.2%. However, during last five years, the occurrence of disease outbreaks and cases of Kala-azar have increased significantly, because 1,368 cases of Kala-azar with 5 deaths were reported in the year 1993, 1976 cases with 9 deaths in 1994,1790 cases with 9 deaths in 1995, 1571 cases with 55 deaths in 1996 and 1,230 cases with 10 deaths in 1997 have been reported and recorded in Nepal(Bista et al 1993, Bista 1998).

Visceral Leishmaniansis (Indian Kala-azar) was first appeared in Eastern Tetrai parts of Nepal during 1982. Dhanusha and Siraha districts were mostly affected. The study on the epidemic situation with regards to Kala-azar was reviewed, the survey was conducted in all 18 terai endemic districts for the collection of morbidity and mortality statistics from different hospitals, health posts and health centres during 1996 and 1997. The age and sexwise Kala-azar cases were tabulated. It has been found that children are more affected than adult because the CFR. in male child was 13% and 11% compared to female 8% and 13% during the years 1996 and 1997 respectively whereas in male adult 4% and female 3% CFR. . Kathmandu capital city of Nepal which is non-endemic for Kala-azar although Sand flies (Phlebotomus Spp.) are present. However, there are 100-150 imported cases admitted and treated in infectious disease Hospital, Teku, Kathmandu during 1996 and 1997. They had infections in endemic districts of Terai before coming to Kathmandu. Kala-azar cases in Sarlahi, Udaypur, Bara, Lahan and Siraha districts had recorded Kala-azar cases 696 with 11% CFR., 1160 cases with 7% and 766 cases with 5% CFR during the year 1995,1996 and 1997 respectively. Cases of Leishmaniasis have been reported since 1980. The affected area of Nepal is in the eastern part of the country. Siraha, Dhanusha and Mahottary districts are considered endemic with the disease. Sporadic cases have been reported from other districts of the Country. Leishmaniasis cases reported in Nepal 70 in 1985, 166 in 1986, 127 in 1987, 398 cases in 1988, 500 cases in 1989, and 900 cases in 1990. These reported cases based on hospital report. There are more than 10 folds increase of cases in 1990 when

compared to 1985/86. A research proposal was developed in 1983 to conduct a baseline epidemiological study on visceral Leishmaniasis in Dhanusha district as a pilot project. This was approved by Nepal Medical Research Committee, Ministry of Health, HMG. This Project was supported by UNDP/World Bank/WHO special program for Research and Training in Tropical Diseases(TDR) (Joshi 1985). Eastern part of Terai are endemic areas and foci of Kala-azar. On occasions the disease had reached epidemic proportions in Dhanusha, Siraha, Saptari and Morang districts. From the epidemiological study, the morbidity and mortality of Kala-azar cases reported from 15 different hospitals during the year 1984/85 and aggregate cases and death for the years 1980/81 to 1984/85. It is seen from that altogether 557 cases were reported and 47 died. This is now alarming situation for the country and time to take necessary action against this disease. A study was conducted in Morang district, Eastern Nepal, to determine the prevalence and disease spectrum of visceral Leishmaniasis. The results showed that out of 183 cases, visceral Leishmaniasis occurred in 154 cases in 1988 and in out of 85 cases, 60 cases were found to be so in 1989. In the community, it seems that the most important factors affecting prevalence of Leishmaniasis infection were socio-economic status, living conditions, environmental sanitation and the behavior, practices of the population (Joshi et al 1990). A study Conducted in Siraha district showed 83% infection rate in those below 30 years . The sex ratio between the male and female was 2.2:1. Generally disability, malnutrition, epidemic of malaria, out break of influenza are some of the conditions which make the population more susceptible to the disease. In 1988, there were 177 cases detected after screening 451 individuals who were initially suspected of Kala-azar. There were many imported cases of Kala-azar admitted and recorded in Nepal.(Bista et al 1993, Bista 1998).

Dhanusha district, one of the endemic districts for Kala-azar, is located in Janakpur Zone. On 20th Jestha 2057 "GORKHA PATRA" published news about Kala-azar in Dhanusha electoral constituency number five. According to this news, 82 patients were died of Kala-azar. There are 101 V.D.C. in Dhanusha district out of which 65 V.D.C. are affected by Kala-azar . 5,19,486 people are at risk in Dhanusha. Kala-azar has been a public Health problem in Dhanusha district . Since disease is endemic in the adjacent Bihar state of India and there is a free migration of people between the two countries for

Socio-economic and cultural reasons. The V.D.C.s, situated close to the Bihar border have reported increased number of Kala-azar cases every year.

Dhanusha district has diversity in casts, ethnic groups, culture and socio-economic status. Chamar, Donwar, Sada, Teli, Suri, Yadav, Mallaha, Muslim, Paswan etc. are the economically and socially disadvantaged communities. The main occupation of the people in Dhanusha is Agriculture. Most of the people live there, have houses of bamboo and thatched roofs. It is common to find human beings living with their domestic animals under the roof in the cowsheds. The climate of the district is tropic and humid. The Monsoon usually starts in the month of June and continues till September. The average annual minimum and maximum temperature is about 16^{o} C. to 20^{o} C. and 27 ^{o} C. to 35 ^{o} C. respectively. All these conditions are responsible for propagation or transmission of Kala-azar. So some mechanism should be developed jointly by the concerned authorities of the both country for prevention and control of disease .

TARGET:-

To reduce misdiagnosis of the patients with Kala-azar in terms of laboratory investigation and develop knowledge, attitude , perception prevention and control of Kala-azar.

OBJECTIVES:-

1. To investigate the possible early diagnostic tests about Kala-azar in the context of Dhanusha district.
2. To determine knowledge, attitude and perception about Kala-azar in the community.
3. To encourage communities in minor environmental manipulations facilitating Kala-azar control
4. To suggest the future research, prevention and control activities on Leishmaniasis.

PROJECT DESIGN AND METHODOLOGY :-

1. **RESEARCH DESIGN:-** This study was experimental analytical study. Patients with fever with or without spleenohepatomegaly with concerning clinical signs and symptoms were proceeded for malaria parasite test in the peripheral blood smear. If malaria parasite was not seen, the patient was proceeded for Laboratory investigations for Kala-azar.

2. STUDY AREA:- Dhanusha district electoral constituency area number five has diversity in castes, ethnic groups, culture and socio-economic status. Farmers, Students, poor standard of living, poor life style people are taken under our study area.

3. SAMPLE DESIGN:-

A. Study population:- A study of lower castes, false health belief ethnic group, poor socio-economic status people were chosen under study population

B. Sampling Technique:- random sampling.

4. SAMPLE SIZE:- The sample size was **265**.

5.METHODOLOGY:-

A. **SOCIO-ECONOMIC STUDY**:-A community based study on socio-economic status of Dhanusha district electoral constituency area number five, Kala-azar cases and community participation with regards to Kala-azar case identification, reporting to the health authorities in time for the treatment, was carried out by the survey team.

Preliminary socio-economic and health belief study of the population of Leishmaniasis area of Dhanusha district electoral constituency area number-five was carried out. The information on the following topics were collected during the survey period by the team:-

1. COMMUNITY PROFILE:-

A. Types of houses

B. Movement of activity by gender

C. Types of ethnic group with relation risk of getting Leishmaniasis

2. KNOWLEDGE, ATTITUDE, PERCEPTIONS, HEALTH BELIEF AND BEHAVIOUR TOWARDS LEISHMANIASIS.

A. Knowledge of attitude

B. Source of knowledge received for Leishmaniasis

(I) Signs and symptoms

(II) Risk factors

(III) Protective devices

(IV) Use of mosquito net

(V) Mode of transmission

(VI) Medicine for treatment

(VII) Their action (attitude) after getting disease

(VIII) Health belief

C. SELECTING IN THE ANIMALSHED RISK FACTOR

D. SELECTING IN THE ANIMALSHED RISK WITH LEISHMANIAL PATIENT DWELLING OR LIVING TOGETHER IN THE SAME ROOM

E. LEISHMANIASIS AS A SOCIAL PROBLEM IN THE COMMUNITY

F. BELIEF ON TRADITIONAL HEALERS

G. BELIEF ON MEDICAL DOCTORS IN HOSPITAL

H. SOCIO-ECONOMIC STATUS FOR FUNDING RESOURCES AT THE COMMUNITY

I. SOCIO-BEHAVIORAL RISK FACTORS

B. DIAGNOSIS OF LEISHMANIASIS CASES WITH FEVER & WITH OR WITHOUTSPLEENOHEPATOMEGALY:-

Patients were checked up by health care practioners and tested for malaria parasites in the peripheral blood smear. If malaria parasites were not detected , they were proceeded for Laboratory investigations for Kala-azar as follows:-

1. Total count like WBC, RBC and Platelet were performed and presence or absence of pancytopenia was observed.
2. Differential count was performed and percentage of monocyte was observed .
3. Normal or raised level of ESR test and reduced level of Haemoglobin were observed.
4. Positive or negative results of Aldehyde test , K-39 Dipstick test , Urinary Antigen Detection Test and finally Bone Marrow test were observed.

NOTE: The result of K-39 Dipstick and Bone Marrow tests were considered as gold standard result for Kala-azar.

RESULTS:-

GEOGRAPHICAL DISTRIBUTION OF KALA-AZAR CASES:-

Kala-azar cases are widely spreading throughout the Northern part of the district. The V.D.C.s situated near the Siraha district are most affected. There is decrease in frequency of disease in the Southern area of Dhanusha district. We found decrease pattern of diseases in Sakhuwa, Chandrapur, Mahendranagar, Sitapur, Dhalkewar, Bhuchakrapur, Sinurjoda, Sapahi, Bhagwatipur, Baniniya etc. respectively.

SEASONAL DISTRIBUTION:-

Although Kala-azar cases have been reported throughout the year, maximum number of cases are reported in the months of Falgun, Chaitra and Baisakh. Increasing pattern of Kala-azar starts from poush and reaches in the peak in the month of falgun and chaitra. After chaitra, Kala-azar cases decrease gradually and remain at a lower for the rest of period (fig:-1). The increase number of cases in the above months was due to the area situated near endemic region of Siraha district, poor life style, agriculture work, cowshed living, poor standard of living etc.

AGE AND SEX DISTRIBUTION:-

The total number of male and female affected by Kala-azar disease is 70 and 40 respectively (Fig:-3). The results clearly indicate that there is predominance of male population affected by Kala-azar in Dhanusha district. During our study period, sample size was 265 and positive cases of Kala-azar were 110. Out of 110, males were near 63.63% and females were near 36.37%. Hence, the affected ratio of male and female is 1.75:1. When age is considered, the population most affected by Kala-azar is below 20 year. The next common age affected is 20-30 (fig:-2).

OCCUPATION DISTRIBUTION:-

The decreasing pattern of Kala-azar cases were farmers, students, play group and Businessman. Quantitatively, Farmers were 68(61.81%), students 27(24.56%), play group 9(8.18%), bussinessman6(5.45%). The peak incidence of Kala-azar disease was found in farmers because of their poor life style and poor living standard.

INTERPRETATION OF LABORATORY RESULT:-

Total number of patients with fever were checked up by medical practioner. About 60 patiets had spleenohepatomegaly. They were proceeded for Laboratory investigations. According to Laboratory investigations, 110 patients were diagnosed as Kala-azar patients. The results were as follows:-

1. Out of 110 Kala-azar patients , 59(53.69%) cases showed low WBC count while 51 cases showed lower limit of normal range of WBC count.

2.Out of 110 positives cases of Kala-azar , 106(96.36%) cases showed reduced hemoglobin level.

3. Regarding diffrential count, Monocytes were found to be about upper limit of normal range.

4. All the 110 Kala-azar patients showed increased level of ESR.

5. Regarding Aldehyde test, 115 cases showed Aldehyde test positive while K-39 dipstick showed 110 cases of Kala-azar as positive cases and Bone Marrow examination showed only 103 cases of Kala-azar as positive cases. Those patients who were not suffering from leishmaniasis showed Aldehyde test positive result but those patients with disease did not show negative result of Aldehyde Test . So Aldehyde test can be taken as screening test but not confirming test.

8. Out of 110 positive cases, we found 110 cases of K-39 dipstick positive cases in our study. we found 105 cases Bone Marrow positive result. In comparision with 105 cases of Bone Marrow positive result there was not even a single negative of K-39 dipstick test. So K-39 has very high sensivity (100%) . Hence , Bone Marrow examination and K-39 dipstick test can be considered as "GOLD STANDARD".

DISCUSSION:-

Kala-azar has been a public health problem in Dhanusha district. Out of 265 number of patients with fever, 110 (41.50%) Kala-azar patients has been identified in our study during one year of research programme . Among 110 patients, 70 (63.63%) males and 40 (36.37%) females are identified in northern part of Dhanusha district. Increasing number of Kala-azar cases are reported every year from Sakhuwa, Chandrapur, Mahendranagar, Sitapur, Dhalkewar, Bhuchakrapur, Sapahi and Sinurjoda villages.

The bio-climatic conditions, poor life style are necessary for survival and multification of the sand fly. These situation along with near region of endemic area of Siraha and Bihar state of India are also responsible for increasing number of disease. Although Kala-azar is endemic, This disease is progressively increasing from Falgun to Chaitra in selected cases of patients with fever. Then disease is moderately increasing from Baisakh to Ashadh of the year. After Ashadh there is gradual fall in the incidence of disease. It could be attributed either to increase in the vector density during the rainy season or high transmission rate of the disease. Our studies have shown that bad housing condition and cowshed dwelling with cracked wall in the rural communities may be responsible for increased number of cases of Kala-azar in rainy season. Another reason could be male migration to other endemic districts within the country or to Bihar state in India, exposing themselves more to the risk factors for Kala-azar.

Due to the hot and humid climate of the "Terai", males usually do not wear proper clothing and keep their arms and feet exposed and easily bitten by sand fly.

Kala-azar is a significant challenge to below 20 years of age because incidence of disease predominantly found in children and Leishmania donovani primarily infects the young children. In our studies, 61(55.45%) of Kala-azar cases are found in ages below 20 years. It could be either due to malnutrition or under-nutrition which is prevelant in rural communities of Dhanusha district. In malnutrition or under-nutrition child, there is reduction of cell-mediated immunity and is more prone to the development of Kala-azar in the endemic areas. The relative risk of developing severe Kala-azar has been 8.7 times greater among children with moderate to severe malnutrition.

Actually communities are not aware of the spreading of disease, habitat of sand fly risk factors, protective devices and proper treatment. Exposure usually occurs in the domestic environment chiefly crowded houses with attached cowsheds, poor life style and poor standard of living pattern. Kala-azar controal programme is unable to spray incecticides throughout the whole district due to problem in enough budget.

Regarding the laboratory diagnosis of disease, K-39 dipstick test and Bone Marrow examination are good indicators for diagnosing Kala-azar. In one study by Joshi A.B.(use of recombinant K-39 dipstick test in a setting endemic for visceral leishmaniasis in Nepal April 6,2000), the sensitivity of K-39 dipstick test showed 100%. Our study also showed the sensitivity of K-39 dipstick test was 100%

90.94% people have heard about Kala-azar. 56.60% people know about spreading of disease by the bites of sand-flies. 61.15% people can guess about patient of Kala-azar by presence of fever, blackening of faces, heaviness of abdomen and weight loss. 86.79% people are willing to treat the diseases in the hospital. 64.90% peolple know the prevention of disease by protecting from the bites of sand-flies. Only 38.86% know about the breeding of sand flies in the crack and crevices in the room. 40.38% people know about the prevention of breeding of sand flies by incecticide spray and burying cracks and crevices in the room. 79.62% people do not believe about the disease is fate of past event. Only 32.45% people believe about Kala-azar is a congenital disease in utero.

MORTALITY:-

During our study, there were two deaths of Kala-azar patients . Now-a-days, case fatality rate is decreasing.

SOCIO-ECONOMIC INFLUENCE:-

The disease has been found to be more common among the poor socio-economic groups, though the disease is more common among farmers, students group also bear high incidence of Kala-azar cases. Regarding ethnic group like Donwar, Sada, Mochi, Suri, Teli, Yadav, Mandal, Paswan, Muslim are mostly affected by the disease.

RECOMMENDATION:-

Kala-azar in Dhanusha is a progressive public health problem. In our study, out of 265 samples, 110 cases are identified as Kala-azar cases with occasional deaths. Governmental policy is not sufficient for Kala-azar control. Following recommendation would be beneficial for successful implementation of Kala-azar activities in the district:-

- Massive health awareness with community participation under the primary health care approach should be initiated for prevention and control of Kala-azar.
- The need of special training on the management of Kala-azar cases should be provided to the district public-health staffs and medical officers working in the hospital and primary health centre in the endemic areas.
- Community health personnel(health assistant, AHW, ANM, CMA etc.), leader , volunteers etc. should be trained using the primary health care approach to recognize the Kala-azar cases .
- Better reporting and recording system should be set up. Laboratory investigations should be performed with high accuracy and high precision. K-39 dipstick test and Bone Marrow positive results of patients with fever are good diagnostic indicators of Kala-azar cases. So, K-39 dipstick strip and materials for Bone Marrow examination should be available in the endemic areas like Dhanusha.

- Every patient with fever should be early screened by serum Aldehyde Test and cofirmed by K-39 dipstick Test and Bone Marrow positive result.
- A long turn Kala-azar control programme, for a minimum of five years, should be initiated in the Dhanusha and adjacent Districts.
- A successful health awareness campaign on Kala-azar control should be initiated with active community participation.
- Anti-Kala-azar drugs should be available in sufficient quantity in the endemic areas and emphasis should be given for the administration of full course of the anti-Kala-azar treatment to prevent drug failure and relapse.
- considering the severity , the operational research should be carried out.
- Due to open border and free population migration between Nepal and India, there should be co-ordinated efforts between two countries for Kala-azar control. So, some mechanism should be developed jointly by the concerned authorities of both the countries for the prevention and control of the disease.

ANNEX-I

RESEARCH PROGRAMME ON " RAPID DIAGNOSIS OF KALA-AZAR" DHANUSHA

Name: Age/Sex:-

Address:- Occupation:-

1. Have you heard about Kala-azar?
   a. Yes b. No.
2. What is it?
   a. A communicable Disease b. Non-communicable Disease
   c. Others.
3. How does it spread?
   a. By the bite of sand fly b. by drinking dirty water
   c. Others
4. How will you recognize a person suffering from Kala-azar?
   a. Fever & blackening of face b. Diarrhoea
   c. Others
5. Is this treatable?
   a. Yes b. No
6. Where can we get its treatment?
   a. Hospital b. Tantra/mantra
   c. Plant stem/leaves d. Others
7. Is this curable with treatment?
   a. yes b. No
8. How long its treatment is given to the patient?
   a. One month b. Life long
   c. Others
9. How can this disease be prevented?
   a. By protecting from sand fly bite b. by drinking clean water
   c. Others
10. Where does the sand fly breed?
    a. Cracks / crevices of room b. Dirty water/place/sheds
    c. both d. Others
11. How is the fly breeding prevented?
    a. Insecticide spray b. Burying cracks & Crevices
    c. Both d. Others
12. Have you seen the patient suffering from Kala-azar?
    a. Yes b. No
13. is Kala-azar fate of past event?
    a. Yes b. No
14. Is Kala-azar a congenital disease in Utero?
    a. Yes b. No

INTERVIEWERS

ANNEX-II

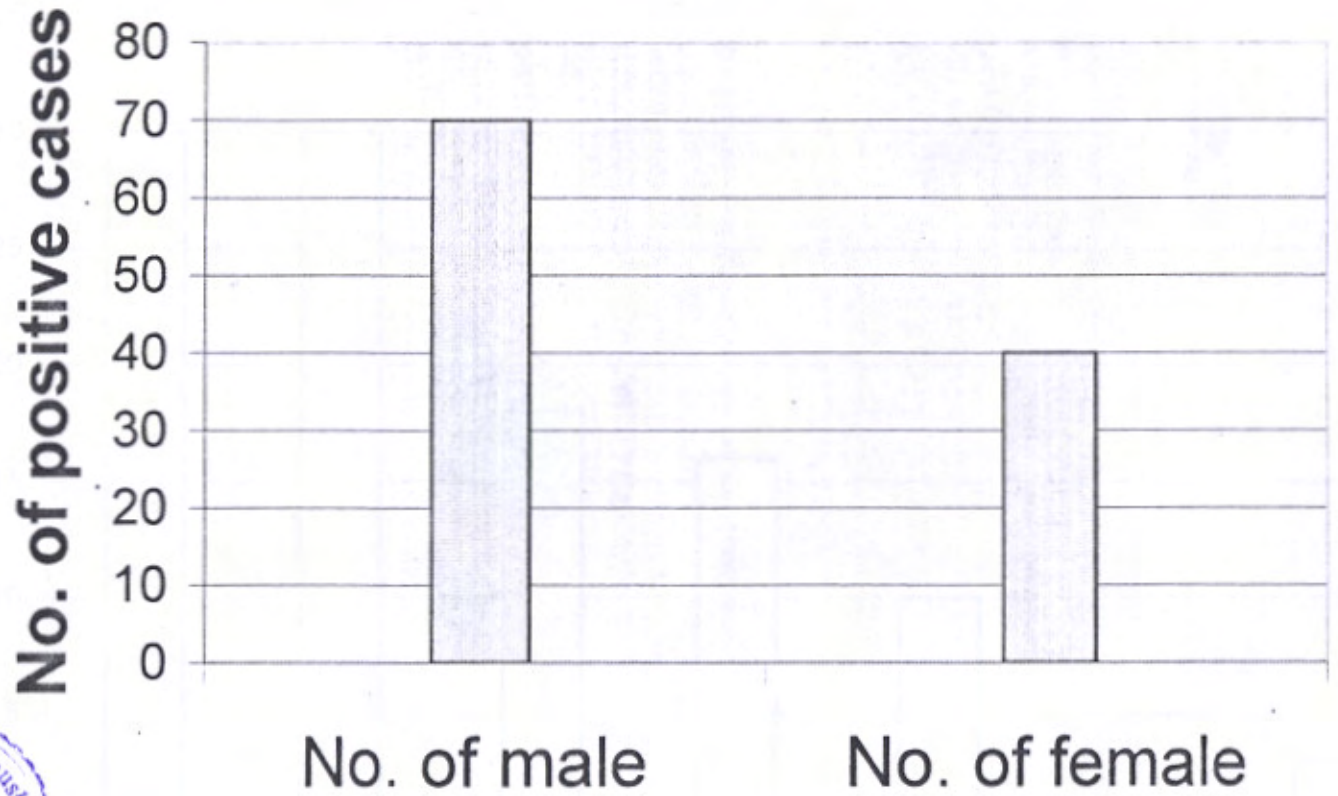

fig:-3

AGEWISE DISTRIBUTION OF KALA-AZAR CASES

ANNEX-III

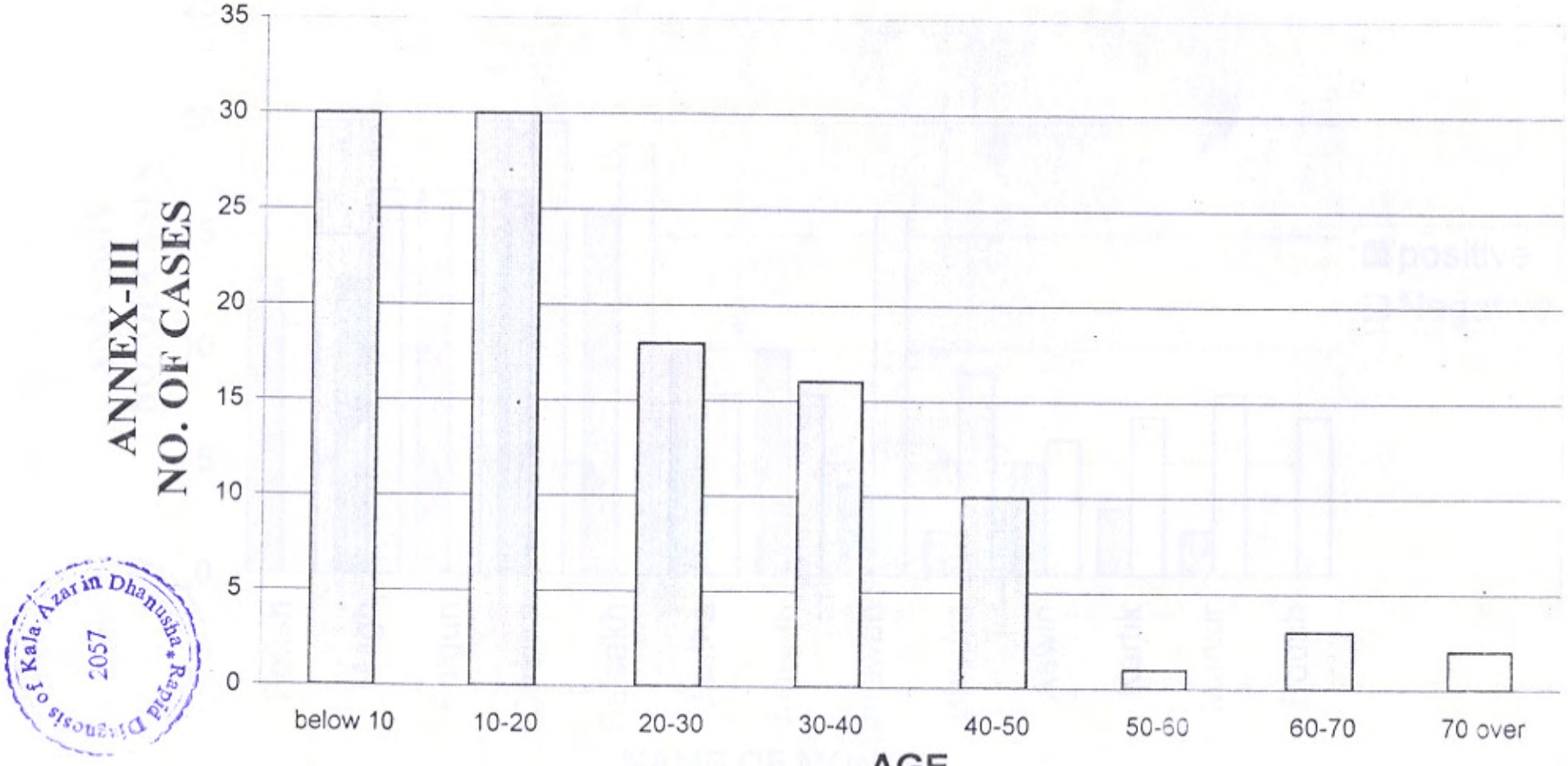

fig:-2

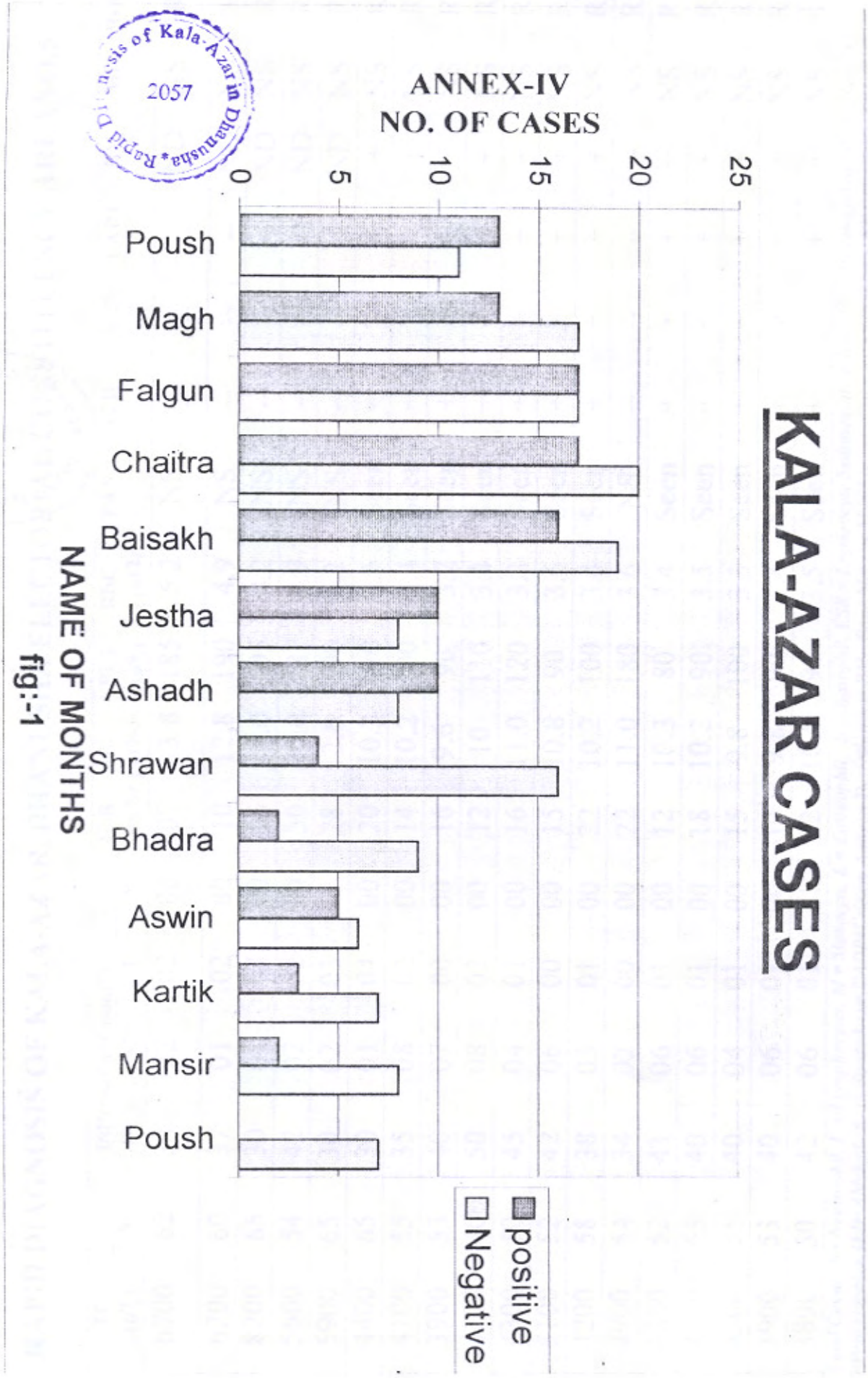

fig:-1

ANNEX-V

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREANO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	Mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
1	6700	62	34	02	02	00	07	13.8	185	5.2	NS	–	–	–	ND	NS	Rx
2	6200	60	37	01	02	00	10	12.8	190	4.9	NS	--	--	--	ND	NS	Rx
3	8200	65	30	01	04	00	35	11.0	195	4.2	NS	--	--	--	ND	NS	Rx
4	5600	54	42	02	02	00	30	10.8	187	3.9	NS	--	--	--	ND	NS	Rx
5	5900	65	30	02	03	00	28	12.6	190	4.2	NS	--	--	--	ND	NS	Rx
6	4400	65	30	01	04	00	20	10.3	110	3.5	Seen	+	+	+	+	NS	Rx
7	4100	55	35	08	02	00	14	10.2	100	3.4	Seen	+	+	+	+	NS	Rx
8	3900	53	40	07	00	00	16	9.6	90	3.2	Seen	+	+	+	+	NS	Rx
9	4100	40	50	08	02	00	12	10	110	3.4	Seen	+	+	+	+	NS	Rx
10	4300	50	45	04	01	00	16	11.0	120	3.8	Seen	+	–	+	+	NS	Rx
11	5100	52	42	06	00	00	15	10.8	90	3.6	Seen	+	–	+	+	NS	Rx
12	4200	58	38	03	01	00	22	10.2	100	3.4	Seen	+	+	+	+	NS	Rx
13	4900	54	34	02	00	00	22	11.0	180	3.6	NS	--	--	--	--	NS	Rx
14	4300	52	41	06	01	00	12	10.3	80	3.4	Seen	+	+	+	+	NS	Rx
15	4100	53	40	06	01	00	18	10.2	90	3.5	Seen	+	+	+	+	NS	Rx
16	4500	55	40	04	01	00	15	9.8	100	3.3	Seen	+	+	+	+	NS	Rx
17	3900	53	40	06	01	00	17	9.8	90	3.4	Seen	+	+	+	+	NS	Rx
18	3800	50	42	06	01	01	22	10.5	95	3.5	Seen	+	+	+	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lymphocytes, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done, Rx = Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
19	4000	53	40	06	01	00	27	11.0	125	4.2	Seen	+	+	+	+	NS	Rx
20	8200	64	30	02	03	01	15	12.5	180	4.2	NS	--	--	--	ND	NS	Rx
21	7200	65	30	01	04	00	16	12.2	200	4.1	NS	--	--	--	ND	NS	Rx
22	8200	63	30	02	04	01	18	12.2	190	4.2	NS	--	--	--	ND	NS	Rx
23	7800	69	27	02	02	00	13	11.2	190	3.9	NS	--	--	--	ND	NS	Rx
24	7800	69	27	02	02	00	13	11.2	190	3.9	NS	--	--	--	ND	NS	Rx
25	4200	43	50	06	01	00	24	10.5	95	3.7	Seen	+	+	+	+	NS	Rx
26	3800	56	40	04	00	00	23	9.8	110	3.3	Seen	+	+	+	+	NS	Death
27	3800	56	40	04	00	00	24	10.5	100	3.6	Seen	+	+	+	+	NS	Rx
28	6700	67	30	01	02	00	26	10.2	105	3.5	NS	--	--	--	ND	NS	Rx
29	4200	56	38	05	01	00	24	10.3	115	3.6	Seen	+	+	+	+	NS	Rx
30	4200	51	42	06	01	00	22	10.5	95	3.5	Seen	+	+	+	+	NS	Rx
31	7800	67	28	02	03	00	27	12.8	115	4.5	NS	--	--	--	ND	NS	Rx
32	6400	61	34	02	03	00	24	13.2	145	4.8	NS	--	--	--	ND	NS	Rx
33	4600	60	30	07	03	00	22	12.5	125	4.3	Seen	+	+	+	+	NS	Rx
34	4600	62	31	06	01	00	23	10.1	120	3.4	Seen	+	+	+	+	NS	Rx
35	4300	60	35	04	01	00	24	10.8	125	3.8	Seen	+	+	+	+	NS	Rx
36	7800	65	32	01	01	01	14	14.2	190	4.7	NS	--	--	--	ND	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen,ND =Not done,Rx =Treated
-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab. Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

Kala Azar in Dhanusha
2057

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
37	7400	69	30	01	00	00	15	13.2	210	4.6	NS	--	--	--	ND	NS	Rx
38	6700	67	30	01	02	00	17	13.4	195	4.8	NS	--	--	--	ND	NS	Rx
39	8200	72	22	02	O4	00	21	10.9	160	3.6	NS	--	--	--	ND	NS	Rx
40	6900	78	20	00	01	01	34	14.2	200	4.8	NS	--	--	--	ND	NS	Rx
41	2550	62	30	06	02	00	23	10.9	95	3.7	Seen	+	+	+	+	NS	Rx
42	8700	70	28	00	02	00	12	13.0	180	4.4	NS	--	--	--	ND	NS	Rx
43	7000	70	28	02	00	00	14	14.2	250	4.6	NS	--	--	--	ND	NS	Rx
44	6800	70	30	00	00	00	13	13.7	220	4.4	NS	--	--	--	ND	NS	Rx
45	9000	68	28	02	01	01	14	14.0	210	4.5	NS	--	--	--	ND	NS	Rx
46	6800	70	30	00	00	00	18	12.2	180	4.2	NS	--	--	--	ND	NS	Rx
47	8000	78	20	02	00	00	27	14.6	200	4.8	NS	--	--	--	ND	NS	Rx
48	6000	76	20	02	02	00	26	14.0	190	4.7	NS	--	--	--	ND	NS	Rx
49	7600	67	32	01	00	00	24	14.0	190	4.6	NS	--	--	--	ND	NS	Rx
50	6200	62	34	01	02	00	22	11.2	180	3.9	NS	--	--	--	ND	NS	Rx
51	4300	62	30	05	02	01	24	10.2	95	3.5	Seen	+	+	+	+	NS	Rx
52	4500	57	40	03	00	00	36	10.2	70	3.8	Seen	+	+	+	+	NS	Rx
53	4700	60	33	05	02	00	23	10.6	105	3.9	Seen	+	+	+	+	NS	Rx
54	5100	60	30	07	02	01	34	10.8	90	3.7	Seen	+	+	+	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen,ND =Not done,Rx =Treated
-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab technician

HARI NARAYAN PURBEY
medical lab technologist

Rapid Diagnosis of Kala Azar in Dhanusha 2057

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
55	3900	49	42	08	01	00	24	10.3	105	3.5	Seen	+	+	+	+	NS	Rx
56	7600	75	20	03	02	00	18	15.0	260	5.1	NS	--	--	--	ND	NS	RX
57	5600	67	30	02	01	00	24	12.8	230	4.8	NS	--	--	--	ND	NS	Rx
58	5700	68	28	03	01	00	28	14.0	195	4.9	NS	--	--	--	ND	NS	Rx
59	5800	68	30	02	00	00	23	13.3	190	4.6	NS	--	--	--	ND	NS	Rx
60	7800	78	20	02	00	00	23	14.5	230	5.2	NS	--	--	--	ND	NS	Rx
61	8600	65	30	04	01	00	27	12.6	250	4.4	NS	--	--	--	ND	NS	Rx
62	4500	60	30	07	03	00	23	10.3	90	3.8	Seen	+	+	+	ND	NS	Rx
63	4300	60	34	05	01	00	22	10.2	100	3.4	Seen	+	+	+	+	NS	Rx
64	4300	70	25	05	00	00	32	10.4	90	3.4	Seen	+	+	+	--	NS	Rx
65	3800	50	45	04	01	00	34	10.2	80	3.3	Seen	+	+	+	+	NS	Rx
66	7600	70	25	05	00	00	22	12.5	200	4.3	NS	--	--	--	ND	NS	Rx
67	5200	56	40	03	01	00	32	10.6	190	3.7	NS	--	--	--	ND	NS	Rx
68	6700	65	30	05	00	00	30	13.9	180	4.9	NS	--	--	--	ND	NS	Rx
69	4200	64	28	05	03	00	22	10.2	90	3.8	Seen	+	+	+	+	NS	Rx
70	2500	48	45	06	01	00	25	9.2	85	3.5	Seen	+	+	+	+	NS	Rx
71	3900	60	30	07	02	00	24	10.0	70	3.3	Seen	+	+	+	+	NS	Rx
72	6700	65	30	03	02	00	12	13.9	170	4.8	NS	--	--	--	ND	NS	Rx
73	3800	60	30	07	03	00	26	9.6	90	2.9	Seen	+	+	+	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND=Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab technician

HARI NARAYAN PURBEY
medical lab technologist

Rapid Diagnosis of Kala-azar in Dhanusha

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
74	3800	60	30	07	03	00	26	9.6	90	2.9	Seen	+	+	+	+	NS	Rx
75	3500	45	45	07	03	00	24	10.4	90	3.8	Seen	+	+	+	+	NS	Rx
76	7200	68	30	02	00	00	24	12.0	190	4.2	NS	--	--	--	ND	NS	Rx
77	2900	50	44	05	01	00	33	9.8	100	3.7	Seen	+	+	+	+	NS	Rx
78	3700	56	40	03	01	00	36	10.8	105	4.0	Seen	+	+	+	+	NS	Rx
79	3900	55	40	04	01	00	27	10.2	120	4.0	Seen	+	+	+	+	NS	Rx
80	4300	56	38	04	02	00	39	10.2	95	3.4	Seen	+	+	+	+	NS	Rx
81	5100	58	36	06	00	00	25	10.2	100	3.5	Seen	+	+	+	+	NS	Rx
82	8900	70	21	04	04	01	14	14.3	240	4.9	NS	--	--	--	ND	NS	Rx
83	6800	67	26	06	01	00	13	13.5	220	4.4	NS	--	--	--	ND	NS	Rx
84	7500	76	20	02	02	00	30	14.0	210	5.0	NS	--	--	--	ND	NS	Rx
85	3800	57	35	05	02	01	27	9.2	90	2.8	Seen	+	+	+	+	NS	Rx
86	7600	67	28	04	01	00	26	14.0	200	5.1	NS	--	--	--	ND	NS	Rx
87	6800	73	22	03	02	00	25	13.0	220	4.2	NS	--	--	--	ND	NS	Rx
88	5600	65	30	02	03	00	28	12.6	190	4.3	NS	--	--	--	ND	NS	Rx
89	4500	55	40	05	00	00	35	8.9	99	3.9	Seen	+	+	+	+	NS	Rx
90	4000	50	45	03	02	00	34	8.7	110	4.0	Seen	+	+	+	ND	NS	Rx
91	5200	60	30	08	02	00	42	9.3	97	4.5	Seen	+	+	+	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT = Plutelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen,ND =Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab technician

HARI NARAYAN PURBEY
medical lab technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
92	3800	65	30	04	01	00	37	8.6	80	3.8	Seen	+	+	+	+	NS	Rx
93	3500	60	34	06	00	00	42	8.9	85	3.9	Seen	+	+	+	+	NS	Rx
94	3800	56	40	04	00	00	35	9.0	90	4.0	Seen	+	+	+	+	NS	Rx
95	4100	60	35	04	01	00	35	9.2	75	3.9	Seen	+	+	+	+	NS	Rx
96	3800	56	40	04	00	00	38	9.2	90	3.7	Seen	+	+	+	+	NS	Rx
97	4200	60	35	04	01	00	27	8.7	80	3.3	Seen	+	+	+	+	NS	Rx
98	4100	56	40	04	00	00	22	10.0	95	3.9	Seen	+	+	+	+	NS	Death
99	3900	60	30	08	02	00	37	9.2	92	3.4	Seen	+	+	+	+	NS	Rx
100	7800	72	23	05	00	00	23	13.0	230	4.5	NS	--	--	--	ND	NS	Rx
101	5600	65	34	01	00	00	23	13.2	290	4.6	NS	--	--	--	ND	NS	Rx
102	6800	56	40	02	02	00	22	12.6	230	4.2	NS	--	--	--	ND	NS	Rx
103	7600	67	30	02	01	00	16	13.3	220	4.6	NS	--	--	--	ND	NS	Rx
104	8200	60	35	02	03	00	18	12.8	200	4.3	NS	--	--	--	ND	NS	Rx
105	5200	65	30	02	02	00	26	11.0	190	3.8	NS	--	--	--	--	NS	Rx
106	7600	64	34	02	00	00	02	13.4	230	4.9	NS	--	--	--	--	NS	Rx
107	6800	70	28	02	00	00	14	15.0	250	5.1	NS	--	--	--	--	NS	Rx
108	4500	50	45	02	02	01	20	12.0	180	4.1	NS	+	+	--	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT =Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen,ND =Not done,Rx =Treated
-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab technician

HARI NARAYAN PURBEY
medical lab technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
109	4500	56	38	02	03	00	14	14.0	240	4.8	NS	--	--	--	--	NS	Rx
110	5300	67	28	00	05	00	23	12.0	200	4.1	NS	--	--	--	--	NS	Rx
111	5600	58	38	02	02	00	14	13.8	230	4.8	NS	--	--	--	--	NS	Rx
112	6700	65	30	02	02	01	12	14.3	200	4.9	NS	--	--	--	--	NS	Rx
113	4500	65	30	03	02	00	14	14.0	190	4.8	NS	--	--	--	--	NS	Rx
114	5600	50	45	04	01	00	14	12.0	180	4.0	NS	--	--	--	--	NS	Rx
115	4500	67	30	03	00	00	20	14.0	200	4.8	NS	--	--	--	--	NS	Rx
116	4200	55	38	06	02	00	22	8.2	92	3.6	Seen	+	+	+	+	NS	Rx
117	5400	55	40	05	00	00	28	8.4	97	3.7	Seen	+	+	+	+	NS	Rx
118	5600	65	30	02	03	00	12	14.0	200	4.9	NS	--	--	--	--	NS	Rx
119	6200	70	28	00	02	00	14	13.9	220	4.6	NS	--	--	--	--	NS	Rx
120	4200	60	30	07	03	00	29	9.2	83	3.4	Seen	+	+	+	+	NS	Rx
121	5600	62	36	01	01	00	14	14.0	200	4.8	NS	--	--	--	--	NS	Rx
122	4200	53	40	04	03	00	27	10.8	93	3.9	Seen	+	+	+	+	NS	Rx
123	4700	62	32	05	01	00	23	8.2	97	3.5	Seen	+	+	+	+	NS	Rx
124	4300	60	35	05	00	00	37	9.2	105	4.0	Seen	+	+	+	+	NS	Rx
125	5400	60	35	03	02	00	27	10.8	120	4.8	NS	--	--	--	--	NS	Rx
126	5200	62	30	04	03	00	14	11.0	115	5.0	NS	--	--	--	ND	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technician

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
127	3900	60	30	08	02	00	37	9.2	92	3.4	Seen	+	+	+	+	NS	Rx
128	5200	60	33	04	03	00	22	10.8	125	4.5	NS	--	--	--	ND	NS	Rx
129	14200	82	10	02	06	00	37	12.5	230	5.4	NS	--	--	--	ND	NS	Rx
130	4200	50	46	04	00	00	12	13.2	150	5.7	NS	--	--	--	ND	NS	Rx
131	5100	60	35	03	02	00	24	11.3	98	5.1	NS	--	--	--	--	NS	Rx
132	5300	63	30	04	03	00	25	11.2	110	5.3	NS	--	--	--	ND	NS	Rx
133	6700	70	23	02	05	00	23	12.0	190	4.0	NS	--	--	--	ND	NS	Rx
134	5300	70	25	03	02	00	25	12.0	115	5.5	NS	--	--	--	--	NS	Rx
135	3800	56	40	04	00	00	38	9.2	90	3.7	Seen	+	+	--	+	NS	Rx
136	3500	45	45	07	03	00	24	10.4	90	3.8	Seen	+	+	--	+	NS	Rx
137	4300	60	34	05	01	00	22	10.2	100	3.4	Seen	+	+	+	+	NS	Rx
138	5100	60	30	07	02	01	34	10.8	90	3.7	Seen	+	+	+	+	NS	Rx
139	2550	62	30	06	02	00	23	10.9	95	3.7	Seen	+	+	--	+	NS	Rx
140	3900	60	30	08	02	00	37	9.2	92	3.4	Seen	+	+	+	+	NS	Rx
141	4500	60	30	07	03	00	40	9.2	98	3.9	Seen	+	+	+	+	NS	Rx
142	5100	55	40	04	01	00	35	8.9	102	3.2	Seen	+	+	+	+	NS	Rx
143	4200	43	50	06	01	00	24	10.5	95	3.7	Seen	+	+	--	+	NS	Rx
144	3800	56	40	04	00	00	23	9.8	110	3.3	Seen	+	+	+	+	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

Rapid Diagnosis of Kala Azar in Dhanusha 2057

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
145	8700	75	23	02	00	00	28	13.4	210	5.7	NS	--	--	--	ND	NS	Rx
146	12400	80	20	00	00	00	35	14.2	208	5.5	NS	--	--	--	ND	NS	Rx
147	4300	62	30	05	02	01	24	10.2	95	3.5	Seen	+	+	+	+	NS	Rx
148	4500	57	40	03	00	00	36	10.2	70	3.8	Seen	+	+	+	+	NS	Rx
149	7600	70	25	03	02	00	30	12.7	185	4.5	NS	--	--	--	ND	NS	Rx
150	7800	70	25	00	05	00	25	12.8	215	4.7	NS	--	--	--	ND	NS	Rx
151	8600	76	20	01	03	00	25	13.6	225	4.9	NS	--	--	--	ND	NS	Rx
152	4200	53	40	04	03	00	27	10.8	93	3.9	Seen	+	+	+	+	NS	Rx
153	4700	62	32	05	01	00	23	8.2	97	3.5	Seen	+	+	+	+	NS	Rx
154	4300	60	35	05	00	00	37	9.2	105	4.0	Seen	+	+	+	+	NS	Rx
155	8700	60	35	02	03	00	22	11.2	210	4.2	NS	--	--	--	ND	NS	Rx
156	5700	65	30	02	03	00	25	13.2	190	4.8	NS	+	--	--	--	NS	Rx
157	6700	60	35	01	04	00	27	12.8	120	4.3	NS	--	--	--	ND	NS	Rx
158	4300	55	45	00	00	00	35	13.2	120	4.9	NS	--	--	--	--	NS	Rx
159	4600	60	35	04	01	00	14	14.3	200	5.2	NS	--	--	--	--	NS	Rx
160	4200	55	40	03	02	00	12	12.8	212	4.0	NS	--	--	--	--	NS	Rx
161	8700	78	20	01	01	00	16	14.0	195	5.0	NS	--	--	--	ND	NS	Rx
162	4300	50	45	04	01	00	42	10.8	125	3.8	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
163	3900	60	30	08	02	00	37	9.2	92	3.4	Seen	+	+	+	+	NS	Rx
164	4300	65	30	04	01	00	23	12.3	113	4.2	NS	--	--	--	ND	NS	Rx
165	12400	75	20	04	01	00	37	13.2	120	4.9	NS	--	--	--	ND	NS	Rx
166	4500	60	31	04	04	01	14	14.0	230	4.7	NS	--	--	--	--	NS	Rx
167	4300	65	30	04	01	00	37	11.2	100	4.2	NS	--	--	--	--	NS	Rx
168	5200	65	30	03	02	00	15	13.4	190	4.6	NS	--	--	--	--	NS	Rx
169	5600	56	40	02	02	00	12	13.3	180	4.5	NS	--	--	--	--	NS	Rx
170	3800	65	30	04	01	00	37	8.6	80	3.8	Seen	+	+	+	+	NS	Rx
171	3800	56	40	04	00	00	35	9.0	90	4.0	Seen	+	+	--	+	NS	Rx
172	4200	60	35	04	01	00	27	8.7	80	3.3	Seen	+	+	--	+	NS	Rx
173	4000	50	45	03	02	00	34	8.7	110	4.0	Seen	+	+	+	ND	NS	Rx
174	3500	45	45	07	03	00	24	10.4	90	3.8	Seen	+	+	--	+	NS	Rx
175	4300	70	25	05	00	00	32	10.4	90	3.4	Seen	+	+	+	--	NS	Rx
176	2550	62	30	06	02	00	23	10.9	95	3.7	Seen	+	+	+	+	NS	Rx
177	3800	56	40	04	00	00	23	9.8	110	3.3	Seen	+	+	--	+	NS	Rx
178	4300	60	35	04	01	00	24	10.8	125	3.8	Seen	+	+	+	+	NS	Rx
179	6000	56	38	02	04	00	23	11.0	110	4.2	NS	--	--	--	--	NS	Rx
180	8900	78	20	01	01	00	25	13.2	190	5.2	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated
-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

Rapid Diagnosis of Kala Azar Dhanusha 2057

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9$/L	N	L	M	E	B	mm/hr	gm%	$x10^9$/L	$x10^{12}$/L							
181	4200	55	40	02	03	00	10	10.8	110	4.3	NS	+	--	--	--	NS	Rx
182	4000	50	45	03	02	00	8	12.2	115	5.0	NS	--	--	--	ND	NS	Rx
183	4100	55	40	05	00	00	17	13.2	125	5.3	NS	--	--	--	--	NS	Rx
184	4700	57	39	03	01	00	10	12.8	130	4.8	NS	--	--	--	--	NS	Rx
185	7300	65	35	00	00	00	24	12.2	180	5.3	NS	--	--	--	ND	NS	Rx
186	4300	50	45	03	02	00	14	11.0	125	4.0	NS	--	--	--	ND	NS	Rx
187	4300	60	35	04	01	00	24	10.8	125	3.8	Seen	+	+	+	+	NS	Rx
188	3800	65	30	04	01	00	37	8.6	80	3.8	Seen	+	+	--	+	NS	Rx
189	4000	50	45	03	02	00	34	8.7	110	4.0	Seen	+	+	+	ND	NS	Rx
190	2550	62	30	06	02	00	23	10.9	95	3.7	Seen	+	+	+	+	NS	Rx
191	3800	60	30	08	02	00	35	10.2	85	3.8	Seen	+	+	--	+	NS	Rx
192	4300	70	25	05	00	00	32	10.4	90	3.4	Seen	+	+	+	--	NS	Rx
193	3500	45	45	07	03	00	24	10.4	90	3.8	Seen	+	+	+	+	NS	Rx
194	3800	56	40	04	00	00	35	9.0	90	4.0	Seen	+	+	--	+	NS	Rx
195	4200	60	35	04	01	00	27	8.7	80	3.3	Seen	+	+	+	+	NS	Rx
196	4700	62	32	05	01	00	23	8.2	97	3.5	Seen	+	+	--	+	NS	Rx
197	5300	60	35	03	02	00	23	10.3	210	4.0	NS	--	--	--	--	NS	Rx
198	4600	62	31	06	01	00	10	10.5	115	4.1	NS	--	--	--	ND	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated
-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
199	5200	50	46	04	00	00	07	11.2	125	4.3	NS	--	--	--	--	NS	Rx
200	4300	55	40	03	02	00	12	11.0	135	4.2	NS	+	--	--	--	NS	Rx
201	6200	50	48	02	00	00	28	10.8	140	3.8	NS	--	--	--	--	NS	Rx
202	8400	75	20	02	02	01	32	12.0	230	4.5	NS	--	--	--	--	NS	Rx
203	4200	67	32	01	00	00	21	13.0	190	5.0	NS	--	--	--	--	NS	Rx
204	4600	60	35	01	04	00	12	12.2	185	4.2	NS	--	--	--	--	NS	Rx
205	5200	63	30	05	02	00	14	11.0	150	4.0	NS	--	--	--	--	NS	Rx
206	4300	68	28	00	04	00	20	11.3	156	4.1	NS	--	--	--	--	NS	Rx
207	3800	55	38	05	00	00	32	9.2	70	3.2	seen	+	+	+	+	NS	Rx
208	7800	70	22	03	05	00	22	12.0	196	4.3	NS	--	--	--	--	NS	Rx
209	9000	80	15	05	00	00	17	13.2	128	5.0	NS	--	--	--	--	NS	Rx
210	4600	60	35	05	00	00	15	12.3	156	4.5	NS	--	--	--	--	NS	Rx
211	4100	62	32	06	00	00	52	8.6	81	3.2	seen	+	+	+	+	NS	Rx
212	2300	61	32	07	00	00	42	8.9	79	3.2	NS	--	--	--	--	NS	Rx
213	5600	52	40	02	06	00	14	11.2	213	4.2	NS	--	--	--	--	NS	Rx
214	5200	63	30	07	00	00	29	10.2	92	3.8	seen	+	+	+	+	NS	Rx
215	4500	64	34	01	01	00	22	12.3	210	4.6	NS	--	--	--	--	NS	Rx
216	5400	65	30	02	02	01	16	12.6	250	4.8	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test.UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite.NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative. - =Positive

BINDESHWOR PRASAD YADAV

HARI NARAYAN PURBEY

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
217	5900	68	30	02	00	00	19	12.3	198	4.6	NS	--	--	--	--	NS	Rx
218	6300	70	25	03	02	00	22	13.0	210	5.0	NS	--	--	--	--	NS	Rx
219	7300	65	30	02	03	00	12	12.0	123	4.2	NS	--	--	--	--	NS	Rx
220	6000	62	32	02	03	01	16	13.0	230	5.0	NS	--	--	--	--	NS	Rx
221	6500	70	23	02	04	01	25	12.3	240	4.5	NS	--	--	--	--	NS	Rx
222	5100	63	30	04	02	01	27	12.6	142	4.6	NS	--	--	--	--	NS	Rx
223	4500	58	38	02	02	00	32	11.0	120	4.0	NS	--	--	--	--	NS	Rx
224	5400	65	30	02	02	01	28	11.5	125	4.2	NS	--	--	--	--	NS	Rx
225	3500	58	34	08	00	00	35	10.2	98	3.8	Seen	+	+	+	+	NS	Rx
226	2800	56	35	05	04	00	09	12.0	156	4.2	NS	--	--	--	--	NS	Rx
227	3400	59	32	07	02	00	28	10.2	90	3.7	Seen	+	+	+	+	NS	Rx
228	5400	57	36	02	05	00	24	11.2	125	3.9	NS	--	--	--	--	NS	Rx
229	4600	60	30	05	04	01	25	12.3	156	4.6	NS	--	--	--	--	NS	Rx
230	4200	63	32	05	00	00	31	10.5	78	4.2	Seen	+	+	+	+	NS	Rx
231	7900	75	25	00	00	00	25	13.2	254	5.2	NS	--	--	--	--	NS	Rx
232	4000	62	32	05	01	00	32	9.5	96	3.8	Seen	+	+	+	+	NS	Rx
233	3400	58	34	07	01	00	36	9.6	89	3.4	Seen	+	+	+	+	NS	Rx
234	5700	64	34	01	01	00	19	14.3	145	5.5	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative, + =Positive

B Yadav

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
235	6500	67	30	03	00	00	25	12.5	156	4.8	NS	--	--	--	--	NS	Rx
236	4300	61	35	04	00	00	25	11.0	95	3.9	NS	+	+	+	+	NS	Rx
237	3800	67	25	08	00	00	37	9.8	99	3.2	Seen	+	+	+	+	NS	Rx
238	7500	70	26	02	02	00	26	13.0	223	4.8	NS	--	--	--	--	NS	Rx
239	3800	62	30	08	00	00	37	10.9	102	3.8	Seen	+	+	+	+	NS	Rx
240	3900	60	30	09	01	00	29	9.5	103	3.2	Seen	+	+	+	+	NS	Rx
241	5600	65	32	02	01	00	22	12.0	238	4.8	NS	--	--	--	--	NS	Rx
242	6700	71	25	04	00	00	24	13.0	236	5.3	NS	--	--	--	--	NS	Rx
243	5300	62	35	02	01	00	26	12.0	265	4.5	NS	--	--	--	--	NS	Rx
244	3500	52	42	06	00	00	43	10.2	96	3.8	Seen	+	+	+	+	NS	Rx
245	5800	58	40	01	01	00	21	13.2	220	5.0	NS	--	--	--	--	NS	Rx
246	7600	72	25	03	00	00	27	13.0	178	5.0	NS	--	--	--	--	NS	Rx
247	5000	65	30	02	02	01	19	12.0	189	4.5	NS	--	--	--	--	NS	Rx
248	6800	70	25	02	02	01	22	13.2	198	5.0	NS	--	--	--	--	NS	Rx
249	3700	56	40	04	00	00	23	10.2	96	4.2	Seen	+	+	+	+	NS	Rx
250	6200	59	32	04	05	00	32	12.5	156	4.8	NS	--	--	--	--	NS	Rx
251	5900	70	25	02	02	01	25	13.2	165	5.0	NS	--	--	--	--	NS	Rx
252	6200	65	30	02	02	01	23	13.0	178	5.0	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets.
PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated
-- =Negative. + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

RAPID DIAGNOSIS OF KALA-AZAR, DHANUSHA ELECTORIAL CONSTITUENCY AREA NO.5

S.N.	TC	Differential Count%					ESR	Hb	PLT	RBC	PAN	ALD	K-39	UADT	BM	MP	Remark
	$x10^9/L$	N	L	M	E	B	mm/hr	gm%	$x10^9/L$	$x10^{12}/L$							
253	5400	64	35	01	00	00	21	12.5	230	4.5	NS	--	--	--	--	NS	Rx
254	4600	62	38	00	00	00	12	13.0	156	5.0	NS	--	--	--	--	NS	Rx
255	4000	56	38	06	00	00	35	9.2	106	3.5	Seen	+	+	+	+	NS	Rx
256	7300	75	20	02	02	01	23	12.6	145	4.5	NS	--	--	--	--	NS	Rx
257	6400	67	30	02	01	00	25	13.5	175	5.2	NS	--	--	--	--	NS	Rx
258	7300	65	32	02	01	00	28	14.0	150	5.5	NS	--	--	--	--	NS	Rx
259	4200	61	38	01	00	00	09	13.0	152	4.8	NS	--	--	--	--	NS	Rx
260	4400	65	35	00	00	00	10	13.2	165	4.9	NS	+	--	--	--	NS	Rx
261	6500	62	34	02	02	00	42	13.5	185	5.4	NS	--	--	--	--	NS	Rx
262	5400	66	33	01	00	00	24	13.2	198	5.2	NS	--	--	--	--	NS	Rx
263	6400	70	25	02	02	01	26	12.0	250	4.0	NS	--	--	--	--	NS	Rx
264	7400	65	32	02	01	00	24	13.0	253	4.0	NS	--	--	--	--	NS	Rx
265	4500	65	30	02	03	00	12	13.2	204	4.5	NS	--	--	--	--	NS	Rx

TC= Total Count , N= Neutrophil, L = Lmphocyte, M = Monocyte, E = Eosinophil, B = Basophil, ESR = Erythrocyte Sedimentation Rate, Hb = Haemoglobin, PLT=Platelets, PAN=Pancytopenia,ALD=Aldehyde,K-39 dipstick test,UADP=Urinary Antigen Detection test,BM= Bone Marrow,Mp= Malaria Parasite,NS=Not seen.,ND =Not done,Rx =Treated

-- =Negative, + =Positive

BINDESHWOR PRASAD YADAV
Lab Technician

HARI NARAYAN PURBEY
Medical Lab Technologist

ANNEX-VI

Budget:-

S.N.	Particulars	Illustration	Amount
1.	Sample collection	Rs. 50 everyday for 12 months	Rs. 18,000.00
2.	Knowledge, attitude, perception data collection	Rs. 50 everyday for 12 months	Rs. 18,000.00
3.	Clinical examination expense	Rs. 50 for each patient	Rs. 13,250.00
4.	Medical Technologist	Rs. 125 for each sample	Rs. 33,125.00
5.	Lab. Technician	Rs. 75 for each sample	Rs. 19,875.00
6.	Manpower	Rs. 40 everyday for 12 months	Rs. 14,400.00
7.	Urine container	for the whole period	Rs. 150.00
8.	Stationery	for the whole period	Rs. 3,220.00
9.	Chemicals	for the whole period	Rs. 26,500.00
10.	Data processor analyser	265 cases	Rs. 1,000.00
11.	Transportation	for the whole period	Rs. 25,000.00
12.	Computer work	for the whole period	Rs. 1,980.00
	TOTAL		Rs. 1,74,500.00

ANNEX-V

MONTHWISE DISTRIBUTION OF SAMPLES

Name of months	Total no. of samples	serial no. of samples
Poush	24	1 to 24
Magh	30	25 to 54
Falgun	34	55 to 88
Chaitra	37	89 to 125
Baisakh	35	126 to 160
Jestha	18	161 to 178
Ashadh	18	179 to 196
Shrawan	20	197 to 216
Bhadra	11	217 to 227
Aswin	11	228 to 238
Kartik	10	239 to 248
Mansir	10	249 to 258
Poush	7	259 to 265
TOTAL	**265**	

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