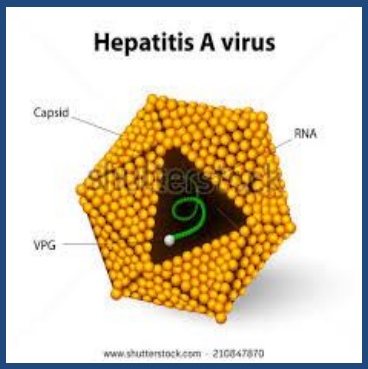
Prevention & Control of WATER BORNE DISEASES



HEALTH DEPARTMENT

NEW DELHI MUNICIPAL COUNCIL

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ACTION PLAN FOR PREVENTION & CONTROL OF GASTROENTERITIS/CHOLERA IN NDMC AREA

OFFICERS DIRECTLY INVOLVED

- ## HEALTH DEPARTMENT

Name	Mobile	Office
Dr. P.K. Sharma Medical Officer of Health	9810077166	23742752
Dr. Akla Saxena Dir. (MS), CPH, Moti Bagh	9968144266	26870934
Dr. Ramesh Kumar, CMO (North & Epid. Unit)	9810409565	23745323
Dr. R.N. Singh CMO(South, Malaria & FHU)	9810854673	23340638 23748284 (FHU)
Dr. Arun Sahai, CMO(Medical)		
Dr. Saumya Sukhla, MO(Epid.)	9013018354	23745323
Sh. Prem Singh, Sr. Statistical Investigator, Epid. Unit	9818517031	23745323
Sh. K.K. Das, Bacteriologist, PHL	9818121382	24677353
Sh. V.K. Bhowmik, Chemist. PHL	9968075469	24677353

WATER BORNE DISEASES
OF
PUBLIC HEALTH IMPORTANCE

1. THOSE CAUSED BY THE PRESENCE OF AN INFECTIVE AGENT

(a) Viral	:	Viral hepatitis A
		Hepatitis E
		Poliomyelitis
		Rotavirus diarrhea in infants
(b) Bacterial	:	Typhoid fever
		Paratyphoid fever
		Bacillary dysentery,
		E. Coli. Diarrhea
		Cholera
(c) Protozoal	:	Amoebiasis,
		Giardiasis
(d) Helminthic	:	Roundworm
		Threadworm
		Hydatid disease.
(e) Leptospiral	:	Weil's disease

2. THOSE CAUSED BY THE PRESENCE OF AN AQUATIC HOST

(a) Snail	:	Schistosomiasis
(b) Cyclops	:	Guineaworm
		Fish tape worm

1. ACUTE DIARRHOEAL DISEASES IN YOUNG CHILDREN

Diarrhoea is the passage of loose or watery stools more than three times a day. However, it is the recent change in the consistency and character of stools that is more important than the number. Passage of frequent formed stools, passage of pasty stools in a breast-fed in fact during or immediately after feeding should not be considered as diarrhoea.

Diarrhoea is classified by clinical syndromes as acute watery diarrhoea (majority of the cases), dysentery (blood in the stools) and persistent diarrhoea. Such classification is important for the management of cases. Although cholera is a form of acute watery diarrhoea, it is discussed separately.

CLASSIFICATION OF DIARRHOEA

(by clinical syndrome)

- Acute watery diarrhoea
- Dysentery (blood in the stools)
- Persistent diarrhoea

Acute diarrhoea starts suddenly and is characterized by the passage of loose watery motions. Patients of diarrhoea recover within three to seven days. If diarrhoea persists for more than 14 days and is associated with weight loss it is classified as persistent diarrhoea. Persistent diarrhoea, which is recurrent or long lasting, due to non-infectious causes such as sensitivity to gluten or inherited metabolic disorders.

More than three-fourths of all diarrhoeal episodes are acute watery diarrhoea. Diarrhoeal diseases are common in children under five years of age and are among the major causes of deaths in children in this age group. It is presumed that one in four (or five) deaths in children under five years of age are due to diarrhoea. In districts where appropriate case management of diarrhoea is not widely practices, up to a third of pediatric hospital admissions and 20% of the deaths of inpatients are diarrhoea related. Estimates based on the current child mortality rates indicate that more than 6,00,000 children die annually due to these diseases in India.

2. CHOLERA

Cholera is a form of acute watery diarrhoea. More than 90% of sporadic cases in endemic areas are mild and difficult to distinguish clinically from other types of acute diarrhoea. In epidemic situations, however, there is rapid onset of severe watery diarrhoea and vomiting, resulting in loss of large amounts of fluids and electrolytes from the body. The condition of the patient can deteriorate rapidly in the absence of medical care. If treatment is delayed or inadequate, death may occur rapidly from dehydration and circulatory collapse. Cholera should be suspected if patients older than 5 years of age develop severe dehydration from acute watery diarrhoea (usually accompanied with vomiting).

Cholera is endemic in India and several outbreaks of the disease have been reported. Because cholera has the potential of rapid spread leading to an acute public health problem, special attention is required to be given to the surveillance and prompt follow up action on reported cases of cholera. If appropriate measures are taken, cholera remains restricted to a limited habitation. Therefore, reporting of village, taluka and district helps in identifying the affected area. The first suspect case of cholera in a non-endemic area must be notified immediately to the local health officer. Laboratory confirmation should be obtained at the earliest opportunity and the results intimated to local health office as soon as these become available.

There are many serogroups of Vibrio cholerae, but only serogroup O1 and 0139-cause cholera. V.cholerae O1 occurs as two biotypes – classical and E1 Tor. Each biotype also occurs as two serotypes- Ogawa and inaba. Almost all the recent cholera outbreak has been caused by the E1 Tor biotype. Cases caused by the classical biotype have not been reported in India since 1980. The E1 Tor biotype also causes a higher proportion of symptomatic infections than the classical biotype and survives longer in the environment. In late 1992, large-scale epidemics occurred in India and Bangladesh caused by a new serogroup-V.cholerae O139.

Man is the only host. Patients remain infectious usually for a few days after recovery from clinical symptoms. Occasionally, the carrier stage may persist for several months. The chronic carriers however do not play important role in the spread of disease. Anti biotics, to which the strain is susceptible, shorten the period of communicability. V.Cholerae can survive for long periods in the environment and can live in association with certain aquatic plants and animals, making water an important reservoir for infection.

Incubation period varies from a few hours to 5 days, usually 2-3 days.

3. BACILLARY DYSENTERY/SHIGELLOSIS

Dysentery is diarrhoea with visible blood in the stools. The patients may complain of abdominal cramps, fever, and anorexia and weight loss. 10 to 15% of all episodes of acute diarrhoea in young children are due to dysentery. Shigella is the most common cause of dysentery. Entamoeba histolytica presents with similar clinical symptoms but is relatively rare in young children. Outbreaks of dysentery have the potential of causing a large number of deaths, especially in young children, unless specific antimicrobial treatment is started in manner. It is important that the community and the peripheral health personnel are aware of the danger sign of blood in the stools (bloody diarrhoea) so that medical help is sought immediately.

The incubation period is usually 1-3 days. The severity of the illness and the cause fatality rate is the functions of the host (age and pre-existing nutritional status) and the sero-type. Shigella dysenteriae 1 is often associated with severe disease and complications. Infections with S.Sonnei and S.Flexneri result in short clinical course and negligible mortality.

The patients may transmit the infection in the acute stage and up to one month after illness. Since only a few bacilli are sufficient to transmit the infection, shigella is usually transmitted through person to person. Asymptomatic carriers may transmit infection. The carrier state rarely persists for long periods. Treatment with appropriate antibiotics cuts short the duration of transmission.

4. TYPHOD FEVER/ENTERIC FEVER/SALMONELLOSIS

Gradual on set of fever, malaise, lethargy, myalgia and loss of appetite usually characterize typhoid fever. Fever increases in stepwise fashion to 39 to 41 C over a 5 to 7 day period. A highly characteristic feature is the pulse, which is relatively slow (bradycardia). Mental apathy and dullness is common and delirium may develop. At this stage the patient may present to a health facility as fever with altered sensorium. Since typhoid fever is very common in our country, it should be excluded by careful medical history, physical examination and blood culture for Salmonella typhi.

The incubation period is 2 weeks with a range of 7 to 21 days.

The bacilli are excreted in the urine and faeces in the acute stage of the disease and some patients may continue to excrete S.Typhi in the convalescent stage as well. A small percentage of the patients may become chronic carriers and excrete the bacilli for years. The carrier is a danger to the community, the degree depending on personal hygiene and also the sanitary conditions in the locality.

5. VIRAL HEPATITIS

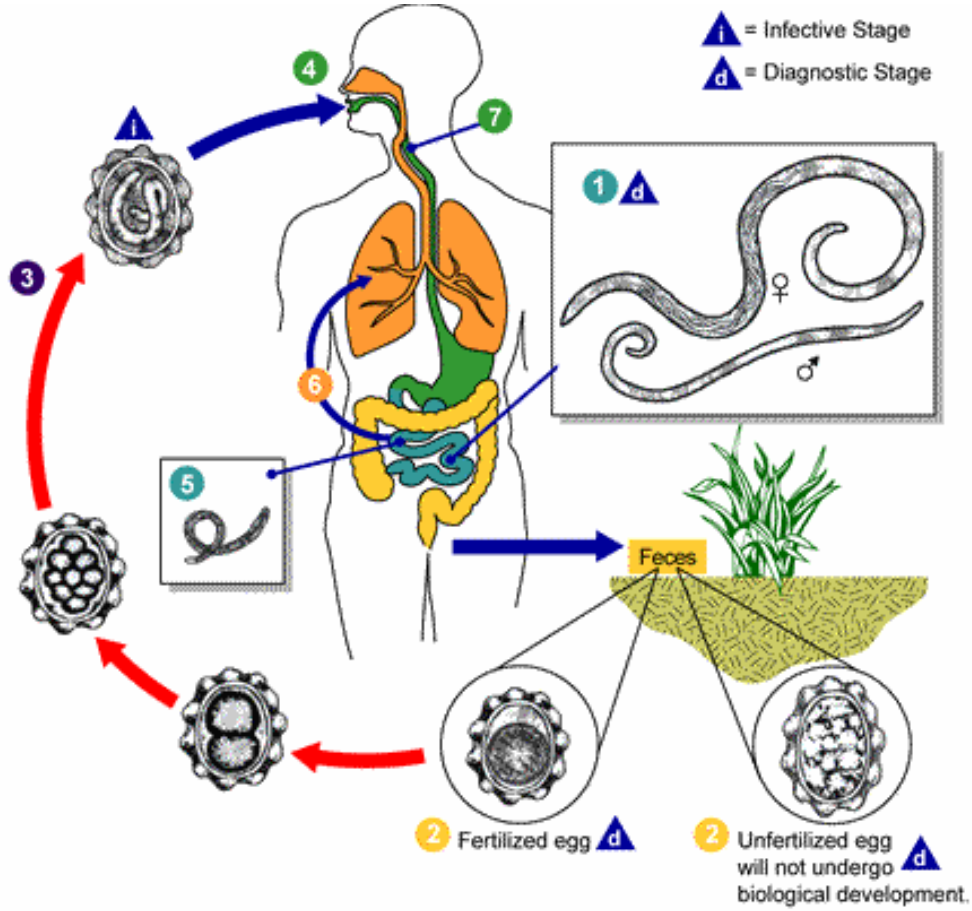
Viral hepatitis A and E are water borne; Hepatitis viruses B, C, D and possibly G are transmitted by the parental route and are not transmitted through contaminated water.

While sporadic cases of hepatitis E are reported throughout the year, epidemics occur as a result of contamination of piped water supply. Almost all outbreak of viral hepatitis in India are due to hepatitis E virus. Occasional outbreaks of hepatitis A, which is also water borne, may also occur. However, these are relatively rare, as by age five most individuals develop immunity through natural infection. Infection in young children is generally mild.

The incubation period of hepatitis E is usually one to two months (not less than 15 days). Outbreaks of hepatitis E may therefore be preceded by other water borne disease with shorter incubation periods such as acute diarrhoeal diseases (few days) and typhoid fever (one to three weeks). During outbreaks of hepatitis E, young adults are usually affected. Mortality rate in pregnant women is very high.

6. WATER RELATED DISEASES OF PUBLIC HEALTH IMPORTANCE

a. HELMINTHIC INFECTIONS:-



WHO estimates that more than one billion of the world's population is chronically infected with soil transmitted helminthes which decreases work capacity and fitness and especially in the case of children influences their nutritional status and reduced learning ability.

The major soil-transmitted helminthes include Ascaris Lumbricoides, Trichuris trichuria and Ancylostoma duodenal. The infections are associated with inadequate sanitation and water supplies.

Ascariasis (round worm infection) is generally associated with few or no symptoms. Live worms, passed in stools or occasionally from mouth or nose, are often the first recognized sign of infection. Heavy parasitic burden aggravates nutritional deficiencies, serious complications include bowel obstruction. Transmission is by ingestion of infected eggs in the soil contaminated with faeces of patients. The eggs undergo embryo nation in the soil and become infective after 2-3 weeks and remain infective in the soil for several months or years. The usual span of an adult worm is 12 months. The female worm can produce 2 lakh eggs per day.

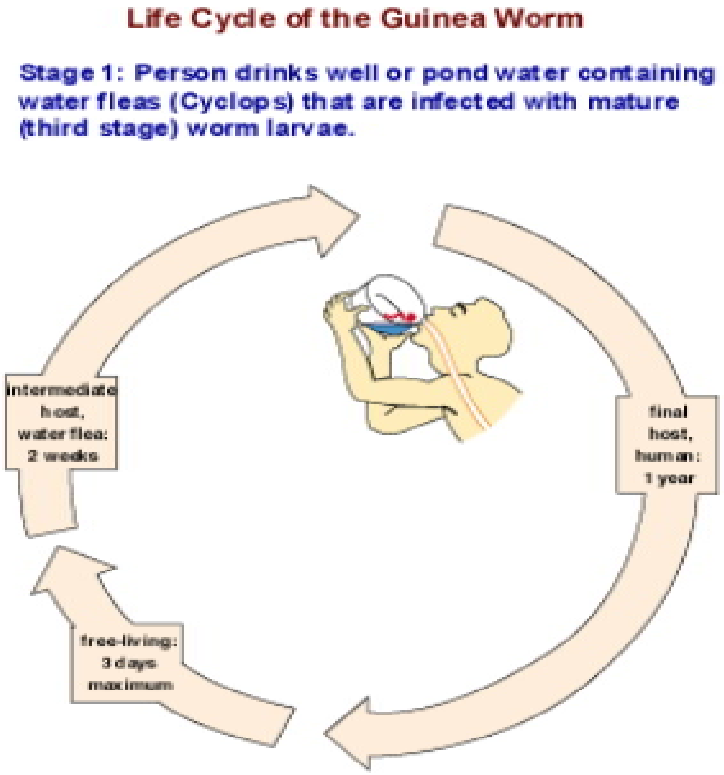
Human trichuriasis (whip worm disease) is a nematode infection of the large intestine. Heavy infections may cause bloddy, mucoid stools and diarrhea. Hypoproteinaemia, anaemia and growth retardation may occur in young children. Eggs passed in faeces require a minimum of 10-14 days in warm moist soil to become infective. Transmission is through contaminated vegetables.

Ankylostomiasis (hook worm disease) is a major cause of iron deficiency anaemia. Children with heavy infection may have anemia, hypoproteinaemia and may be retarded in physical and mental development. Eggs in faeces are deposited on the ground and mental development. Eggs in faeces are deposited on the ground and hatch under favorable conditions. The larvae become infective in 7-10 days. Infection occurs when the infective larvae penetrate the skin, usually of the foot. Infected persons can contaminate the soil for several years in the absence of treatment. Under favorable conditions, larve remain infective in the soil for several weeks.

Enterobiasis is a common helminthic infection during childhood. Adult worms live in large intestine but migrate to the anus to deposit the eggs, which become infective within a few hours. Transfer of these infective eggs usually transmits the infection by hand from anus to mouth of the same person or another person. The infection is often a symptomatic or results in perianal itching and irritability.

Competition

b. GUINEAWORM DISEASE



Guinea worm (GW) disease is caused by the parasite Dracunculus medinensis and is transmitted through drinking the water from unsafe sources like step well, ponds etc., containing water fleas (Cyclops). The adult worm measuring 60 to 100 cm in length emerges through the skin, usually lower limbs, causing severe swelling, ulceration and discomfort to the patient. The disease causes incapacitation to the patient who is unable to perform his regular work, resulting in economic loss to the patient. The disease occurs in rural areas with inadequate safe drinking water supply and peaks during the summer season when there is a scarcity of water.

The Government of India launched the National Guineaworm Eradication Programme in 1983-84. The National Institute of Communicable Diseases is the nodal agency for coordinating the programme, which is implemented by the state health authorities. The ministry of Rural Affairs and Employment, Government of India and the State Public Health Engineering Department (Rural Water Supply) has actively participated in the programme.

Prior to 1984 nearly 40,000 cases were reported annually from 12,840 villages in 89 districts in 7 states. In 1996 only 9 cases were reported from 3 villages in Jodhpur district. The last case was notified in July 1996. All the states except Rajasthan have been free of Guineaworm disease since the beginning of 1995. No case has been reported in the country since August 1996. Presently cases are reported only from countries in Africa.

The state health authorities including non-endemic states have been alerted to initiate measures for active surveillance of Guineaworm disease and to maintain appropriate records so that the certification for Guineaworm eradication could be achieved after maintaining a 3-year period of zero case.

➢ PUBLIC HEALTH LABORATORY, VINAY MARG

- There are 28 underground reservoirs in NDMC area along with their boosting stations. At these places chlorine content of water is monitored and then it is pumped in the system for supply to the area. The water supply is being received in the morning and evening time and then it is supplied to the consumers.
- This unit is carrying out Physico-chemical, bacteriological and toxicological parameter's testing at Public Health Laboratory, Vinay Marg.

➢ Phone No. of Public Health Laboratory

	Name	Office	Mobile
1.	**Dr. P.K. Sharma, MOH**	**23742752**	**9810077166**
2.	**Dr. Ramesh Kumar, CMO(N), I/C Epit. Unit & HEU**	**23745323**	**9810409565**
3.	**Sh. K.K. Das, Bacteriologist**	**24677353**	**9818121382**
4.	**Sh. V.K. Bhowmik, Chemist**	**24677353**	**9968075469**

➢ CIVIL DEPARTMENT - WATER SUPPLY, SEWERAGE & DRAINAGE SYSTEM

S. No.	Name	Office	Mobile
1.	Er. Anant Kumar, CEC (I)	23743243	9911178856
2.	Er. Hamvir Singh CEC (II)	23744790	9999600280
	Er. H.P. Singh SE(R-I)	23367665	9810043833
	Er. T.R. Meena (SE(R-II)	23363874	9810681155
	Er. Ajay Gupta, SE(W/S)	23745439	9810078894
3.	Er. Mammoo Khan E.E.(Water Supply)	23745439	9810612785

➢ WATER SUPPLY SERVICE CENTRES

Kali Bari Marg Water Supply Control Room 23360683 (Round the Clock)

S.No.	Service Centre	Phone No.	S.No.	Service Centre	Phone No.
1.	Gole Market	23362949	4.	Netaji Nagar	24104688
2.	Mandir Marg	23346108	5.	Bharti Nagar	24690264
3.	Vinay Marg	26111295	6.	Jor Bagh	24626827

TELEPHONE Nos of Charak Palika Hospital

26117879, 24679711, 24671901, 24679713 & 24671109

Telephone nos. of PALIKA MATERNITY HOSPITAL, LODHI ROAD, NEW DELHI

- 24611633, 24610279

TELEPHONE NUMBERS OF VARIOUS HEALTH INSTITUTIONS

ALLOPATHIC DISPENSARIES

1.	Town hall dispensary, Sansad Marg	51501354-63 Extn. 2255
2.	Community Hall, Panchkuiyan Road	23342957
3.	Babar road	23739285
4.	Baird lane	23363746
5.	Golf Link	24652762
6.	Lodhi road	24652278
7.	Sarojini Nagar	24678905
8.	Bapu Dham, Chanakya Puri	24101216
9.	Netaji Nagar	24673479
10.	Kidwai Nagar	24646094
11.	Harish Chander Mathur’s lane	23717670
12.	Rohini	27570198

MCW CENTERS

S. NO	NAME OF MCW CENTRE	TEL. NO.
1.	MCW Center Reading Road, Community Hall, Panchkuian Road, New Delhi	23743688
2.	MCW Center Shishu Kalyan Kendra, Gole Market, New Delhi	23365482
3.	MCW Center Babar Road, 48 Babar Road, Bengali Market, New Delhi	23324146
4.	MCW Center Sarojini Nagar, Behind Post Office, New Delhi	24672666
5.	MCW Center Kidwai Nagar, C-399, East Kidwai Nagar New Delhi	24647361
6.	MCW Center Golf Link Dispensary Complex, New Delhi	24646844
7.	MCW Center Palika Health Complex, Dharam Marg, Chanakya Puri, New Delhi	24109144
8.	MCW Center School Health Service, Anchal School, Malcha Marg, New Delhi	23019060

HEALTH DEPARTMENT- SANITATION UNIT

NORTH OF RAJPATH – CIRCLE NO. 1 TO 6 AND 14.

Circle No.	SI Name & Mobile No.	Office Address & Phone no.	Circle Area
1.	Sh. Devender Kr. 9312215588	Near Mohan Singh Place, C.P. Hanuman Mandir 23363604	***Jurisdiction:-*** Connaught Place (Inner, Middle and Outer Circle), Shanker Market upto Campa Cola Factory, Indian Oil Bhawan, Janpath upto Tolstoy Marg Crossing, Parliament Street upto Patel Chowk, Ashoka Road (from Gole Dak Khana Post Office upto Windsor Place's Roundabout), Baba Kharak Singh Marg upto Gola Dak Khana Post Office.
2.	Sh. Y.S. Rana 9873596365	Old NDMC Workshop, Mandir Marg. 23347879	***Jurisdiction: -*** Peshwa Road, Mandir Marg, Panchkuian Road, Shaheed Bhagat Singh Marg upto Roundabout of Gole Market, Chems ford Road, R.K. Ashram Marg.
3.	Sh. Shyam lal 9818585353	Near Coal Depot, Gole Market. 23343968	***Jurisdiction:-*** From Mandir Marg beginning and its junction with Peshwa Road, Park Street, Baba Kharak Singh Marg upto Rivoli Cinema, Madras Hotel and then Shaheed Bhagat Singh Marg upto the Roundabout of Gole Market.
4.	Sh. Ravi Dutt, 9350025232	Pt. Pant Lane, 23710572	***Jurisdiction:-*** North Avenue, Central Secretariat, Parliament & Parliament Annexe, Dr. Rajender Prasad Road upto its junction to Janpath, Janpath upto Roundabout of Windsor Place, Ashoka Road upto Gole Dak Khana, Willingdon Crescent upto 11 Murti, Talkatora Stadium.
5.	Sh. S.Bhardwaj 9810758099	Basement Chandralok Building 23325572	***Jurisdiction:-*** Babar Road, Barakhamba Lane, Fire Brigade Lane, Bengali Market, Bhagwan Dass Road, Sikandra Road, Copernicus Marg, Sangli Mess, Hyderabad House, Ferozshah Road, Ashoka Road (starting from roundabout of Andhra Pradesh Bhawan upto roundabout of Windsor Place), Scindia House, Barakhamba Road, Kasturba Gandhi Marg.
6.	Sh. Ved Parkash, 9868886801	A-5, Pandara Road, 23070915	***Jurisdiction:-*** Bapa Nagar, Pandara Park, Pandara Road, Shahjahan Road Flats, Shahjahan Road, Dr. Zakir Hussain Marg upto its crossing with Subramania Bharti Marg, Prithviraj Road upto its junction with South End Road, Aurangzeb Road upto the roundabout of Hotel Claridges, South End Road, Ravinder Nagar, Khan Market, Prithviraj Market, Man Singh Road upto its junction with roundabout of Vice-President's residence, Moti Lal Nehru Marg upto roundabout of LG House, Akbar Road upto the roundabout of LG House, Moti Lal Nehru Marg upto its junction with Janpath.
14	Sh. Suresh 23073062	Near NDMC Civil Enquiry Maan Singh Road 23073062	***Jurisdiction:-*** Vijay Chowk, Rajpath, Central Vista Lawn, India Gate, C-Hexagon, Purana Qila Road, Tilak Marg, Supreme Court Area and Tilak Lane.

SOUTH OF RAJPATH – CIRCLE NO. 7 TO 13

7	Sh. Rakesh Kumar 8130391887	SI Office Sunehari Bagh Lane 23013893	***Jurisdiction: -*** Sunehri Masjid includes South Block, P.M. House, Sena Bhawan, Dalhousie Road, Moti Lal Nehru Marg, Maulana Azad Road, Janpath, Aurangzeb Road, Akbar Road, Tees January Marg/Lane, Tuglak Road, Krishna Menon Marg, K. Kamraj Road, Duplex Road, Tyag Raj Marg, Rajaji Marg, South Avenue, Teen Murti Marg/Lane, Kushak Road, and Willingdon Crescent.
8	Sh. K.L. Sharma 9818925618 8130391865	Near Palika Materinity Hospital, Lodhi Colony 24603359	***Jurisdiction:-*** Lodi Colony, Lodi Estate, Lodi Road, Maxmuller Marg, Amrita Sher Gill Marg, South End Road, Subramania Bharti Marg, Maharishi Raman Marg, Sujan Singh Park, Bharti Nagar, Golf Link, Arch Bishop Makorious Ross, Part of Dr. Zakir Hussain Road, Kaka Nagar.
9	Sh. Dharampal 9811607290	Near NDMC Allopathic Dispensary, Karbala 24653790	***Jurisdiction:-*** Jor Bagh, Aliganj, Karbala, B.K. Dutt Colony, Najaf Khan Road, Aurobindo Marg, Prithviraj Road, Tuglak Road, Tuglak Lane, South End Lane, Aurangzeb Lane, Part of Tuglak Road, Safdarjung Road, Race Course Road, J.J. Cluster, Kamal Attaturck Road.
10	Sh. J.S. Malik 9811550312	Ground Floor, Chanakya Bhawan, Yashwant Place, 24105121	***Jurisdiction:-*** Shanti path, Kautilya Marg, Sardar Patel Marg, Panchsheel Marg, Simon Bolivar Marg, Sen Martin Road, Bapu Dham, Jesus and Marry Marg, Chander Gupta Marg, Nyaya Marg, Satya Marg, Niti Marg, Vinay Marg, Chanakyapuri, Satya Sadan, Bardulai Marg.
11	Sh. Naresh Sharma 9818774032	Nr. Allopathic Dispensary, Sarojini Nagar 26872543	***Jurisdiction:-*** Sarojini Nagar, Nauroji Nagar, Sarojini Vihar, Pillanji Village, Afrika Avenue, I-Avenue, B-Avenue, Brig. Hoshiya Singh Road
12	Jal Singh Meena 9999650989	Begum Zaidi Market 26872544	***Jurisdiction:-*** North Moti Bagh, Begum Zaidi Market, Basrurkar Market, Part of Shanti Path, Netaji Nagar, Palika Bhawan, Anant Ram Dairy.
13	Sh. S.K. Kaushik 9818296447	Central Market Kidwai Nagar 24654123	***Jurisdiction:-*** East/West Kidwai Nagar, Aurobindo Marg upto Yusuf Sarai, Delhi Haat surrounding Laxmi Bai Nagar, Brig. Hoshiar Singh Road, Laxmi Bai Nagar Market, both Kidwai Nagar Market.