

## CHAPTER XVI

### MEDICAL AND PUBLIC HEALTH SERVICES

In the past, Ayurveda was the prevalent and accepted system of medicine since the *vedic* period up to medieval period along with the traditional folk medicine. 'Unani-Tibb'- the medical tradition of Islam was introduced in the area during medieval period. With Hindus mainly favouring the Ayurvedic medicines, and Muslims patronizing the Unani medicines, these two systems flourished in the region side by side especially till the advent of the British.

In the 19<sup>th</sup> century, the British brought with them the Allopathic system of medicine. With the passage of time, it spread in the areas of Jhajjar due to its vicinity to Delhi. The attitude of the people towards anti-plague measures, though, was apathetic and it required a great deal of effort and tactical persuasion for people to submit to schedules of inoculation and rat destruction. There had been a few instances of actual resistance to anti-plague measures at that time. Pneumonia was fatally prevalent throughout the autumn and winter, owing chiefly to the extreme range of temperature during the twenty-four hours. During 1877-1881, most deaths had occurred in the district due to fever. In 1877, as many as 368 deaths were registered while in 1881 the number of deaths registered was 322. In 1879, the highest number of deaths registered in the Jhajjar was 1,339<sup>1</sup>. Scurvy, leprosy, and elephantiasis were rare; guinea worm and tape worm infections were occasionally. During winter season, there used to be much prevalence of pleurisy; pneumonia and bronchitis. Asthma was also very common. In last decade of the century, diseases like malaria, cholera, common fever were in epidemics due to the water-logging situation in the district. Dysentery and enlargement of the spleen were also amongst most prevalent diseases. The malarial fevers were the worst in those parts of the district where cultivation was carried on, and where there are extensive marshes. Plague was frequent

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<sup>1</sup> Rohtak District Gazetteer, 1883-84, Statistical Tables, p. xxiii

in the region in the beginning of 20<sup>th</sup> century as has been described in the Rohtak District Gazetteer, 1910.

*“Plague first appeared in the old Jhajjar tahsil in March 1903 and it was not until 1904 that it spread to the adjoining tahsils. The mortality which had been slight in the first year rose to 4,282 and in 1905 reached the alarming figure of 31,964, the northern part of the district being most severely attacked. The drop to 3,507 in 1906 gave hopes which were shared by the Punjab that the disease was abating, but the experience of the subsequent year belied them, and suggested that it was only the extreme cold of 1904-05 that had given a temporary check to the cause of the disease. In 1907 for week after week the district was one of the three worst infected in the whole of the province and the mortality of the year from this cause rose to 34,906. ”*

The medical and health facilities to cope with such horrible state of public health in the district at that time were limited to a few Unani and Ayurvedic practitioners. In 1909, there were Class III dispensaries at Jhajjar and Bahadurgarh under the charge of Sub-Assistant Surgeons with facilities of vaccination and operations. The above mentioned dispensaries served 11,138 and 10,082 outdoor patients besides 146 and 83 indoor patients, at respective average annual expenditure of ₹1,645 and ₹1,614, respectively. The number of operations conducted in these dispensaries during said year was 471 and 442, respectively. Dispensaries were also established at Beri, and Dujana with in-patient, out-patient, and vaccination facilities.

After Independence, much emphasis was laid on the allopathic medical and health services in the region. The Government established a number of hospitals and dispensaries to provide medical and health facilities on an increasing scale. The Directorate of Ayurveda, Haryana functioned under the Health Department until it was separated and made an independent Directorate of Ayurveda in 1977. In the district, in comparison to Ayurveda, Unani, and Homeopathy systems of medicine, Allopathy is more popular due

to the consistent Government patronage enjoyed by it since independence. It has a very advanced research in the field of diagnostics and surgery alike. At the same time, it kept on expanding with the help of other branches of science like radiology, chemistry, pharmacy, nuclear medicines, robotics, etc., to diagnose and check disease, and improve the general health of masses.

### **CURATIVE AND PREVENTIVE HEALTH SERVICES**

The Medical and Public Health Services or facilities in the district are headed by the Chief Medical Officer, also known as Civil Surgeon, who works under the general control of Director General, Health Services and looks after various Medical and Health Programmes in the district. He is assisted by Deputy Chief Medical Officers, Senior Medical Officers, Medical Officers, paramedics and other subordinate staff. Medical services are essentially a hospital organization for rendering medical facilities to the general public. The Health Department provides medical services to both outdoor patients and indoor patients as well. Other medical and health services like emergency services, referral services, health promotion and preventive services, dental health facility, and other national health schemes including family planning programme and rural Health Mission, etc., are also available in all the health institutions in the district. Medical Superintendent at District Civil Hospital level and Senior Medical Officers at Community Health Centre level provide the curative and preventive health services assisted by Medical Officers and para-medical staff at PHC, CHC, Dispensary and Sub-Centre level.

As on 31<sup>st</sup> March 2018, the Allopathic system of medicine, which is the main prevailing in the district, and AYUSH, were extending the medical facilities through a network of institutions comprising 1 District Hospital, 2 Sub-District Hospital, 2 Polyclinics, 6 Community Health Centres (CHCs), 22 Primary Health Centres (PHCs), 1 Sub-Jail Dispensary and 126 Sub-Centres. List of Government Civil Hospitals, CHCs, PHCs and important Ayurvedic sub-health centres functioning in the district during 2017-2018 is given in the Table XLVIII, and list of major facility units of Blood Bank, ICTC, FICTC,

STD Clinic, etc., at government hospitals / CHCs is given in the Table XLIX of the Appendix.

**District Civil Hospital, Jhajjar.**— The 100-bedded government civil hospital is the referral level healthcare institute in the district with all the usual facilities of a general hospital. Civil Surgeon, Jhajjar is the controlling authority of the hospital. He is assisted by Deputy Civil Surgeon (Medical), Deputy Civil Surgeon (Family welfare), Deputy Civil Surgeon (Training Officer), Deputy Civil Surgeon (T.B.), Deputy Civil Surgeon (NRHM), Deputy Civil Surgeon (Health), Deputy Civil Surgeon (School Health), one Medical Superintendent, Senior Dental Surgeon, Dental Surgeon, 4 SMOs and 41 Medical Officers and 50 other subordinate staff to provide the in-door and out-door patients with the services of medicine, gynaecology, midwifery, paediatrics, orthopaedics, routine and laparoscopic surgery, dentistry, eye, ENT, etc., in the government health facilities. Hospital also provides facility of laboratories and radiology. The number of outdoor and indoor patients who got treatment in the Civil Hospital in various years from 2010 to 2018 is given in the table below:-

Year	Outdoor Patients	Indoor Patients
2010	1,50,061	13,854
2012	1,90,413	16,157
2014	2,20,256	26,882
2016	1,86,928	14,685
2018	3,74,224	39,209

During 2008-2018, in the Integrated Counselling and Testing Centre of the hospital, 40,119 and 20,123 patients got counselling, for medical and health related services at General and Ante-natal clinics, respectively. Out of these, 39,797 and 19,993 patients were tested for HIV, and 416 and 30 were, respectively, detected HIV positive. Of HIV-TB cases, 3,011 patients were of cross-referral; and 55 patients suffered co-infection. In addition to above, the total number of persons who attended Designated STI/RTI Clinics (DSRC) for sexually transmitted or reproductive tract infections was 18,350. Out of these, 9,811 persons were tested for Rapid Plasma Reagin (RPR) / Venereal Disease

Research Laboratory (VDRL), and 103 were detected as RPR/VDRL positive.

**Sub-District Hospital, Bahadurgarh.**— This hospital at Bahadurgarh is also a referral hospital with 100-beds and all the usual facilities of a general hospital including radiology and laboratories. The Deputy Civil Surgeon, Bahadurgarh is the controlling authority of all health related activities and programmes undertaken in this hospital. He works under the general control of the Civil Surgeon, Jhajjar and is assisted by one Medical Superintendent, Senior Medical Officers, Senior Dental Surgeon, two Dental Surgeon, and 27 Medical Officers and 76 other subordinate staff to provide services relating to medicine, gynaecology, midwifery, paediatrics, ENT, eye, orthopaedics, dentistry, routine and laparoscopic surgery, etc. During 2018, medical and health treatment facility was provided to 3,41,239 outdoor and 11,359 indoor patients through this sub-district hospital.

**Sub-District Hospital, Beri.**— There is another comparatively smaller 50-bedded referral hospital at Beri with all the usual facilities of a general hospital. The Deputy Civil Surgeon, Beri is the In-charge of this hospital subject to the general control of Civil Surgeon, Jhajjar. He is assisted by a Medical Superintendent, Senior Medical Officers, Dental Surgeons and 9 Medical Officers besides paramedics and 9 other subordinate staff to provide diagnostic, curative and preventive treatment facility in gynaecology, midwifery, medicine, paediatrics, ENT, eye, orthopaedics, routine and laparoscopic surgery, dentistry, radiology and laboratories, etc. During 2018 medical and health treatment was availed by 72,882 patients in this hospital.

**Extension of All India Institute of Medical Sciences (AIIMS) New Delhi.**— An extension of All India Institute of Medical Sciences, New Delhi is situated at village Badhsa of Jhajjar. AIIMS has established an Outreach Outdoor Patient Department (OOPD) which has been functioning since November, 2012, and approximately 300-350 patients get themselves checked up in different Medical OPDs daily. In 2014, foundation stone for a 600 bedded National Cancer Institute has also been laid in the premises of AIIMS Extension, Jhajjar. The project has an estimate cost of ₹1,800 Crore. From

2012 to 2018, the number of patients getting medical treatment in Outreach Out Patient Department (OOPD) is given in the table:-

Year	ENT (Ear, Nose & Throat)	Medicine	Obstetrics & Gynaecology	Ophthalmology (Eye)	Orthopaedics (Bones)	Paediatrics (Child)	Surgery	Psychiatry	Dermatology (Skin)
2012	275	1,362	211	577	691	411	395	--	--
2013	5,319	12,618	2,724	5,754	9,617	4,687	7,787	415	--
2014	6,540	14,188	4,967	6,206	10,540	5,722	10,208	545	--
2015	7,462	27,407	7,151	7,927	13,665	7,594	11,614	1,740	--
2016	10,431	33,452	8,478	10,108	18,079	9,232	14,648	2,433	--
2017	11,981	40,846	9,396	12,014	20,948	10,120	14,041	3,161	5,698
2018	12,062	47,772	10,238	13,096	21,239	10,045	14,090	3,298	9,291

**Employees State Insurance (ESI) Scheme.**— This scheme in the district is run under the provisions of the Employees State Insurance Act, 1948 and is an integral measure of social insurance embodying health care. It is designed to accomplish the task of protecting employees against the impact of incidents of sickness, maternity, disablement, and death due to employment injury, and to provide medical care to insured persons and their families. The ESI scheme applies to factories and other establishments, as prescribed in the Act, wherein 10 or more persons are employed. The ESI scheme is financed by contributions from employers and employees. The rate of contribution by the employer is 4.75 percent of the wages payable, and that of the employees is 1.75 percent of the wages payable to them. Employees of the various factories and establishments who draw monthly wages up to ₹15,000 are entitled to social security cover under the Act. Benefits under the ESI Scheme include sickness benefit, disablement benefit, maternity benefit, medical benefit, benefit to dependents, etc. Three ESI dispensaries, namely E.S.I. Dispensary-I (Mela Ground, Badli Road), E.S.I. Dispensary-II (Line Par, Shastri Nagar) and E.S.I. Dispensary-III (Sector-6) are working in Bahadurgarh industrial belt. In these dispensaries, the Medical Officer, who is also the Incharge of the

dispensary, extend medical assistance to patients with the help of para-medical staff. These dispensaries are also equipped with the facility of the laboratory. From 2011 to 2018, the number of outdoor patients who got treatment in these dispensaries as follows:-

<b>Year</b>	<b>Outdoor Patients</b>	<b>Year</b>	<b>Outdoor Patients</b>
2011	1,32,531	2015	1,11,697
2012	1,30,717	2016	1,10,324
2013	1,24,246	2017	1,02,150
2014	1,18,742	2018	1,14,620

## **AYUSH**

The Directorate of Ayurveda, Haryana was separated from the Health Department and made an independent directorate in 1977. The State Government, in January, 2006, to rejuvenate, patronise, and strengthen the traditional and alternative medicine systems, has changed the name of 'Directorate of Ayurveda, Haryana' to 'Directorate of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Haryana'. In 2018, the health-care through use of alternative medicine treatment in the district was being provided through a network of 19 dispensaries, 45 Primary Health Centres, 4 Community Health Centres and an AYUSH wing in the District Hospital, and under this system 2,65,593 patients were treated.

## **DISEASES COMMON TO THE DISTRICT**

In this district there is no any specific disease prevalence. Seasonal and vector borne diseases like diaherrial diseases (cholera/gastroenteritis), diptheria, poliomyelitis and tetanus, jaundice, malaria, dengue, and typhoid, common cold, fever, respiratory tract infections, etc., do exist besides noticeable number of tuberculosis cases that occur within normal limits. There is no outbreak of any epidemic in the district since its creation. Cholera, Plague and Smallpox were the three noticeable diseases under the Epidemic Diseases Act, 1897 and as amended from time to time. Out of these, smallpox has been eradicated and plague is no longer epidemic. Cholera is epidemic but the incidences of disease occur largely because of

importation of infection, and laxity in preventive measures to check it. The four vector-borne diseases Malaria, Dengue, Chickengunya, and Japanese Encephalitis have been included under Haryana Epidemic Diseases Regulations, 2011. Of these diseases, chickengunya is not prevalent in the district. A few common diseases occurring in the district are described briefly in following paragraphs.

**Malaria.**— Malaria is communicable disease characterized by periodic high grade fever coupled with chills and headaches. Severe cases can progress to coma or death. Commonly, the vector an infected female *Anopheles* mosquito transmits the causative organism with its saliva when it bites a healthy person. The causative organism is *plasmodium*; a parasitic protozoa. *Plasmodium falciparum* and *Plasmodium vivax* are two different species of the parasite that causes malaria in humans. *Plasmodium falciparum* causes the most acute and severe form of the disease, which can have a cerebral manifestation (cerebral malaria) and causes the most deaths worldwide. *Plasmodium vivax* is still a serious disease, but usually less severe. If diagnosed early, both forms of malaria can be easily treated, and are completely curable.

Consistent and persistent efforts for detection of malaria positive cases under National Malaria Eradication Programme followed by radical treatment and application of insecticidal sprays to control the mosquito breeding have yielded positive results regarding control of the disease. The data of malaria cases reported positive in the district from 2011 to 2018 is given in the table below:-

Year	Number of malaria cases		
	<i>Plasmodium vivax</i>	<i>Plasmodium falciparum</i>	Total
2011	922	5	927
2012	960	2	962
2013	555	0	555
2014	150	0	150
2015	80	0	80
2016	88	0	88
2017	91	0	91
2018	68	0	68



**Dengue.**— Dengue is also a vector borne outbreak prone disease like malaria, and it is not communicable directly from person to person. The disease virus is transmitted by *Aedes* mosquitoes. Both *Aedes aegypti* and *Ae. albopictus* are involved in transmission. *Aedes aegypti* mosquitoes prefer to breed in manmade containers, viz., cement tanks, overhead tanks, underground tanks, tyres, desert coolers, pitchers, discarded containers, junk materials, etc., in which water stagnates for more than a week. This is a day biting mosquito and prefers to rest in hard to find dark areas inside the houses. *Aedes albopictus* mosquitoes prefer to breed in natural habitats like tree holes, plantation, etc. Dengue fever is caused by infection with one of four different viruses (serotypes) known as DEN-1, DEN-2, DEN-3 and DEN-4. All four viruses are capable of causing the complications of dengue haemorrhagic fever and dengue shock syndrome. Infection with one type of dengue virus gives lifelong immunity against that particular serotype. However, the infection does not provide immunity against the other three serotypes, so it is possible to contract dengue fever again. The risk of dengue has increased in recent years due to rapid urbanization, and deficient water management including improper water storage practices in urban, peri-urban and rural areas, leading to proliferation of mosquito breeding sites.

The typical signs and symptoms of uncomplicated dengue fever may include high temperature within one week of infection, severe headache, pain behind the eyes, joint and muscle aches, metallic taste in the mouth, appetite loss, abdominal pain, nausea and vomiting, diarrhoea, general feeling of unwell (malaise), skin rash that appears about four days after the onset of fever and depression. Dengue fever can sometimes develop into dengue haemorrhagic fever with additional symptoms including bleeding under the skin, which causes purple bruises, bleeding from the nose or gums, liver and heart problems, and extremely low blood pressure caused by blood loss (shock) leading to coma or death due to dengue haemorrhagic shock. Early diagnosis and management of symptoms is critical to reduce the risk of complications and avoid further spread of the virus. During the current decade, only one death was reported in the district due to dengue in 2015. The detail

of dengue cases reported from 2011 to 2018 is provided in table below:-

Cases of Dengue					
Year	Suspected	Confirmed	Year	Suspected	Confirmed
2011	08	05	2015	490	230
2012	21	05	2016	300	45
2013	92	18	2017	591	111
2014	16	01	2018	677	55

There is no specific treatment and vaccine for this disease. The best way to protect against dengue fever is to avoid mosquito bites. Medical care aims to manage the symptoms and reduce the risk of complications while the person recovers. Most cases of uncomplicated dengue fever resolve within two weeks or so. Hospital admission is usually required if a person develops dengue haemorrhagic fever or dengue shock syndrome. Like dengue, Chikungunya; a viral disease caused by *Alphavirus*, also spreads through the bite of infected *Aedes* mosquitoes. The disease shares clinical signs with dengue, and can be misdiagnosed in areas where dengue is common. No case of Chikungunya has been reported in the district.

**Tuberculosis.**— Tuberculosis (TB) is one of the oldest known diseases. It has many manifestations affecting many other organ systems including bones and the central nervous system, but it is primarily a pulmonary disease that is initiated by the *Mycobacterium tuberculosis* that gain entry onto lung alveolar surfaces, of healthy individuals, with expelled infectious aerosol droplets from active pulmonary TB patients when they cough, sneeze, speak, sing, or spit. From this point, the progression of the disease can have several outcomes, determined largely by the response of the host immune system. In addition, the pathogen strains may also play some role in disease progression since some *M. tuberculosis* strains are reportedly more virulent than others. Tuberculosis kills more adults in the productive age group than any other infectious disease thus leading to socio-economic problems in the community. About 90 percent of those infected with *Mycobacterium tuberculosis* have asymptomatic, latent TB infections, with only a 10 lifetime chance that the latent infection will progress to overt, active tuberculosis disease.

Tuberculosis exists as a significant health problem in the State as well as the district with an addition of average 74,994 and 1,847 new cases every year, respectively, of which nearly half are infectious cases of sputum smear positive pulmonary TB. To overcome this enormous burden of Tuberculosis, the Directly Observed Treatment, Short Course (DOTS) strategy introduced under Revised National Tuberculosis Programme (RNTP) was adopted by the State. Patients in the district are educated about precautions and provided free medicines to fight against the dreaded disease.

In the district, there are four ‘Tuberculosis Units’ at Jhajjar, Dhakla, Dighal and Bahadurgarh each covering nearly 2.5 lakh persons. Each unit has eleven designated ‘microscope centres’ for sputum smear examination. In the district, the disease showed an increasing trend till 2011 when maximum 1,956 patients were registered. Thereafter, the disease showed a downward trend up to 2017 before showing a sudden rise in 2018 again. The table below shows the number of tuberculosis patients from 2011 to 2018:-

Year	Number of cases	Year	Number of cases
2011	1,956	2015	1,544
2012	1,705	2016	1,500
2013	1,677	2017	1,444
2014	1,665	2018	1,859

**Diarrhoeal Diseases.**— Cholera and gastroenteritis are the major diarrhoeal diseases prevailing in the district. Symptoms in these diseases include vomiting, severe abdominal cramps, and diarrhoea. Cholera is an acute infectious disease caused by bacterium *Vibrio cholerae* and is characterized by watery diarrhoea, extreme loss of fluid and electrolytes, and severe dehydration. It usually spreads in water, may outbreak, and can be fatal. Gastroenteritis can be bacterial as well as viral. Bacterial gastroenteritis is caused when an infection in gastric tract is by bacteria causing inflammation in stomach and intestines leading to diarrhoea. Bacterial gastroenteritis may respond to antibiotic treatment, whereas in viral cases, the body attains immunity on its own course. The number of patients hospitalised and treated outdoor from 2011 to 2018 on account of diarrhoeal diseases in the district is

given in the table below:-

Diarrhoeal Diseases (Cholera/ Gastroenteritis)					
Year	Indoor	Outdoor	Year	Indoor	Outdoor
2011	70	1,140	2015	638	4,451
2012	96	974	2016	185	5,344
2013	64	1,334	2017	602	8,333
2014	28	1,523	2018	1157	9,820

**Typhoid.**— Typhoid fever is contracted by the ingestion of the bacteria *Salmonellae typhi* in contaminated food or water. Symptoms of the disease include poor appetite, headaches, diarrhoea, generalized aches and pains, fever, and lethargy. Bacteria may multiply in the gallbladder, bile duct or liver, and passes into the bowel. It can spread from person to person as the patients can contaminate the surrounding water supply through stool, which contains a high concentration of the bacteria. The bacteria can survive for weeks in water or dried sewage. Contamination of the water supply can, in turn, taint the food supply. Typhoid fever is treated with antibiotics. Some patients become carriers of the bacteria after the acute illness. These chronic carriers may have no symptoms and can be the source of new outbreaks of typhoid fever for many years. The number of patients who were treated for typhoid in the district from 2011 to 2018 is given in the table below:-

Year	Patients	Year	Patients
2011	302	2015	3,668
2012	1,034	2016	2,624
2013	836	2017	3,050
2014	1,550	2018	3,527

## OTHER DISEASES

**Cancer.**— Cancer is referred to as a non-communicable ailment characterised by an unrestrained growth of abnormal cells which if remain untreated and unchecked eventually kills the patient, as such it is one of the most dreaded diseases. Causes of cancer are numerous from unknown to adulterated food; polluted air to cosmic UV radiation. It may occur in any organ of the body

including blood and bones, and has numerous varieties too. The most common cancers are of breast, uterus, ovaries, cervix, lungs, food-pipe, etc.

Cell division is a normal phenomenon for the growth in multi-cellular animals, but sometimes cells divide abnormally and rapidly and these develop their own blood supply and connective tissues. Later these abnormal cells get in the lymph or blood circulation and reach other parts of body which is termed as metastasis or last stage of the cancer. Such cancer cells grow in different parts and destroy the organs leading to death of the person. During the last decade and up to March, 2018, only 94 cases of cancer were reported in the district by the Chief Medical Officer, Jhajjar.

**Acquired Immune Deficiency Syndrome (AIDS).**— AIDS is caused by a retrovirus called Human Immunodeficiency Virus (HIV). Both the virus and the disease are often referred to together as HIV/AIDS. The immune system of infected person weakens making people more susceptible to infections and diseases. The development of numerous opportunistic infections in an AIDS patient can ultimately lead to death. The virus is found in the body fluids of an infected person (semen and vaginal fluids, blood and breast milk, etc.). The virus can pass from one person to another through transfusion of body fluids, contaminated hypodermic needles, and during sexual contact. In infected women, it can pass to babies during pregnancy, childbirth, and through breast feeding. In contrast, unless blood is visibly present, saliva, sputum, sweat, tears, faeces, nasal secretions, urine, and vomit carry extremely low risk of transmission of HIV.

HIV/AIDS control activities were initiated in the region with the establishment of AIDS Cell in 1992. In 1993, HIV testing of all blood units was made mandatory. At the blood banks at Civil Hospitals at Jhajjar, Beri and Bahadurgarh, and at the licensed blood bank of Red Cross, the blood units are collected and screened mandatorily for HIV, besides Hepatitis-B, Hepatitis-C, VDRL and Syphilis. The Haryana AIDS Control Society registered in 1998 is responsible for implementing the AIDS Control Programme in the district. The Society is carrying out the IEC (Information, Education, and

Communication) activities in the district through newspapers, radio, televisions, cable TV network, hoardings, street plays, posters, pamphlets, booklets, workshops, meetings and functions, etc. Red Ribbon Clubs have been formed at the level of College and School AIDS Education Programme has been initiated in the district to create awareness and sensitize the students on various issues of HIV/AIDS. For prevention of sexually transmitted diseases (STDs), STD Clinics have been established in health institutions of the district for giving free treatment, condoms and counselling to such persons.

Antiretroviral Therapy (ART) may, however, retard the pace of the disease. Some infected people with the help of ART can live a long and relatively healthy life. Up to March 2018, no cure could be found for HIV/AIDS. Mass awareness programmes about HIV/AIDS and adoption of preventive measures are the only tools to combat spread of the disease. The HIV/AIDS report of the district from 2011 to 2018 is given as under:-

Year	Slides taken	ANC Tested (pregnant Mothers)	Positive cases
2011	13,501	8,750	151
2012	8,405	8,501	160
2013	9,240	10,002	153
2014	10,465	9,479	130
2015	12,138	12,589	110
2016	11,806	12,007	78
2017	15,954	13,680	93
2018	18,294	14,068	140

**Syphilis / Gonorrhoea.**— Both syphilis and gonorrhoea are bacterial diseases which spreads from infected person to another via skin or mucous membrane contact especially during sexual intercourse. Syphilis is a highly contagious bacterial infection usually spread by sexual contact. The disease starts as a painless sore: typically on the genitals, rectum, or mouth. The syphilis bacteria *Treponema pallidum*, after entry, can lie dormant for decades in the body before becoming active again. Syphilis develops in stages, and

symptoms vary with each stage. Early syphilis can be cured, sometimes with a single injection of penicillin. Without treatment, syphilis can severely damage the internal organs, and can be fatal. The disease can also pass from mother to an unborn child.

Gonorrhoea is an infection caused by bacterium *Neisseria gonorrhoeae*. It most often affects the urethra, rectum or throat, but it can also infect eyes, joints and the cervix. During childbirth, if the mother is infected, babies can get infected. In babies, gonorrhoea most commonly affects the eyes. Gonorrhoea is a common infection that, in many cases, causes no symptoms. One may not even know that he is infected. Restrained sexual contact, using condoms, and being in a mutually monogamous relationship are the best ways to prevent such sexually transmitted infections. There is a significant decrease in the number of patients suffering from these diseases in the district during last three years. The number of patients who got treatment for Syphilis/ Gonorrhoea from 2010 to 2018 is given in the table below:-

<b>Year</b>	<b>Patients</b>	<b>Year</b>	<b>Patients</b>
2011	32	2015	161
2012	21	2016	19
2013	240	2017	08
2014	217	2018	05

## **VITAL STATISTICS**

The system of recording the vital statistics of births, deaths and derivative rates thereof was initiated by the British through the *chowkidar* agency. After Independence, Government of India enacted the Registration of Births and Deaths Act, 1969 to ensure uniformity and comparability in regulation of the registration and compilation of vital statistics, but leaving the scope for development of efficient systems of registration suited to regional needs of States. In 1972, the Act was enforced in the State, and later Haryana Registration of Births and Deaths Rules, 2002 were notified which specifically provide for different forms and registers in which births, deaths and still births

have to be recorded and reported, along with custody and maintenance of such registers besides providing procedures of delayed registration, issue of certificates, corrections and cancellations, compounding of offences and flow of content of statistical reports, etc.

At the District level, Civil Surgeon is the District Registrar (Birth and Deaths). Medical Officer In-charge at Primary Health Centre, Medical Officer of Health in Municipal Corporation, Secretary in Municipalities, and Executive Officer in Cantonment Board have been given the powers of Registrar (Birth and Deaths). The record of births, deaths, marriages, and sickness occurring in a community is carried out at the level of primary health centres/sub-centres of the district, and the Municipal Authorities keep the relevant record. The vital statistics of births and deaths in the district from 2011 to 2018 are given below:-

Year	Births	Deaths	Rate per thousand population		
			Birth	Death	Infant Mortality
2011	23,536	5,366	22.3	6.6	48
2012	24,021	5,597	21.6	6.4	42
2013	24,488	5,676	21.1	6.1	40
2014	25,180	5,574	21.3	6.3	41
2015	16,593	5,588	18.3	6.4	41
2016	13,878	6,130	17.4	6.8	39
2017	13,088	5,743	15.2	6.4	33
2018	11,356	5,507	14.6	6.3	30

## GENERAL STANDARD OF HEALTH

The Government of India after independence planned several approaches for the betterment in health care delivery system primarily on the basis of recommendations and guidance, which formed the fundamentals for organization of health services, provided by the 'Health Survey and Development Committee' of 1946 also known as 'Bhore Committee'. Under the obligatory duty bestowed upon the State under Article 47 of the Constitution, the health services organization and infrastructure have undergone extensive changes and expansion, in stages following review by a



number of expert committees, namely 'the Mudaliar Committee' of 1961, 'the Mukherjee Committee' of 1966, 'the Kartar Singh Committee' of 1974, and 'the Srivastava Committee' of 1975, to raise the level of nutrition and the standard of living and to improve public health. Progressive changes have also been introduced by the Ministry of Health And Family Welfare into the programme through Five-Year Plans, and appropriate legislations. India became a signatory to 'the Alma Ata Declaration' of 1978, and committed itself to attain the goal of 'Health for All'.

The National Health Policy was officially adopted in 1983. An overall improvement of general health is witnessed in the district owing to the policies of the government aimed at steady improvement in the living standard, control of communicable diseases, preventing and correcting nutritional deficiencies, improvement in accessibility and availability of water supply and sanitation services, integration of the family planning programme with Mother and Child Health and nutrition programmes, adoption of National Rural Health Policy, 2002 and implementation of National Rural Health Mission, 2005. Availability of a well established health care system, coupled with preventive and prophylactic medicine and improved sanitation has helped improvement in the general standard of health of inhabitants of the district. The people of the district take sufficient protein in the form of milk and buttermilk, and fat in the form of *ghee*. By and large, people are vegetarian and usually consume *chapatti* and rice with vegetables and pulses. In urban areas, a section of population take body building proteins like meat, eggs, fish and other protective foods like green leafy vegetables, salad, fresh fruit, etc. The general standard of health of inhabitants of district is good with robust physique.

## **PREVENTIVE MEASURES TO PROMOTE PUBLIC HEALTH**

The concept of good health rightly lays greater emphasis on the prevention of deadly diseases and timely cure of diseases in the first instance. Disease prevention and health promotion programmes focus on keeping people in good health. Remedial approach helps to prevent and stop various diseases common in the district. Health promotion as per World Health Organization

(WHO) is “the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.” There are three main elements of health promotion viz. good governance for health, health literacy, and healthy milieu. Health promotion programmes aim to engage and empower individuals and communities to choose healthy behaviours, and make changes that reduce the risk of developing chronic diseases and other morbidities. Disease prevention and health promotion programmes often address social determinants of health, which influence modifiable risk behaviours, and hence affect health status. Social determinants of health include the economic, social, cultural, and political conditions, in which people are born, grow, and live.

The promotional measures like cleanliness of the surrounding areas and other preventive methods also improve health of public in general. Surroundings have a key role in promotion of good health. It is also necessary to ensure supply of clean and safe drinking water to both urban and rural masses; to check the evil of adulteration of food articles; to promote desired knowledge about the practice of nutritive food articles and values thereof; and to take other essential steps for prevention of degradation of environmental hygiene, etc., to promote public health in all spheres of life in the district. Some disease prevention and health promotion programmes in effect in the district have been described in following paragraphs.

**School Health Services.**— This programme was started during the Second Five Year Plan (1956-61) and a school health clinic was established at Jhajjar. It provided medical inspection, treatment, and follow-up of school going children in consultation with their parents treating the health of the school children as a collective and shared responsibility of parents, teachers, community, and the health administration. Under this programme, every student is examined thoroughly by the general physicians, Eye and ENT specialists, and dentists for general physical health, vision, hearing, orthodontic and speech defects, etc., and a record in this regard is maintained periodically by the PHC concerned. The

school children are also clinical examined for detection of nutritional deficiencies and for any intestinal parasites. In case of defects, the medical officers either treat the students in situ, or recommend to higher level institute of medical care. During 2017-18, health status of more than fifty thousand students was examined under this programme in the district.

**Rashtriya Bal Swasthya Karyakram (RBSK).**— This programme was launched from Jhajjar for the whole of the State on 26<sup>th</sup> January, 2010 under its former name Indira Bal Swasthya Yojana (IBSY) which was later changed to RBSK in 2013. The programme aims to provide free preventive and curative healthcare to the under-18 population, with focus on disease, disability, and deficiency. It seeks to cover all the children in *anganwadis* (child and mother care centres) and government schools.

All the children identified with defects at birth with 4Ds i.e. Diseases, Deficiencies, Developmental Delays including Disability will be given free of cost treatment at the government health facilities in Haryana State, and those requiring tertiary level care will be referred for further treatment at the approved tertiary level centres at GMCH-32 or PGIMER, Chandigarh, PGIMS, Rohtak and AIIMS, New Delhi. National Rural Health Mission, Haryana implements the RBSK programme in the district in convergence mode with Sarva Shiksha Abhiyan and Departments of Health, Women and Child Development, and Social Justice and Empowerment. In the district, 20,322 children were treated under RBSK programme from 2014 to 2018.

**Family Welfare Programme.**— In 1951, Government of India launched its family planning programme for the first time to reduce population growth in the country. The Department of Women and Child undertook, from time to time, many important activities for implementation of the programme. In the ninth Five-Year Plan (1997-2002), a total change in implementation of National Family Welfare Programme was recommended and the government changed the strategy to ‘Reproductive and Child Health’ to cover all aspects of women’s health from childhood to adolescence, through reproductive age, menopause and beyond. Family Welfare Programme besides demanding

limitation of child-births, address issues like proper spacing methods, sex education, education for parenthood, and medical termination of pregnancy, advice on sterility, screening for pathological conditions related to reproductive system, etc. The family welfare programme in the district has made considerable progress through intensification of family welfare activities amongst masses. The number of beneficiaries of the programme in the district from 2010-11 to 2017-18 are given in the table below:- .

<b>Year</b>	<b>I.U.D.</b>	<b>Oral Pills</b>	<b>Sterilisation</b>	<b>Contraceptives</b>
2010-11	6,840	8,068	4,814	5,378
2011-12	7,022	12,052	5,178	6,237
2012-13	6,348	8,663	5,648	4,941
2013-14	5,346	5,828	7,297	2,589
2014-15	9,596	13,073	7,234	5,426
2015-16	9,562	31,343	2,404	3,576
2016-17	8,989	35,427	2,106	4,325
2017-18	9,980	37,646	1,934	3,764

## **NATIONAL HEALTH MISSION**

The National Health Mission (NHM) envisages achievement of universal access to equitable, affordable, and quality healthcare services that are accountable and responsive to needs of people. The main programmatic components include Health system strengthening in rural and urban areas, Reproductive Maternal-Neonatal-Child and Adolescent Health and Communicable and Non-Communicable Diseases. The National Health Mission encompasses its two sub-missions, namely the National Rural Health Mission, and the National Urban Health Mission.

### **(i) NATIONAL RURAL HEALTH MISSION**

The Government of India launched the National Rural Health Mission (NRHM) in April, 2005. The mission seeks to provide quality healthcare to the rural population, especially the vulnerable groups. The thrust of the mission is on establishing a fully functional, community owned, decentralized health delivery system with inter-sectoral convergence at all levels, to ensure

simultaneous action on a wide range of determinants of health such as water, sanitation, education, nutrition, social and gender equality. It also seeks to reduce in the State, the 'Maternal Mortality Ratio (MMR)' from 153 to 100 per 1,00,000 live births, 'Infant Mortality Rate (IMR)' from 48 to 30 per 1,000 live births and the 'Total Fertility Rate (TFR)' from 2.3 to 2.1 (SRS 2005 – 2015), which though are much below the national average figures of 407, 60 and 3.0 for MMR, IMR and TRF, respectively. Brief description of schemes launched under NRHM is as follows:-

**Accredited Social Health Activist (ASHA).**— This scheme was launched for women of the villages with minimum population of 1000 persons. ASHA is woman resident of the village, in the age group 25 to 45 years with a minimum qualification of middle class pass, who is trained as health activist to create awareness on health and its social determinants and mobilize the community towards local health planning and increased utilization of the existing health services. ASHAs serve as facilitators, mobilisers and providers of community level care. She is the first port of call in the community especially for marginalized sections of the population, with a focus on women and children. ASHA has been a key figure in contributing to the positive outcomes of increases in institutional delivery, immunization, active role in disease control programmes (malaria, dengue, etc.) in the district and improved breastfeeding and nutrition practices. An ASHA counsels women on birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception, and prevention of common infections including reproductive tract infections/sexually transmitted infections (RTIs/STIs) and care of the small children. She acts as a depot holder for essential provisions like Oral Rehydration Therapy (ORS), Iron Folic Acid Tablet (IFA), Chloroquine, Oral Pills and Condoms, Disposable Delivery Kits (DDK), etc. She is entitled to receive performance-based remuneration for the services she renders. After the launch of NUHM in 2013, ASHAs are being selected in urban areas as well. As on 31<sup>st</sup> March, 2018, there were 867 ASHA workers active in the district.

**Janani Suraksha Yojna.**— The scheme was initiated by the Government of India in 2005 and has been implemented in the State of Haryana in right earnest since its inception. The scheme aims at reducing maternal and neonatal mortality by encouraging and increasing institutional deliveries. In this scheme cash incentive, in order to ensure her a good diet and care, is given to the mother. The State plan of the scheme was launched in April, 2008. This scheme is meant for pregnant women belonging to non- BPL Scheduled Caste/Scheduled Tribes family for delivery in the health institutions of government or accredited private sector health centre, and even for delivery at home to all category BPL women, provided that she is above 19 years of age. A total financial assistance amounting to ₹1,500 is given in three instalments of ₹500 each up on registration of pregnancy, on getting check-ups done, and finally on delivery day, or within 5 working days thereafter. However, full payment is made, even for eligible pregnant women coming directly for the delivery to the institution without any prior antenatal check-up. From 2011-12 to 2017-18, the number of beneficiaries who got benefits under this scheme in the district is given in the table as below:-

<b>Year</b>	<b>Beneficiaries</b>
2011-12	2,544
2012-13	2,899
2013-14	1,944
2014-15	1,138
2015-16	1,232
2016-17	1,065
2017-18	833

**Institutional Delivery Scheme.**— This scheme was implemented in August, 2005 with the main objectives to ensure safe and clean deliveries along with safety and privacy for pregnant women. The pregnant women require emotional and physical support before and during child birth. It is a well-known fact that pregnant women feel secure and safe in their own vicinity. Keeping this in view, free delivery services for normal deliveries, post-partum care of neonate and the mother, are being provided at ‘Delivery

Huts', at selected 24x7 Primary Health Centres, all Community Health Centres, Sub-District Hospitals and District Hospital. District Hospital Jhajjar and Civil Hospital Bahadurgarh have been upgraded to first referral units where blood storage and caesarean operation facilities have been provided. This innovative scheme has got an overwhelming response and helped increasing safe institutional deliveries. The progress of the scheme from 2013 to 2017 in the district is shown in the table below:-

Year	Private institutional deliveries	Government institutional deliveries	Non-institutional (Home) deliveries	Institutional delivery rate against reported deliveries.
2013	6,635	8,215	825	94.7
2014	8,301	9,283	377	97.9
2015	2,689	10,009	362	97.2
2016	4,255	8,987	241	98.2
2017	3,964	8,503	174	98.6

**Referral Transport Scheme.**— The free referral transport scheme was introduced in 2009 in order to provide free services to the pregnant women to get them delivered at the government health institution, to the victims of roadside accidents, and to patients of all categories living below poverty line. This service is available in each health institution and can be availed free of cost by dialling 102 (toll free) from any phone. All other persons can avail this service at the rate of ₹7 per kilometre. In 2017-18, under referral transport scheme 20,387 persons got benefitted in the district.

**United Fund.**— The united fund scheme is health sector reform under NRHM and is meant to increase functional, administrative and financial resources, and to provide increased autonomy to the field health units for local health action and improvement of physical infrastructure in village level health institutions. A sum of ₹10,000 as united funds and ₹10,000 as maintenance grant is provided per annum in the account jointly operated by Sarpanch, Panch and Auxiliary Nurse and Midwife (ANM) of the concerned village to improve the health services at sub-centre level. However, every village community is free to contribute additional grant towards Village Level

Committee-cum-Village Health and Sanitation Committee against which the government endeavours to provide matching additional incentive and financial assistance to the village. Similarly, for the improvement in Health Services at PHC and CHC levels, an amount of ₹25,000 and ₹50,000 per annum as united funds for local health action, and ₹50,000 and ₹1,00,000, per annum respectively for improvement and maintenance of physical infrastructure are provided under this scheme.

**Arogya Kosh.**— This fund scheme is sponsored both by Central and State Government in equal share of rupees one crore each for providing assistance to the persons living below poverty line for getting super-specialized treatment for life threatening diseases like chronic lung disease, heart diseases, kidney diseases and cancer, etc. Only those patients who take treatment from AIIMS, New Delhi, PGIMER, Chandigarh and PGIMS, Rohtak are covered under this scheme. From 2010-11 to 2017-18, thirty one patients from the district availed benefit of treatment under this scheme.

**Routine Immunization.**— Routine Immunization is one of the most cost effective public health measure. Immunization programmes are aimed at reducing mortality among children and enable them to live a healthy life as vaccines provide active immunity to the body by stimulating the immune system which produces antibodies against disease producing organisms. Immunization Programme initiated in 1978 was made Universal Immunization Program (UIP) in 1985, and covered 6 vaccine preventable diseases, namely polio, childhood tuberculosis, typhoid, diphtheria, pertussis (whooping cough) and tetanus. Later, the measles vaccine was added after the elimination of the typhoid vaccine. In 1992, the UIP was integrated with Child Survival and Safe Motherhood Program (CSSM), and in 1997, it was added to Reproductive and Child Health Program (RCH). Polio eradication programme was launched in 1995-96 under which National Immunization Days (NIDs) are organised for free polio vaccine administration through special campaigns. Haemophilus Influenza Type B (Hib) vaccine was introduced in Universal Immunization Programme (UIP) in December, 2012 to prevent the morbidity and mortality



associated with Hib Pneumonia disease and to reduce the Infant Mortality Rate (IMR) in the State. Immunization of children done in the district from 2013 to 2018 is given in the table as follows:-

Year	DPT (Penta- valent)	Polio	BCG	Measles	DPT (Booster)	TT 0-10	TT 11-16	100/180 IFA
2013	13,576	14,030	19,849	15,501	16,091	4,739	4,156	13,055
2014	15,480	15,104	16,467	16,464	16,054	4,522	3,381	19,106
2015	15,979	15,761	15,484	17,267	16,618	3,196	2,856	14,273
2016	17,611	17,206	15,025	18,468	16,968	3,365	2,853	11,321
2017	18,685	17,641	15,839	17,963	16,701	2,274	2,441	15,923
2018	16,085	15,850	13,900	15,237	14,619	3,462	3,208	16,897

DPT (Pentavalent) = Diphtheria Pertussis Tetanus, Hepatitis B and Hib vaccine; BCG= Bacillus Calmette Guerin vaccine; TT=Tetanus Toxoid vaccine; IFA= Iron and Folic Acid tablet

**Nutrition.**— With the assistance of Government of India and UNICEF, an applied nutrition programme is being carried out in all the blocks of the district. The programme aims at educating people for taking a balanced diet from amongst the available food items. The demonstrations are arranged on proper cooking and emphasis is laid on food hygiene, consumption of general vegetables and cheaper proteins. During 2017-18, on an average 33,060 children per month got benefitted under this programme in the district.

**Prevention of Adulteration in Food Stuff.**— Food is one of the basic necessities for sustenance of good health and healthy life. Pure, fresh, and healthy diet is most essential for the health of the people. Therefore, adulteration in food stuff is, required to be checked at all levels. At the district level, Civil Surgeon is responsible for the implementation of Prevention of Food Adulteration Programme and check adulteration under the Food Safety and Standard Act, 2006. For the said purposes, he is assisted by a Food Inspector appointed under the provisions of the said Act. In addition, the Medical Officers in the district have also been conferred the powers of the food inspector. Samples of food stuffs are collected in routine, and through specially organised raids, to ensure the qualitative food. Under the prevention

of food adulteration programme in the district the cases of adulteration of food stuff have shown a decreasing trend. In 2014-15 in the district, under the Food Safety Act, 45 cases were detected, whereas, only 25 cases were reported during the last three years up to March, 2018.

## **(ii) NATIONAL URBAN HEALTH MISSION**

National Urban Health Mission was implemented in 2013. It seeks to improve the health status of the urban population particularly urban poor and other vulnerable sections like rickshaw pullers, street vendors, railway and bus station coolies, homeless people, street children, construction site workers, etc., by facilitating their access to quality primary healthcare. It covers all State capitals, district headquarters and other cities/ towns with a population of 50,000 and above (as per census 2011) in a phased manner. Cities and towns with population below 50,000 will continue be covered under NRHM. This programme endeavours to achieve its goal through need based city specific urban health care system to meet the diverse health care needs of the urban poor and other vulnerable sections; institutional mechanism and management systems to meet the health-related challenges of a rapidly growing urban population; partnership with community and local bodies for a more proactive involvement in planning, implementation, and monitoring of health activities; availability of resources for providing essential primary health care to urban poor; partnerships with NGOs, for profit and not for profit health service providers and other stakeholders.

During 2017-18 under the mission, there were 7 Urban Primary Health Centres (UPHCs) in the Jhajjar town wherein 1,02,668 patients availed benefit of treatment. The list of UPHCs is given in the Table-L of the Appendix.

**Reproductive and Child Health (RCH) Centre.**— In order to cater the health needs of urban slum population, five urban health centres have been opened in the slums which provide facility of OPD, Immunization, ANC, Lab services, etc., free of cost. During 2017-18, under this scheme 3,200 children were benefitted in the district.

## **WATER SUPPLY AND SEWERAGE SYSTEM**

There are two government agencies which provide water and wastewater services in Jhajjar district: (i) the Public Works Department Water Supply and Sanitation Division (PWD-WSSD); a state government department primarily responsible for providing water supply and sewerage services within the municipal boundaries; (ii) Haryana Urban Development Authority (HUDA); an autonomous government body functioning as the land developer and the second largest service provider in the district responsible for providing services only to sectors /areas developed by it. Their responsibilities include providing piped water supply and sewerage facilities in the district. In the district, ground water is not so sweet, and tube-wells, hand-pumps and percolation wells are common sources of water-supply. Extensive ground water usage for domestic as well as commercial and industrial use has been observed as a common phenomenon in the town. However, the sweet water tube-wells and wells have traditionally been the main source of water in the district. As on 31<sup>st</sup> March, 2018, there were 47 wells, 119 tube-wells and 375 ponds/tanks in the district.

The ground water is saline at the shallow as well as at depths in the area. The water supply, rural or urban in the district area is based only on canal water. The canal water is cleaned through “Slow Sand Process” and supplied to the villages and towns at the rate of 150 litres per head per day. Out of 260 villages of the district, 170 villages at Jhajjar and 79 at Bahadurgarh are covered by the Public Health Department, Jhajjar, and rest of the villages are covered by the Public Health Department at Rohtak and Rewari. There are about 86 tube wells of Public Health Engineering Department, used for augmentation to water supply in the district. The additional demand of water both in rural and urban areas are met with the hand pumps generally located near the canals or other surface water bodies, as the quality of shallow ground water is fresh<sup>1</sup>. However, no fresh water occurs below 80 metres in the district.

The elevation of the water table in the district varies from 206 metres

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1 Ground Water Information Booklet (Jhajjar District), Central Ground Water Board (GOI), Chandigarh, 2013

to 250 metres above mean sea level. The average gradient of the water table is of the order of 0.48 metres /kilometre. The general slope of water table in the area is converging towards the centre of the district or more precisely around Jhajjar. The block-wise position relating to water supply and sewerage system in the district is described in the succeeding paragraphs.

**Jhajjar.**— The water supply status of Jhajjar town is 135 litres per capita per day. Nearly 98 per cent of town population is being served with piped water supplied through tube wells. There are many water works with the facility of water booster available in the town to fulfill the needs of consumption of the water for domestic use of the public. More than 85 per cent of urban population of the town households in the district have access to drinking water facility within their premises. The detail of the water-tanks/ponds available in the district is given in the table as follows<sup>1</sup>:-

Block	Tanks/ ponds	Average water spread area (ha)		No. of days water is available		Recharge in Ha.m.	
		Monsoon	Non- Monsoon	Monsoon	Non- Monsoon	Monsoon	Non- Monsoon
Jhajjar	105	200	105	90	180	25.92	27.21
Bahadurgarh	80	150	80	85	200	18.36	23.04
Beri	70	120	70	85	205	14.68	20.66
Matanhail	60	100	60	80	150	11.52	12.96
Salhawas	60	100	60	80	150	11.52	12.96
<b>Total</b>	<b>375</b>	<b>670</b>	<b>375</b>	<b>420</b>	<b>885</b>	<b>82.00</b>	<b>96.84</b>

Jhajjar town has underground sewerage system for sanitation and disposal of human excreta. Approximately, 80 per cent of the town is covered with sewerage facilities. Presently, there are two Sewage Treatment Plants having the capacity of 35 million litres per day (MLD) and 10 MLD, and both the treatment plants are based on 'Upflow Anaerobic Sludge Blanket (UASB)' technology. An estimated volume of 90 MLD of sewage with BOD (bio-chemical oxygen demand) load of 2700 kilogram is disposed from Jhajjar. Water Supply and Sanitation Division, Jhajjar has D. G. Sets, Jetting Machines,

<sup>1</sup> Ground Water Information Booklet (Jhajjar District), Central Ground Water Board (GOI), Chandigarh, 2013

Rope and bucket machines for sewer cleaning. Bamboo Stick technique is still in vogue and is widely used in the town which provide immediate relief from blockages. All the villages have been covered under the Nirmal Gram Yojana.

**Bahadurgarh.**— The water supply status of Bahadurgarh town is 135 litres per capita per day. Approximately, 85 percent of the population is being served with piped water supply through 14 water-works / tube-wells, the distribution system of which is spread over 82 percent of the area of the town. For sanitation and disposal of excreta, the town is equipped with the underground sewerage system which covers nearly 83 percent of the town area.

**Beri.**— The water supply status of Beri town is 135 litres per capita per day. Nearly, 82 percent of the population is being served with piped water supply through 12 water-works / tube-wells. The water distribution system is spread over 82 percent of the area of the town. More than 80 percent area of the town is covered with the facility of underground sewerage system for sanitation and disposal of human waste.

**Salhawas.**— The water supply status of Salhawas is 115 litres per capita per day. Approximately, 80 percent of the population is being served with piped water supply through 12 water-works / tube-wells and the distribution system is spread over 82 percent of the area of the town. Approximately, 70 percent area of the town is facilitated with underground sewerage system for sanitation and disposal of faecal matter.

**Matanhail.**— The present water supply status of Matanhail town is 115 litres per capita per day. Approximately, 80 percent of the population is being served with piped water supply through 8 water works/ tube wells. The distribution system is spread over 82 percent of the area of the town. The Matanhail town has sewerage system of disposal and sanitation. More than 75 percent area of the town is covered with sewerage facilities.

**Badli.**— The water supply status of the town is 110 litres per capita per day. Approximately, 80 percent of the population is being served with piped water supply through 12 water-works / tube-wells. The distribution system is spread

over 80 percent of the area of the town. More than 70 percent area of Badli has the facility of underground sewerage system for sanitation and disposal of human waste.

**Water Supply (Rural).**— On 1<sup>st</sup> November, 1966, upon formation of State of Haryana, only a few villages of the areas of the then Rohtak (now Jhajjar) district had piped water supply. A number of schemes, under the National Water Supply and Sanitation Programme, to provide piped water supply to the rural areas, have been started since then. By end of 1992, all the villages of the district were provided with piped water supply. In March 2018, augmentation works were in progress for raising rural water supply status to 70-110 litres per capita per day (LPCD) depending upon the demand and availability of the water. Percolation wells, hand-pumps and tube-wells are still used in certain areas of the district as sources of drinking water. Cattle are generally fed on pond water, and in case of its scarcity other water sources are utilised.

**Environmental Hygiene.**— Environment hygiene also known as environmental sanitation is a group of activities aimed at improving or maintaining the standard of basic environmental conditions affecting the well-being of people. These conditions include clean and safe water supply, clean and safe ambient air, efficient and safe animal, human, and industrial waste disposal, protection of food from biological and chemical contaminants, and adequate housing in clean and safe surroundings. These activities are aimed to protect people from dangerous conditions arising from dirty shelters, polluted air and untreated water supplies, waste disposal systems, contaminated food sources, etc.

During last decade, there has been much endeavour at the government level in the district to promote environmental hygiene at rural level, on all round development of villages particularly link roads, pavement of streets, *pucca* drainage, and provision of clean water supply through tube-wells, hand-pumps, wells, etc. The cattle excreta is generally transformed to fuel, treated to form bio-gas, or converted to compost manure by the peasants themselves or at panchayat level. The sanitation arrangements have improved to satisfactory level but still have much scope of improvement.

In urban areas, municipalities through their sanitary and conservancy staff look after the work of regular removal and disposal of biodegradable waste and solid refuse making the sanitary arrangements slightly better than rural areas. The collected biodegradable wet and dry wastes are converted into compost, which is then sold to farmers as per municipal bye-laws. Special campaigns are also organised through non-government and government organisations wherein the Medical Officers, the Sanitary Inspectors, and other Health Workers generally guide and educate the people regarding maintenance of environmental hygiene and its benefits. The Chief Medical Officer is the overall Incharge of sanitation activities in the district. He is further assisted by Deputy Chief Medical Officer (Health) and other subordinate staff. The Senior Sanitary Inspector at tehsil and Sanitary Inspector at Primary Health Centre level look after the sanitation activities within their respective jurisdiction.

## **POLLUTION**

Despite the major efforts that have been made over recent decades to clean up the environment, pollution remains a major problem and poses continuing risks to health. The problems are harsher where traditional sources of pollution such as industrial emissions, poor sanitation, inadequate waste management, contaminated water supplies, and exposures to indoor air pollution from biomass fuels affect large numbers of people. A wide range of modern pollutants have emerged that are associated with road traffic and the use of modern chemicals in the home, in food, for water treatment and for pest control which also add up to major public health concerns. Haryana State Pollution Control Board constituted in 1974 is the statutory authority entrusted the duty to implement environment protection laws and rules within the jurisdiction of the State of Haryana. The Board has its office at Bahadurgarh where the officers adopt an integrated approach for tackling problems related to terrestrial, water, air, and noise pollutions that may arise from time to time, and ensure implementation of the provisions of following enactments and rules:-

- (i) The Water (Prevention and Control of Pollution) Act, 1974;
- (ii) The Water (Prevention and Control of Pollution) Cess Act, 1977;

- (iii) The Air (Prevention and Control of Pollution) Act, 1981;
- (iv) The Environment (Protection) Act, 1986;
- (v) The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989;
- (vi) The Solid Waste Management Rules, 2016;
- (vii) The Bio Medical Waste Management Rules, 2016;
- (viii) The Re-cycled Plastic Manufacture and Usage Rules, 1999;
- (ix) The Noise Pollution Rules, 2000;
- (x) The Batteries (Management and Handling) Rules, 2001;
- (xi) The Hazardous and other Wastes Management and Transboundary Movement Rules, 2016;
- (xii) The Plastic waste Management Rules, 2016;
- (xiii) The E-Waste Management Rules, 2016; and
- (xiv) The Construction and Demolition Waste Management Rules, 2016

In the district, there are 12 major industrial units in the field of dyes, power plants, pesticides, and cement which are main sources of serious pollution. The Pollution Control Board has also opened a laboratory in the district. Individual Effluent Treatment Plants (ETPs) and Air Pollution Control Devices have been installed at industrial units functioning in the district to ensure compliance of standards. It is worthwhile to mention here that stringent action is taken against errant and defiant units, etc. The State Government has formulated a policy for shifting the potentially polluted dyeing units, etc., from non-conforming areas to the approved Industrial Estate in Jhajjar. Most of the operating industrial units in the district have installed their own ETPs and closure action has been taken by the Board against units which have not installed the required ETPs from time to time. A complete ban has been imposed in the district on manufacture, sale and use of plastic carry bags since January, 2011.

In order to create awareness against pollution and related issues among masses, posters are displayed at prominent places in villages, and offices of Panchayats and *Panchayat Samitis*, etc. Radio jingles are also relayed on All India Radio, Rohtak, Kurukshetra and Hisar (FM) in local language to convey



the messages more effectively and efficiently to the large sections of society. Short documentaries underlining the importance of clean environment and on prevention of pollution in various fields of life are also shown to the public.

Cultivators are also educated against the burning of wheat stubble/paddy straw in their fields and surrounding areas and to use machines such as happy-seeders, rotavators, bailers, etc., to check pollution and related issues. In the drive against pollution, the torch-bearer and forerunner cultivators are given awards as encouragement, which also serves as inspiration for others.

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