

## IDSP-control of communicable, non-communicable diseases and certain Core conditions-integration at the district level Kadapa

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**Abstract: Introduction:** Integrated Disease Surveillance Project is intended to detect early warning signals of impending outbreaks and help to initiate an effective response in a timely manner in urban and rural areas. Communicable diseases, risk factors for non-communicable diseases<sup>3</sup> certain core conditions are included in the project. (1) Malaria (2) acute diarrheal diseases (3) typhoid(4) Tuberculosis(5) measles (6) polio (7) road traffic accidents (8) plague(9) HIV (10) water quality monitoring (10) NCD risk factors-Anthropometry ( physical activity , BP, Tobacco, Nutrition etc .Additional conditions related to health and specific for particular geographical area may also be included for surveillance. **Objectives:** 1. To promote integration of various service departments at the district level, with medical Integrated Disease Surveillance Program. 2. Surveillance of not only communicable diseases but also assessment of risk factors for NCDs and core conditions mentioned in the project and health, in taking corrective measures against core conditions covered under **Methodology:** A cross sectional retrospective study was conducted with regard to implementation of integrated disease surveillance project in Kadapa district for the year 2017. The health profile of Kadapa district in Andhra Pradesh was studied by collecting data from IDSP wing of DM&HO for the year 2017 (Jan to Dec) and subjected to Statistical analysis. Though there are many conditions mentioned in the IDSP, only few communicable diseases are given importance. **Results and Conclusion:** Though disease surveillance appears to be the medical and health subject, for effective control of, disease and improving the health standards, integration of various departments with medical and health and their effective participation is highly essential. District is considered as unit and District Surveillance Units have been established in all districts in the country. Disease surveillance data on epidemic prone diseases are being collected from reporting units such as Sub centers, PHCs, CHCs on S (syndromic) P (probable) L(laboratory) formats through e-mail. The weekly data analyzed for disease trends. While sending information to State Surveillance unit, DM&HO the convener of the District Health Society, during monthly review meetings chaired by the District collector, should present the report in the meeting where all the district officers like Superintendent engineer district rural water supply, project director ICDS, PD-district rural development authority, Medical College, nongovernmental organizations etc. There will be effective participation under the authority of the Collector and DM&HO will get the needed support..There are some core conditions like Road traffic accidents, Pollution checking, Water quality monitoring are not at all considered, though they are mentioned in IDSP as core conditions, DM&HO is not bringing to the notice of the district collector with the result they are not being monitored.

**Keywords:** IDSP, Kadapa

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### I. Introduction

YSR District is centrally located and well connected with four districts of Rayalaseema. It is also the land locked district within the State and lies approximately between 130 43' to 150 14' North latitudes and 770 55' to 790 29' of East longitudes. The total area of the district is 15, 359 square kilometers and forest area is 5,017.33 Sq. Km. It was desired to study the health profile of the district regarding communicable and non communicable diseases and certain core conditions mentioned in the Integrated Disease Surveillance Project. (IDSP). It is a decentralized state based surveillance system in the country. This project is intended to detect early warning signals of impending outbreaks and help to initiate an effective response in a timely manner in urban and rural areas<sup>1</sup>

Disease surveillance was a concept already in existence and defined as the continuous scrutiny of all aspects of occurrence and spread of diseases that are pertinent to effective control. Surveillance goes beyond the passive reporting of cases. It includes laboratory conformation of presumptive diagnosis, finding out source of

infection, routes of transmission, identification of all cases and susceptible contacts and still others who are at risk in order to finally prevent further spread of disease. The ultimate objective of surveillance is prevention.<sup>2</sup>

The IDSP was launched in Nov. 2004 with a view to integrate and developing effective partnership with health and non-health sectors in surveillance, Including both communicable and non communicable diseases, effective partnership of private sector, NGOs and bringing academic institutions and medical colleges into primary public health care activity of disease surveillance. Under the project weekly disease surveillance data on epidemic prone diseases are being collected from reporting units such as sub-centers, PHCs, CHCs including government and private sector hospitals and Medical colleges.

Communicable diseases, risk factors for non-communicable diseases<sup>3</sup> certain core conditions are included in the project. (1) Malaria (2) acute diarrheal diseases (3) typhoid(4) Tuberculosis(5) measles (6) polio (7) road traffic accidents (8) plague(9) HIV (10) water quality monitoring (10) NCD risk factors-Anthropometry ( physical activity , BP, Tobacco, Nutrition etc .Additional conditions related to health and specific for particular geographical area may also be included for surveillance.

Intersectoral approach of various service oriented sectors at the district level will promote integrated approach to deal with health problems very effectively. Periodical meetings conducted by the district collector under District Health Society will help to solve the public health problems with cooperation of other departments like (1) water quality monitoring (2) road traffic accidents (link up with police computers) (3) outdoor air quality due to pollution of heavy vehicular traffic and exhaust (pollution check) (4) partnership of private sector NGOs in surveillance activities (5) bringing academic institutions and medical colleges into the primary public health activity of disease surveillance. Review by the District collector facilitates integration at the district level and binding on all district officers. DM&HO and his staff alone cannot take all remedial measures, to control epidemic of acute diarrhea unless, for instance, water is disinfected and supplied by district rural water supply department.<sup>4</sup> with the Objectives 1.To promote integration of various service departments at the district level, with medical and health, in taking corrective measures against core conditions covered under Integrated Disease Surveillance Program. 2. Surveillance of not only communicable diseases but also assessment of risk factors for NCDs and core conditions mentioned in the project.



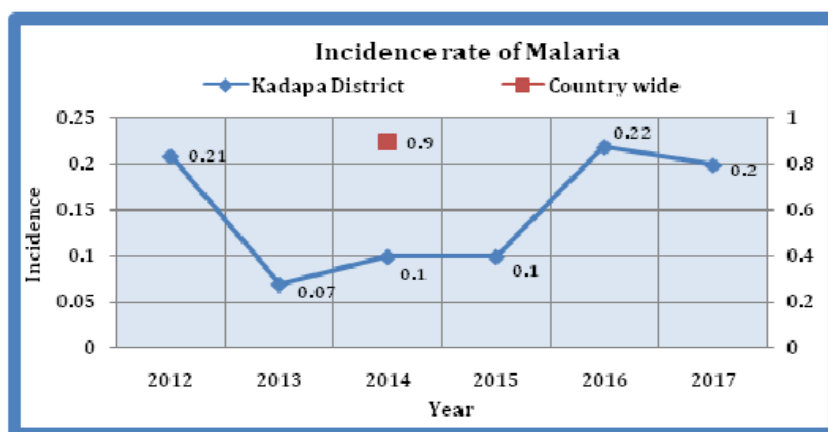
## **II. Methodology**

Kadapa District has three revenue divisions namely kadapa, rajampeta and jammalamadugu. 51 mandals and 831 gramapanchayats with a population of 2882469. The district is very hot place with scarce rain fall. There is one municipal corporation and 8 municipalities. The density of population in the district is 169 per sq/km. The district has a tropical wet and dry climate characterized by year round high temperatures with humidity. During this time temperatures range from a minimum of 34 °C and humidity is around 75%. Monsoon season bring substantial rain to the area.

A cross sectional retrospective study was conducted with regard to implementation of integrated disease surveillance project in Kadapa district for the year 2017. The project is intended to detect early warning signals of impending outbreaks and help to initiate an effective response in urban and rural areas. The project

was launched in Nov. 2004. It continues in the 12th five year plan with domestic budget as Integrated Disease surveillance program. Under the project, weekly disease surveillance data on epidemic prone disease are being collected from reporting units such as Sub centers, PHCs, CHCs, Hospitals including Government and Private sector hospitals, Medical colleges and reported to District Surveillance Unit. The weekly data are analyzed by DSU for disease trends. Whenever there is raising trend of illness, it is investigated by Rapid Response Team to diagnose and control the outbreak. It is a multi specialty team of an epidemiologist, a clinician, a micro biologist and other specialists as per requirement<sup>5</sup>

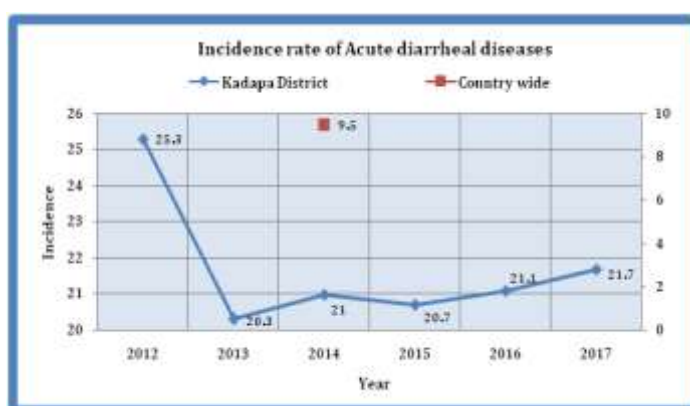
The health profile of Kadapa district in Andhra Pradesh was studied by collecting data from IDSP wing of DM&HO for the year 2017 (jan to dec) and subjected to Statistical analysis. Though there are many conditions mentioned in the IDSP, only few communicable diseases are given importance.



### III. Results and Discussion

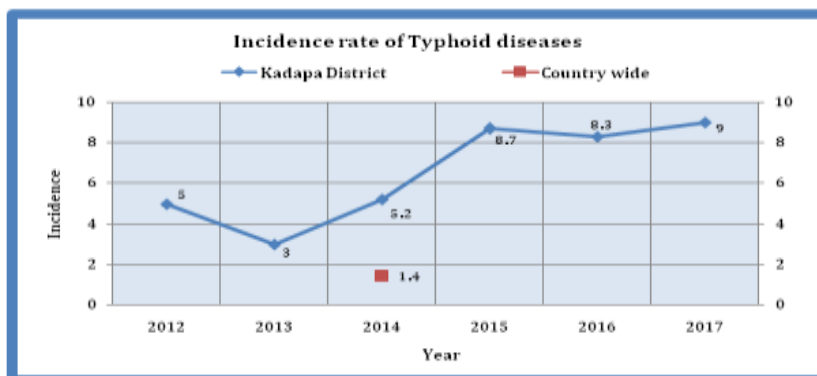
**(1) Malaria:-** In India about 22% population live in Malaria high transmission area i.e. One and more than one case per 1000 population. AP falls under high transmission area. Habits such as sleeping outdoors, refusal to accept spraying of insecticides in the houses, not using measures of personal protection (bed nets) influence man vector contact there by increasing the incidence. .

Temperature higher than 30 deg.C and relative humidity more than 60% <sup>6</sup> is congenial for both parasite multiplication and mosquito life span. Monsoon season brings substantial rain to the area. Kadapa gets rainfall from both the South-west monsoon as well as the North-east Monsoon. All the above environmental factors are suitable for high incidence of vector borne diseases particularly Malaria <sup>7</sup>. Though there is sufficient blood smear collection, slide positivity is low and annual parasite incidence per 1000 population is low. The reason has to be found out. ABER is an index of operational efficiency. The annual parasite incidence (API) depends upon the annual blood smear collection and examination rates. A sufficient number of blood slides must be systematically obtained and examined for malaria parasite to work out accurate annual parasite incidence. API is a sophisticated measure of malaria incidence in a community. It is based on intensive active and passive surveillance and cases are confirmed by blood examination. Areas with API 2 and more than 2 per 1000 population per year have been classified as high risk areas in India and there by eligible for vector control additional inputs and attention of senior professionals.



**(2) Acute diarrheal diseases:-** In India acute diarrheal diseases account for about 8% deaths in under- 5 years age group. During the year 2014, about 11.6 million cases with 1,323 deaths were reported in India. Diarrhea is

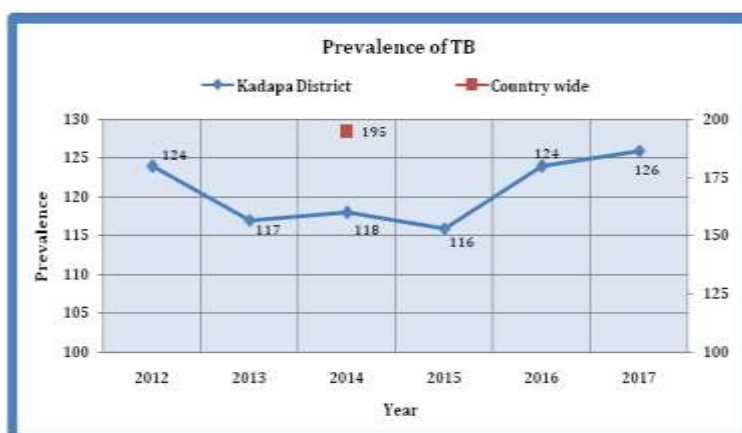
still major killer of children under 5. As a whole incidence of diarrhea has not changed much, although overall diarrheal mortality has declined. During the year 2014, about 11.6 million cases with 1,323 deaths were reported in India. Polluted water sources, inadequate sanitation, poor hygiene practices, contaminated food and malnutrition are the cause's .Rota virus vaccine is included in routine immunization schedule as control measure. Diarrhea prevention indicators like percentage of population using potable water, using sanitary latrines, immunization against measles ,vitamin A supplementation, ORT with continuous feeding, Zink supplementation will go a long way in controlling acute diarrheal diseases particularly under-5children <sup>8</sup> .



**(3)Typhoid;-** Typhoid fever is endemic in India. Reported data for the year 2014 shows that 1.7 million cases and 429 deaths occurred in India. In Andhra Pradesh 186,446 cases and 5 deaths reported. In some Asian urban slum areas has shown that in the age group 5 to 15 years has shown that, the annual incidence of blood-culture confirmed typhoid fever may reach 180-494 per 100,000. Typhoid fever may therefore be regarded as an index of general sanitation in any country. In some of these areas preschool age children less than 5years show incidence rates similar to those of school children. The definitive diagnosis of Typhoid fever isolation of S.typhi from blood. Rapid serological tests are also available .<sup>9</sup>

**Incidence Of Typhoid Rate Per 1000 Population In 2014 Comparison- Kadapa District- Other States- India**

Sl.no	India/states	Population at risk in millions	Number of Typhoid cases in millions	Incidence rate per 1000 pop	Number of deaths
1	India	1210	1.7	1.4	429
2	Bihar	103	0.27	2.6	4
3	Uttara Pradesh	84.66	0.22	2.4	203
4	Andhra Pradesh	84	0.18	2.1	5
5	Madhya Pradesh	72	0.16	2.2	31
6	Maharastra	112	0.1	0.9	0



**(4)Tuberculosis ;-** India is highest TB burden country in the world in terms of absolute number of incident cases that occur each year. It accounts for one- fourth of the estimated global incident TB cases in 2015. The na-

tional ARTI (annual risk of TB infection) was about 1.5%. The Estimated disease burden of TB in India for-2014 Population is 2,200,000.

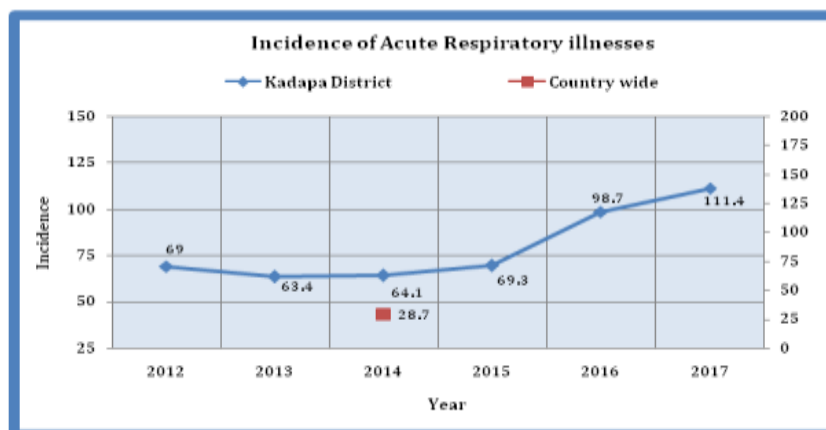
Prevalence rate of all forms TB per 100000 populations is 195. TB causes enormous socio-economic burden to india.HIV increases a persons susceptibility to tuberculosis infection and TB is one of the earliest opportunistic disease to develop amongst persons infected with HIV.CB NAAT and, introduction of daily dose regimen in RNTCP are new diagnostic and treatment algorithms. Introduction of new anti tubercular drug Bed aquiline and End TB strategy.<sup>10</sup>

**(5) Measles;-** an acute highly infectious disease of child hood caused by a specific virus of the group myxoviruses. The primary reason for continuing high child hood mortality and morbidity is the failure to deliver at least one dose of measles vaccine to all infants. In the year 2010 India started implementation of a 2dose vaccine strategy. According to WHO estimates measles responsible for 2% of under 5 deaths. In kadapa district Measles outbreak was reported in 2015 in 13 mandals, 2016 only one out break and in 2017 seven out breaks were reported.<sup>11</sup>

**(6) Polio; -** India was certified as polio free since 27th march 2014. The polio eradication end game strategic plan 2013-2018 represents a major mile stone in polio eradication and describes specific steps to take to successfully achieve eradication. As per the guidelines replacing tOPV with bOPV containing only type 1 and 3 polio virus and withdrawing OPV type 2 from all immunization activities called **the switch** was made. Introduction of one dose of IPV is also started.<sup>12</sup>

**(7) Road traffic accidents:-**During the year 2013, a total of 1.66 lac traffic accidents deaths were reported in the country. The rate of death for 1000 vehicles has decreased from 1.6 in 2007 to 1.2 in2011. Twenty five percent of road traffic accidents were occupants of 2 wheelers. The collection of data regarding road traffic accidents at the district level can be obtained from police department traffic wing. By regular collection of data on road traffic accidents, analysis and implementation of safety measures, education and creating awareness will go a long way in reducing traffic accidents.<sup>13</sup>

**(8) Plague: -** in 2004 India reported a localized outbreak of bubonic plague in a village of utara kasi district. Absence of human plague may simply mean that there has been reduced human contact with plague bacteria circulating in nature. Therefore, there is a need to continue to make concerted effort to strengthen surveillance and improve control measures in order to manage human plague in endemic countries. An unusual mortality among rodents should arouse suspicion of plague and should be investigated immediately. Emphasis must be placed on the need for the prompt reporting of dead rats and suspected human cases so that preventive measures can be taken. Medical practitioners should keep plague in mind in differential diagnosis of any cases of fever with lymphadenopathy or with multiple cases of pneumonia occurs.<sup>14</sup>

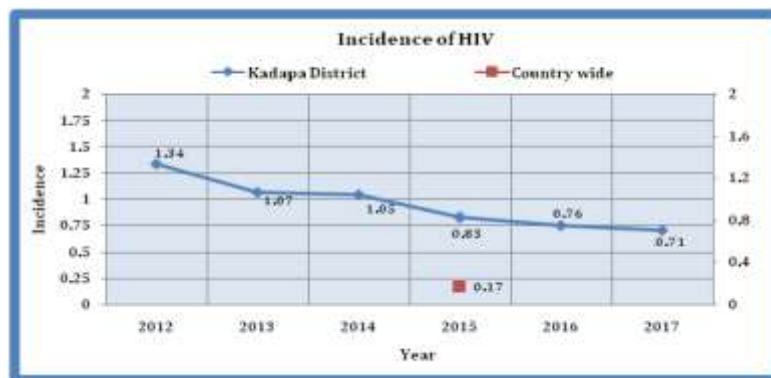


**(9) Respiratory illnesses;-**The incidence of ARIs similar in developed and developing countries. However complication of pneumonia in developed countries may be as low as 3 to 4 percent, where as in developing countries ranges between 20 to 30%. This deference is due to high prevalence of malnutrition, low birth weight and indoor air pollution in developing countries. The clinical features include running nose, cough, sore throat, difficult breathing and ear problem. Some children may have pneumonia which is a major cause of death. Risk factors for respiratory tract infections have been identified. Over crowded dwellings, low birth weight and intense indoor smoke pollution. In our present study the incidence rate for the years 2012 to 2017 is presented in graph. In India during the year2014, about 34.81 million cases of ARI were reported and 2,932 people died of ARI and 2,661 died of pneumonia. Pneumonia was responsible for about 18% of all under 5 year's deaths in India.<sup>15</sup>

**Table: Acute Respiratory Infections- comparison- India and kadapa district**

2014	Acute Respiratory Infections- comparison- India and kadapa district				
	Incidence			Deaths	
	cases in mil- lions	Pop at risk millions	%	Due to ARI	Due to pneumonia
India	34.81	1210	2.87	2,932	2,661
Kadapa dis- trict	0.184955	2.882469	6.41	Not available	Not available

**(10) Hemorrhagic fever;**- All the hemorrhagic fevers reported, though not confirmed occurring during and after monsoon may be provisionally diagnosed as dengue fever with complications. Dengue has shown an increase in recent years due to rapid urbanization, lifestyle changes and deficient water management including improper water storage practices in urban and peri-urban areas leading to proliferation of mosquito breeding sites. The cases are peak after monsoon. During 2014 about 40,425 cases were reported with 137 deaths. The reported number of cases are few and under reporting as 51,13,16,221,13 and 106 respectively from 2012 to 2017. Information regarding Deaths could not be obtained.<sup>16</sup>



**(11) HIV;** - According to sentinel surveillance during 2014-2015, the overall HIV prevalence among ANC clinic attendees (considered as proxy for prevalence among general population) continues to be low at 0.29 percent with an overall declining trend at national level. In kadapa district there is a gradual declining trend, but more than the national average indicating insufficient preventive measures.<sup>17</sup>

**(12) Water quality monitoring;**- surveillance/monitoring is essentially a health measure. It is intended to protect the public from waterborne diseases. The elements of monitoring program are sanitary survey, sampling and bacteriologic survey. Presumptive coli form test, the detection of faecal streptococci, clostridium perferengence, colony count, biological examination and chemical surveillance are to be periodically conducted by district rural water supply department, while extending a copy to DM&HO.<sup>18</sup>

**(13) Pollution check;** - Automobiles, industries and domestic sources are common air pollutants in India. A particular mention must be made about Motor vehicles. They are major source of air pollution throughout urban area. They emit hydro carbons, carbon monoxide, nitrogen oxides and particulate matter besides emitting black smoke. Industries liberate sulphur dioxide. Domestic consumption of coal, wood is major source of smoke. Containment, replacement, dilution, legislation are the measures of control of air pollution. District pollution control board engineer should attend the collector review meetings (District Health society Meeting)<sup>19</sup>

**(14) NCD risk factors;** - Regular periodic surveys for, anthropometry, physical activity, Blood pressure, Tobacco, Nutrition must be made regular activity in primary health centers along with other national programs. Health education regarding primordial prevention will go a long way in controlling non- communicable diseases.<sup>20</sup>

**(15) HINI;** - following its emergence in march 2009, pandemic A (H1N1) 2009 virus spread rapidly throughout the world leading to the declaration of an influenza pandemic by WHO on 11<sup>th</sup> June 2009. The world is now in post-pandemic period. In India it causes local outbreaks. During 2014 India reported 937 cases and 2017 deaths a case fatality rate of 23.2 percent. Basing on the knowledge about past pandemics the H1N1 2009 virus is expected to continue to circulate as a seasonal virus for some years to come. A person with acute febrile respiratory illness, history of contact with confirmed case of H1N1 all precautions are to be taken as per WHO guidelines. Neighboring district chittoor has international passenger's airport and hence, kadapa district should be vigilant particularly during winter season regarding follow up of acute febrile respiratory illnesses.<sup>21</sup>

**(16) Fevers with negative routine clinical lab diagnostic tests;** - fevers identified in this category are very huge in number (4%). Likewise Malaria slide positivity is very low (API is very low) than expected for the district. There is no change in the situation of the mentioned fevers over years from 2012 to 2017. It is implied that doctor/in charge op is not judiciously advising the blood smear examination and lab technicians are not diligent



in identifying the malaria parasite. It is based on intensive active and passive surveillance and cases are confirmed by blood examination. It badly reflects the operational efficiency. Another important point is low presumptive diagnosis of Dengue fevers.

**(17) Sex Ratio :-** The district ranks 10th in the state in terms of sex-ratio with 985 as against 974 in 2001. Within the district Rajupalem mandal female population is 1037 whereas Brahmam gari matham is 920. Highest sex ratio-121 males and 281 Females is found in Nidivelagala village of simhadripuram mandal. Least sex ratio of 500 is found in Tshshampalli village of poru mamilla.<sup>22</sup>

#### IV. Conclusion

Though disease surveillance appears to be the medical and health subject, for effective control of, disease and improving the health standards, integration of various departments with medical and health and their effective participation is highly essential. District is considered as unit and District Surveillance Units have been established in all districts in the country. Disease surveillance data on epidemic prone diseases are being collected from reporting units such as Sub centers, PHCs, CHCs on **S** (syndromic) **P** (probable)**L**(laboratory) formats through e-mail. The weekly data analyzed for disease trends. While sending information to State Surveillance unit, DM&HO the convener of the District Health Society, during monthly review meetings chaired by the District collector, should present the report in the meeting where all the district officers like Superintendent engineer district rural water supply, project director ICDS, PD-district rural development authority, Medical College, nongovernmental organizations etc. There will be effective participation under the authority of the Collector and DM&HO will get the needed support..There are some core conditions like Road traffic accidents, Pollution checking, Water quality monitoring are not at all considered, though they are mentioned in IDSP as core conditions, DM&HO is not bringing to the notice of the district collector with the result they are not being monitored.

**Recommendations :-**(1) Qualitative work with regard to malaria ie sufficient number of blood slides must be systematically obtained and examined for malaria parasite to work out accurate Annual parasite incidence. DM&HO should act on priority basis since vector born disease are assuming huge importance among communicable diseases. Deaths due to Dengue are not recorded to avoid problem from press and public.

(2) Acute diarrheal diseases, typhoid and respiratory illnesses incidence are high, eve more than the national average incidence representing all states during 2014. It calls for improvement of general sanitation by involving Village Health and sanitation committees from panchayat level. Pollution checking both vehicles and industries may help in reducing the respiratory illnesses.

(3) Tuberculosis and HIV are other communicable disease which is lagging behind even in detecting the cases in the community. Prevalence rate of all forms of TB during the year 2014 was 195 per one lakh population. Correspondingly kadpa district repors only 118 cases. It is the need of the hour to utilize the facilities of new treatment algorithm diagnostic facilities of CBNAAT. Preventive measures adopted to control HIV in kadapa are not sufficient. DLO kadapa shall review the situation and usage of condom shall be promoted in big way besides other control measures.

(4) Core conditions hither to not mentioned such as Road traffic accidents, NCD risk factors, pollution checking, water quality monitoring etc shall be brought to the notice of the district collector during review meeting.

#### References

- [1] Directorate of Census Operations. *District Census Hand book Y.S.R village and town directory*, series-29 PART-XII A ed. Director of census operation Andhra Pradesh: Census India Andhra Pradesh; 2011. Page 7-12, 54-56
- [2] K PARK. Preventive and Social Medicine, 24th ed. Jabalpur: Banarsidas Bhanot; 2017. Page 497-499
- [3] National Institute of Communicable Diseases New Delhi IDSP Central surveillance unit. *Integrated Disease Surveillance Project non communicable diseases risk factors*, phase-1 states ed. New Delhi: national institute of medical statistics New Delhi national nodal agency; 2009.
- [4] Revati k Phalkey, Sharvari Shukla, Shavita Shardul, Nutan Ashtekar Sapna Valsa Pradip Avate and Michael Marx. Assessment of the core and support functions of the Integrated Disease Surveillance System in Maharashtra, India. *BMC Public Health* 2013; 13(575):
- [5] Arun Kumar, Manish Kumar Goel, Ram Bilas Jain and Pradeep Khanna. Tracking the Implementation to identify gaps in integrated disease surveillance Program in a Block of District Jhajjar (Haryana). *Journal of Family Medicine and Primary Care* 2014; v3 (3) 213-215(doi: 10.4103/2249-4863.141612):
- [6] Mohammed Nazul islam MD, Mohammed zulkifle MD, Arish Mohammed Khan Sherwani, Sushata Kumar Ghosh PhD and Satyanarayana Tiwari PhD. Prevalence of Malaria, Dengue, Chikungunya Significantly Associated With Mosquito Breeding Sites. *JIMA* 2011;
- [7] Dutta P, Khan SA, Bhattachayya DR, Kiran AM, Sharma CK, Mahanta J. Studies on breeding habits of the Vector mosquito Anopheles baimal and its relationship to malaria incidence in Northeastern region of india, Breeding habits of Anopheles baimal and its role in Incidence of malaria in Northeastern region of India.. *NCBI* 2010; 7(4):
- [8] Subitha laxminarayana and Ramakrishna Jayalakshmy. Diarrheal diseases among children in India: Current scenario and Future perspective. *Journal of Natural Science, Biology and Medicine* 2015; 6(1):
- [9] Jacob John, Carola J.C Van Art and Nicolas C. Grassly. The Burden of Typhoid and Paratyphoid in India: Systematic Review and Meta-analysis. *PMC PLOS Neglected Tropical Diseases* 2016; 10(4):

- [10] Rao V G, Muniyandi M, Bhat J, Yadav R, Sharma R. Research on tuberculosis in tribal areas in India: A systematic review.. *Pub Med* 2018; 65((1) 8-14):
- [11] Dr. SaurabhRam Bihari Lal Shrivastav and Dr. Jagadeesh Ramaswamy. Measles in India: Challenges and recent developments. *PMC-Infection Ecology&Epidemiology* 2015; 5(27784):
- [12] T.Jacob John and Vipin M Vashishtha. Eradicating Poliomyelitis: India's Journey from Hyper endemic to Polio free Status. *Indian Journal of Medical research* 2013; 137(5) 881- 894):
- [13] Nil amber Jha, D.K. Srinivasa, Goutam Roy, S.Jagdish. Epidemiological Study of Road Traffic Accident Cases: A Study from South India. *Research Gate* 2004; 29(1):
- [14] Anil Kumar Gupta, Umesh Chauhan and Amarjit Singh. Socio-epidemiological determinants of 2002 plague outbreak in Himachal Pradesh, India: a qualitative study. *BMC Public Health* 2014; 14(325):
- [15] Kalaiselvi Shelvaraj, Palamvel Chinnakali, Anindo Mujumdar and Iswarya Santana Krishnan. Acute respiratory infections among under-5 children in India: A situational analysis. *Journal of Natural Science, Biology and Medicine* 2014; 5((1): 15-20):
- [16] M.Emmanuel Bhaskar, Swathy Moorthy, N.Santhil Kumar and Preetam Arthur. Dengue hemorrhagic fever among adults-an observational study in Chennai south India. *IJMR* 2010; 132((6):738-740):
- [17] Lt CoL A S Kushwaha, Minaxi Kumar. Journey from victim to a victor-a case study of people living with HIV and AIDS. *MJAFI* 2012; 68(1):
- [18] Priya Ranjan Mishra, Nadda R.K. Water Resource Pollution and Impact on the local Livelihood: A case study of Beas River in Kullu District, India. *Future of food: Journal on food, Agriculture & Society* 2014; 2((1)):
- [19] JUHI CHAUDHARY. India's Smaller Cities Are More Polluted Than Delhi', *THE WIRE*. Undefined: 1-7.
- [20] Aroor Bhagyaxami, Trivedi Atul and Jain Shikha. Prevalence of Risk Factors of Non-communicable diseases in a District of Gujarat, India. *Journal of Health, Population and Nutrition* 2013; 31((1) 78-85):
- [21] Sanchita sharma. Alarming rise in swine flu cases in India as 345 Killed this year alone', *Hindustan Times*. Undefined:
- [22] Yugali Warade, Geetha Balasarkar and Pooja Banerkar. A Study to Review Sex Ratio at Birth and Analyze Preferences for the Sex of the Unborn. *Journal of Obstetrics and Gynaecology of India* 2014; 64((1) 23-26):

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