FIELD PROJECT REPORTS

By

Kamalakanta Das

NATIONAL INSTITUTE OF EPIDEMIOLOGY

(Indian Council of Medical Research)

Mayor V.R. Ramanathan Road, Chetput, Chennai 600 031

JANUARY 2004

FIELD PROJECT REPORTS

By

Kamalakanta Das

(MAE- FETP Scholar 2002-2003)

Submitted in partial fulfillment of the requirements for the degree of

Master of Applied Epidemiology (M.A.E) of

Sree Chitra Tirunal Institute for Medical Sciences and Technology,
Thiruvananthapuram Kerala-695 011.

This work has been done as part of the two year Field Epidemiology Training Programme (FETP) conducted at

National Institute of Epidemiology,
(Indian Council of Medical Research),
Mayor V.R. Ramanathan Road, Chennai-600 031.

JANUARY 2004

CERTIFICATION

This is to certify that all the field projects submitted in this Bound Volume are original work carried out by Dr. Kamala Kanta Das during the two field postings of six months each under the guidance of faculty of National Institute of Epidemiology (ICMR), Chennai and the local supervisor specially nominated for this purpose. This is in partial fulfillment of the requirements for the degree of Master of Applied Epidemiology and has not been submitted earlier by him in part or whole for any other (Publication or degree) purpose.

Date: 29.1.04

DIRECTOR

CONTENTS:

Acknowledgement

Several dignitaries and institutions have extended their valuable time, advice and assistance to me during preparation of this thesis. I extend with gratitude my sincere thanks to:

Prof. M.D. Gupte Director National Institute of Epidemiology, Chennai for his valuable guidance amidst his very tight schedule of being the Director of the Institute, the course Director and being overburdened with many National and International responsibilities he always finds time to guide us.

Prof. K. Ramachandran, Formerly Professor and Head of the Department of Biostatistics, All India Institute of Medical Sciences, New Delhi and presently consultant of Field Epidemiology Training Programme at Chennai. I express my heartfelt thanks and sincere gratitude to him for going through the details of my project reports closely and giving suggestions and advice.

Director Health Services, Orissa for allowing us to take up MAE-FETP course at National Institute Of Epidemiology Chennai.

Dr.B.N. Murthy Deputy Director,National Institute of Epidemiology Chennai for his kind guidance and suggestions,

Dr. Vidhya Ramachandran Assistant Director (National institute of Epidemiology) and MAE-FETP Course coordinator, for her close guidance and encouragement.

Dr. T. Venkatarao for his constant guidance and advice through out the course curriculum

Dr. Santanu kumar Kar Director, Regional Medical Research Center, Bhubaneswar my local preceptor, for his constant advice as and when necessary at the field work

I will really do injustice if I do not mention several scientists and staff of NIE like Dr. R.Ramakrishnan, Assistant Director, Dr P.Manickam Research Officer, Dr.Suajata Chandrasekhar , librarian S. Satish and Mrs Uma.

Last but not the least I am indebted to my family for helping me in this endeavor of hard work with patience.

All the respondent who very graciously spared me their valuable time and information in addition to extending their cooperation and generous hospitality, which rendered the entire research, endeavor a very memorable, pleasant and profitable experience.

Date: **Kamalakanta Das**

SECTION.1

FIRST

FIELD POSTING

1.1 WORK PLACE SITUATION REPORT WITH INSTITUTIONAL LINKAGES IN DISTRICT KHURDA ORISSA

1-INTRODUCTION

The greatest wealth of a country is its healthy citizens.A country marches ahead if its citizens are healthy and least man-days are wasted due to ill health.To maintain a healthy community/district /state the health is to be assessed periodically, by the type of health care available in the area. The utilization of the available health services by the people irrespective of their rural or urban location, caste,creed, religion, complexion is also important and dependent on other related departments like education, women and child development, irrigation, agriculture, animal husbandry,public works, social welfare, communication etc.An important arm of a good health care delivery system is the availability of a good network of laboratories in the area and the utilization of the same by the people of the area by the health managers and the public health people themselves at the time of outbreak investigations,disease surveillance and study of trends of diseases.

Khurda district is situated in the eastern part of Orissa state and the author is now posted in this

District as apart of his two years field epidemiology training programme.The basic purpose of this report is,in case of outbreaks or eventualities like disaster one can take the help of these institutions elaborated in the report to institute immediate health measures and also for strengthening surveillance in the area.For any planning ,study or research it is the very first step to know the area,the people,the sociocultural behavior,the socioeconomic status,the health facilities and the laboratory facilities available in the area.

11-OBJECTIVE

1-To know the state of orissa as a whole and the district of khurda in particular.

2.To describe the existing health set up with reference to the physical health facilities, referral structure,services provided etc so that no time is spared for searching the institutions at the time of disaster and outbreaks.

3.To suggest appropriate measures if in the process of understanding the district any lacunae is observed for carrying out surveillance and epidemic preparedness.

III METHODOLOGY

(i) BACKGROUND INFORMATION

BRIEF STATE PROFILE OF ORISSA.

The state of Orissa makes its presence well felt along the eastern coastal line of India due to the presence of a dented structure in the map having direct connection to The Bay of Bengal. It is due to the brackish water Lake Chilika, the largest of its kind in the whole of |Asia.The state was born on 1st April 1936 after being separated from the Bengal,Bihar and Orissa Estate under the British Re

gime.The state is bounded by The Bay of Bengal in the east ,The state of Andhra Pradesh in south ,the state of West Bengal in the north ,Chhhatisgarh in southwest and the state of Jharkhand in the north west region.The state is well known as the abode of Lord Jagannath and the famous Car Festival of Puri around the globe.The state is also well known for white tigers,Orissi dance,filigree works of Cuttack Hirakud dam,Olive ridley tortoise and the Buddhist Pagoda at Dhauligiri the place that has changed the great king Ashoka to denounce war and take the path of Peace.

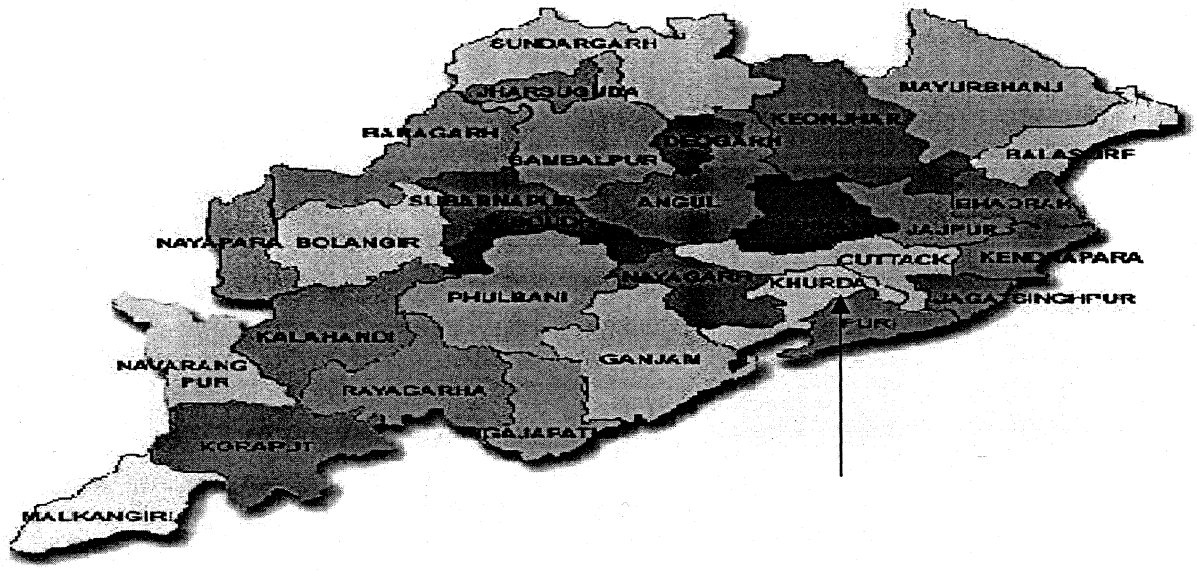
The state is connected to the whole of India by road,train, and air and by water through Paradeep port and Gopalpur port.The state usually gets rain due to south –West monsoon with annual rainfall of 1482.2mm and the main crop is paddy,followed by mung dal and sugar cane.Excluding the coastal plains the southern and the western districts are abundant in forests and Eastern Ghat hill ranges.The state is connected to the neighbouring states by air, road,train and by water also.

DISTRICT PROFILE

The district of Khurda makes its presence well felt in the state map amongst the thirty districts of Orissa for having the capital city in its geographical territory and also takes a

place in the History of India for having the Last Independent Fort the "Khurda Fort," the pride of the then India to be captured by the British regime and protected by the Paikas (Special type of Soldiers) reared by the King of Khurda for the security of the Fort.

THE MAP OF ORISSA SHOWING DISTRICTS



The KHURDA district was carved out from the old district of PURI on 1-04-1993 vide Govt. Notification No.14218/dt. 27-03-1993 with Headquarters at Bhubaneswar and subsequently shifted to Khurda with Headquarters at Khurda vide Notification No.13397/R/dt. 31-03-1995 & has an area of 2813 square kilometers with Two sub-divisions, Ten CD Blocks, Seven Tahasils, One municipal corporation, Two Municipalities and Two NACS.

Geographic Characteristic

It is a district situated in the eastern part of State of Orissa.

Lies between $19^0 50'$ to $20^0 28'$ North latitudes

And $84^0 55'$ to $86^0 5'$ East longitudes.

The District is bounded by

Cuttack district-North and North-East

Nayagarh district –West

Puri district-South

Ganjam district-South-West

Spread over

Geographical area-2813 km^2.

Climatic conditions: -

Max. 41.4 to Min. 9.5 deg. Celsius.

Annual Normal Rainfall 1449.1 mm.

Demographic Characteristics-

The Demographic Characteristic is provided as follows

Table No-I Population characteristic of India,Orissa and Khurda

	INDIA	ORISSA	KHURDA
AREA(SQ KM)	3287263	155707	2813
Population			
Total	1027015247	36706920	1874405
Male	531277078	18612340	986003
Female	495738169	18094580	888402
Sex Ratio			
Total	933	972	901
Density of populn			
Total	324	236	666
Literacy Rate			
Total	65.38	63.61	80.19
Male	75.85	75.95	88.38
Female	54.16	50.97	71.06
Growth Rate			
Total	2.13%	1.59%	24.79%

Official spoken language-the officisl spoken language is Oriya.The governmentofficial transactions were previously done in English and no w it is done in Oriya and in some essential cases it is done in wenglish.

The central portion of the state is well versed with the oriya language.The western zone of the state speak Sambalpuri ,the southern zone they tell Berhampuri and many a local languages are there including many tribal languages.

Provisional estimates of Birth rate, death rate and infant mortality rate of Orissa, India from 1998 to 2001.

ORISSA: -

	BR			DR			IMR		
	T	R	U	T	R	U	T	R	U
1998	25.7	26.4	20.9	11.1	11.6	7.6	98	101	66
1999	24.1	24.6	20.3	10.7	11.1	7.1	97	100	65
2000	24.3	24.9	20.1	10.5	11.0	7.0	95	99	66
2001	23.4	23.9	19.6	10.2	10.7	6.8	90	94	60
INDIA: -									
1998	26.5	28.0	21.1	9.0	9.7	6.6	72	77	45
1999	26.0	27.6	20.8	8.7	9.4	6.3	70	75	44
2000	25.8	27.6	20.7	8.5	9.3	6.3	65	74	44
2001	25.4	27.1	20.2	8.4	9.0	6.3	66	72	42

SOCIAL CHARACTERISTIC OF STATE AND DISTRICT

ReligiousGroups-Mostly the people are Hindu by religion.Still Christians,Muslims and few Buddhists and jains area also seen in the district.It is a very peace ful district with no communal tension.

SC and ST population of the district:

Total Population		SC population (% to total)		ST Population (% to total)	
M	F	M	F	M	F
789334	712680	105039	99525	39949	37293

Family Type-The district is more famous for joint family rather than nuclear familyThe people in the district love to be in the joint family.

Here patriarchal family type is seen.

Occupational pattern:

Most of the people are marginal Agricultural workers those who depend mostly on agriculture and diary.

Some of them depend upon development of diary products and pisci culture. Nearby Chilka Lake in three blocks traditional occupational groups are there who depend on fishing from Chilika Lake.

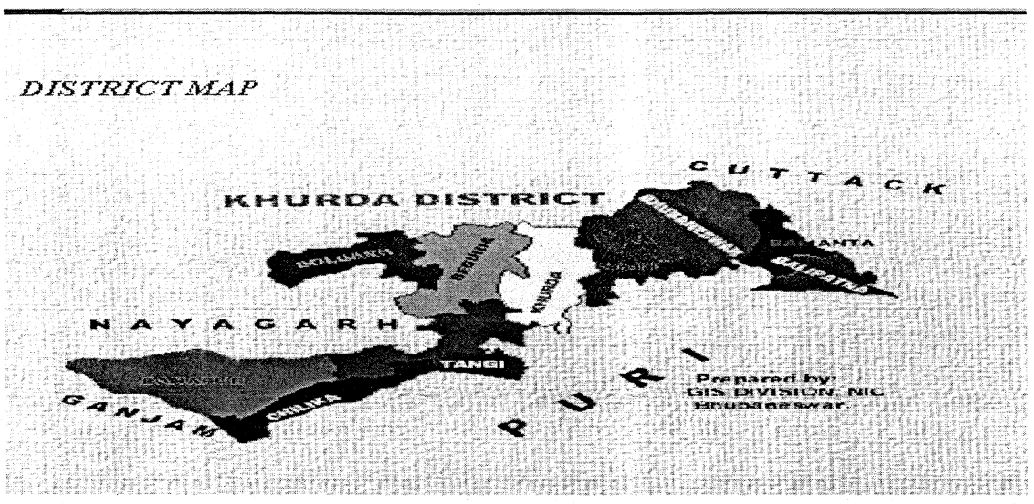
Traditional grups are ther for making napkins, towels, bamboo articles, cotton fabrics, Art on palm leaves,alloy made vessels and also atraditional group of snake charmers.

Employment opportunities-The scope of Govt service is very rare here. People get daily some work related to agriculture. As the capital city is very near people are migrating to the capital city for daily earning through labour as a large number of building works are going on in the capital city.

Cultural Practises: The people of the state as well as the district are peace loving and believes in God too much.

DISTRICT MAP OF KHURDA DISTRICT SHOWING BLOCKS.

.



This district of Khurda was previously a part of the district of PURI the abode of LORD Jagannath.At mental level they are fearful to God ,so crime rate is lower in Orissa.Stigmas related to religion is very less here and the the taoos related to foodinf and hygienic practices stll persists.People like open air latrine rather than safety latrine. But the scenario is fast changing.The sense of Micro and Macro environment is gainiong momentum and oeople are slowl moving towards science.

Housing conditions are not changing rapidly.The environmental hygiene starts at homehas been realized by the people.But most of the houses are kutcha with thatcjed roof.After the super cyclone people have stared taking care to build houses adjusting the weather and the nature.The concept of cross ventilation ,lighting space per individual etc have taken a place in the mind of the urbanites not yet in the mind of the rural people.

The drug abuse and risk behaviours are very much limited in Orissa. Due to fast urbsnisation slowly stray case sof drug trafficking are coming up.Thhe youth of orissa are not fully exposed to the air of drug abuse.

DATA COLLECTION SOURCES

This report is based on the secondary data collected form different instituitions in the district like Collectorate,CDMO's office,District Statistical Officer,DVO,Executive Engineer DAO and related institutions in the state like DHS,DFW.SIHFW and also from block levels.

One person each was interviewed from the sub cenntre level uptll the district level,urban local bodies,few public and private institutions to prepare such a report.I have also taken the help of Directorate of Economics and Statistics Govt of Orissa.

The data collected from different sources are of some use to me in preparing my report.in some way or other.

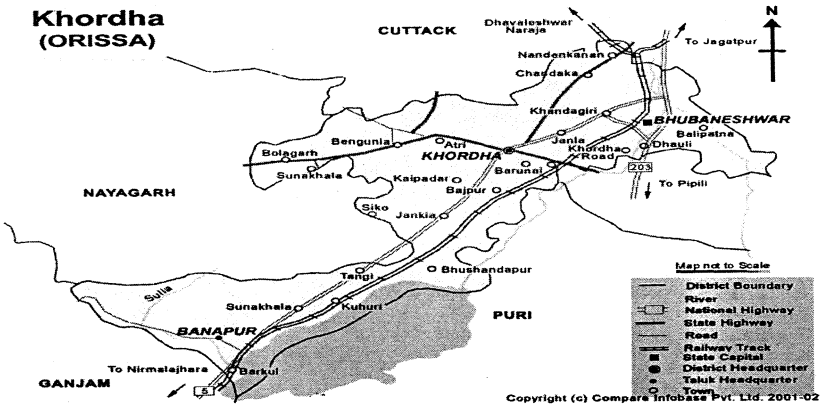
I have encountered problems at some places in getting the dataAt some places the adequacy was a problem so I have to tap two to three sources to complete my requirement.As the sources are from the authorized govt machinery presumably those are accurate.

Administrative divisions:

	02	-	Sub-division
	07	-	Tahasils
	10	-	CD Blocks
10	-	ICDS Blocks	
	03	-	Notified Area Council (NAC)
	02	-	Municipality
	01	-	Municipal Corporation
	154	-	Gram Panchayats
	1562	-	Revenue Villages
	06	-	Assembly Constituency
	02	-	Parliament Constituency

Infrastructural Facilities:

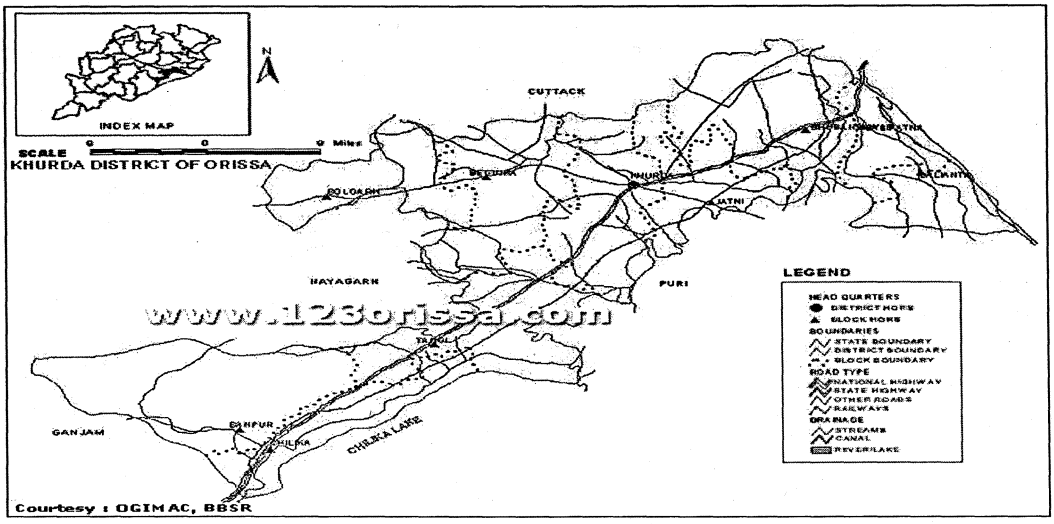
Communication and transport: -



Post and telegraph services:

There are 290 post offices through out the district. Now Dept. of Telecom (BSNL) has lunched mobile telephone services through out the district making the sphere of communication brighter. The Dept. of Post has also opened speed post services in district headquarters besides the capital city also.

Roads and Highways:



NH-5 that connects Howrah and Chennai intersects the district and passes through the capital city Bhubaneswar and the District headquarters Khurda and also the important place of the district like Tangi, Gangadharpur, Balugaon and then the

State Highways connects Balugaon, Banapur, Sulia and Ganjam via Khurda to Nayagarh, Khurda to Pipili via Jatni then other MDR (major district Road) then Panchayat Roads. Another NH-203 starts from Bhubaneswar and ends at Shrikshetra Puri of Puri District.Detail roads in Khurda dictrict-

National Highway----109 Kms

State Highway---------58 Kms

Major Disttrict Road—456 Kms

Other District Road----209 Kms

Forest Road----------305 Kms

Grampanchayat Road---4925 Kms

Classified Village Road—129 Kms

Panchayat Samiti Road----585 Kms

Village Roads ----------755 Kms

Railways:

This is the Headquarter of the East coast zone of South-Eastern Railways at Bhubaneswar and a division office at Khurda Road Junction. So the district headquarter is directly connected to the major cities of India. Now recently a New Railway line named as Khurda Road Balangir (289 kms) is under construction to connect the Western district Balangir.

There are 7 broad gauge single lines, 113 broad gauge double lines and 120 kilomeres of railway route along with 22 railway stations are found in khurda district.

Airport:

The district headquarter is only 27 kms from the Bhubaneswar Airport which is connected to most of the major cities of India.

The Blocks and villages near by Chilika Lake use Rowing Boats and Motor driven Boats for their Routine Transport inside Chilika and upto the National Highways no-5.

Most of the people of the district use Bicycles, mopeds, two wheelers, trekkers, buses, cars etc. The use of Bullock Cars, chariots, cycle rickshaws are getting obsolete gradually.

Industries:

In Khurda district the prevailing industrial infrastructure is as follows

	1997-1998`	1998-1999
A)Small scale Industry-		
i)No of SSI units established	240	243
ii)Total Capital Invest(in lakhs)	2066.67	1793.92
iii)Employment Generated	1621	1472
B)Cottage Industry		
i)Nq of cottage Industries set up	434	937
ii)Total Capital Invest(in lakhs)	0.87	217.35
iii)Employment generated	385	1365
C)Handloom Industry		
i)No of looms	13169	13268
ii)Total Capital Investment	1450.40	1974.26
iii)Employment generated	26338	265

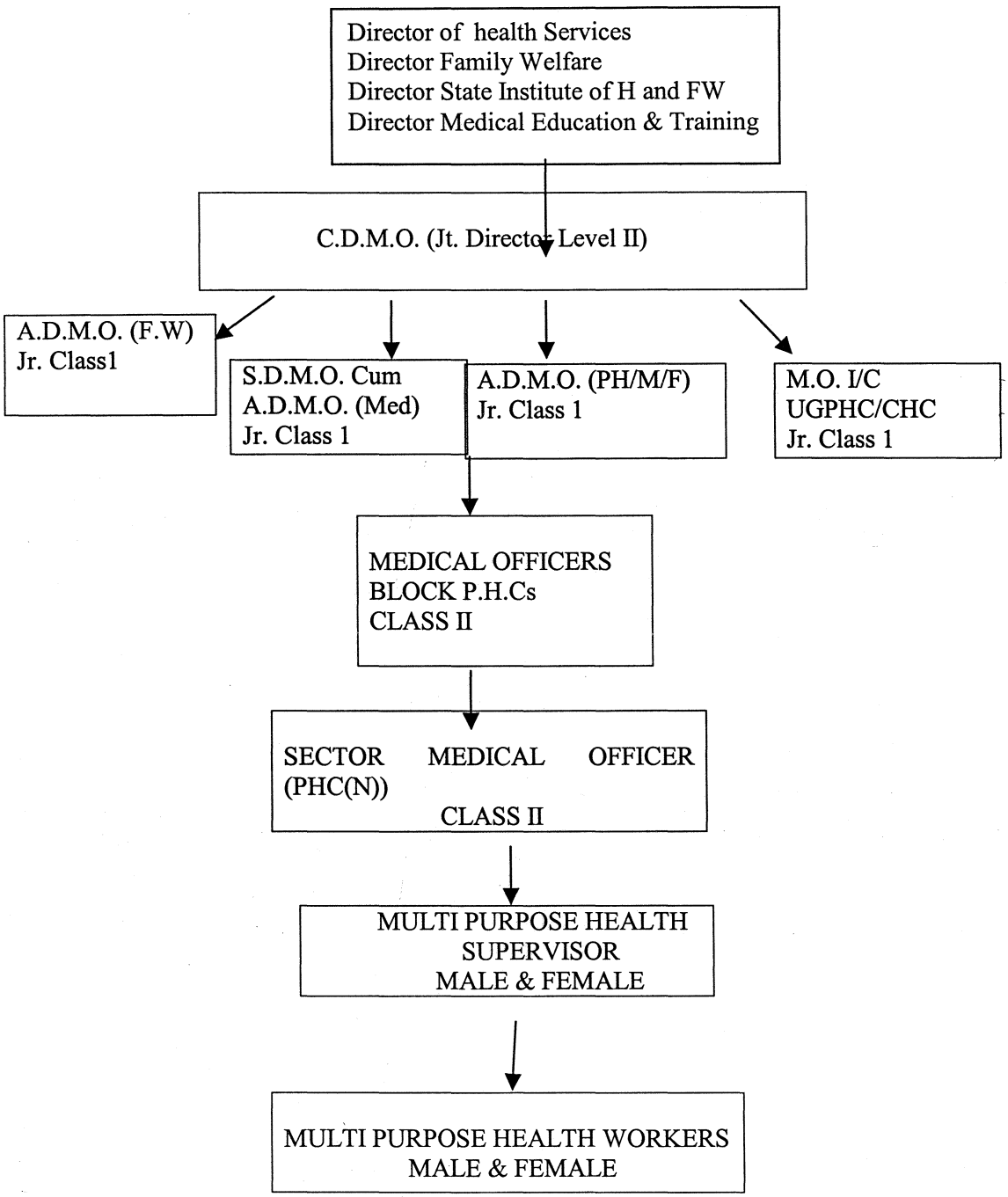
Milk and diary products,, Railway coach repairing factory at Mancheswar, processing of Sea food, alcoholic beverages, Khurda is famous for Cotton Garments like Napkin, Towels, Lungi, Dhoti and Sarees. A place known as Balakati is famous for Alloy made articles.

Agriculture:

The people of the district are mostly dependant upon agriculture which is again dependant upon a good monsoon in that current year. Rice is the Staple food of the district. So starting from marginal farmer to big farmers paddy cultivation is maximum. If monsoon is good they get bumper Kharif Crop. If nature is not supportive they have to depend upon Rabi Crop. After the super cyclone Orissa 1999 the district is facing flood in 4-5 blocks and drought in revenue villages surround by Eastern Ghats hill range.

As irrigation facilities slowly improving along with paddy and Rabi Crop slowly the farmers are cultivating wheat, maize, ragi and also diverting towards horticulture also.

ORGANISATIONAL CHART



The health facilities in the district are distributed uniformly starting from sub-centers to District headquarters hospital. The patients from the hamlets of a revenue village or from the

revenue village itself first take the help of DDC, FTD, and sub-centers before going to sector level PHC. If they do not recover they are referred to the block level PHC or CHC or UGPHC depending upon the situations and the availability of concerned specialists. In some cases depending upon the necessity or grievousness of the disease the patients are referred to District headquarters.

In the district of Khurda excluding the District headquarter hospital there are six area hospitals strengthening the district Health Care system over and above the usual PHC or CHC. The total no. of Allopathic institutions are given below.

There are three LEUs in the district taking care of the leprosy patients. Now from sub-centers to District headquarters hospital every institution is actively taking part and providing medicines to the leprosy patients.

Table – Health Man Power of the District:

Sl. No	Name of the Post	Sanctioned Strength	In Position	Vacancy
1	C.D.M.O	1	1	-
2.	Addl. C.D.M.O	1	1	-
3	Sr.CI-I M.O/Spls	6	6	-
4.	Jr.CI-I Specialist/M.O.	11	11	-
5.	Class II Spls	13	11	2
6.	Asst.Surgeon	70	66	4
7.	Dy.MEIO/MEIO	2	1	1
8.	Nursing sister	3	2	1
9.	Staff Nurse	34	31	3
10	Pharmacists	61	57	4
11.	Radiographer	3	2	1
12.	Lab.Technician(path)	5	5	-

13.	Ministerial staff	26	24	2
14.	Stat.Investigator(P.H)	1	1	-
15	Stat.Assistant(F.W)	1	1	-
16	MPHS(Male)	59	37	22
17	MPHS(Female)	34	34	-
18	MPHW(Male)	186	126	60
19.	MPHW(Female)	235	223	12
20	PMW	48	48	-
21	NMS	6	6	-
22	Physiotherapist	3	3	-
23	Asst. Storekeeper	1	-	1
24.	Filaria Inspector	3	3	-
25	Lab.Tech(Malaria)	11	11	-
26.	Lab.Asst(Leprosy)	6	6	-
27	Lab.Asst(Filaria)	1	1	-
28	Opth.Asst	8	8	-
29	V.S.Clerk	13	14	-
30	S.A.(Computer)	10	8	2(Banpur, Balugaon)
31	B.E.E	10	7	3(Balakati, Balipatna, Bankoi)
32.	Driver	17	16	1
33.	C1-IV	197	175	22
34	Cook	17	13	4

AVAILABLE HEALTH INFRASTRUCTURES

Institutions in the RURAL SET UP(under CDMO Khurda)

Instituitions in the URBAN SET UP(Bhubaneswar municipal corporation).

INSTITUTIONS IN THE RURAL SET UP .

Sl. No	Name Of Available Infrastructure	Total No.
1	Total no of CHCs	03
2	Total no of UGPHCs	02
3	Total no of PHCs	06
4	Total no of Hospitals	07
5	Total no of PPCs	03
6	Total no of PHC (N)	52
7	Total no of LEUs	03
8	Total no of FRUs	02
9	Total no of Sub-Centers	193
10	Total no of LHV Centers	34
11	Total no of MTP Centers	19
12	No of Centers with Ambulance facilities	08
13	Total no of Ayurvedic Institutions	18
14	Total no of Homeopathic Institutions	22

BLOCK WISE MEDICAL INSTITUTIONS

Khurda district is divided into two Sub-Divisions i.e. Khurda & Bhubaneswar.

1.KHURDA SUB-DIVISION

A. Khurda Block	D. Tangi Block
1. DHH Khurda.	1. UG PHC Tangi.
2. PHC Hatadia.	2. Govt. Hospital Olasingh.
3. PHC (N) Bajpur.	3. Govt. Hospital Bhusandapur.
4. PHC Malipada.	4. PHC (N) Badapokharia.
5. PHC (N) Keranga.	5. PHC (N) Nirakarpur.
6. PHC (N) Mukundaprasad.	6. PHC (N) Balipatpur.
7. PHC (N) Naranggarh.	7. PHC (N) Kuhudi.
8. LEU Khurda.	8. LEU Tangi.

9. Sub Center – 20 9. Sub Center –

B. Begunia Block

1. CHC Botalama.
2. PHC (N) Begunia.
3. PHC (N) Haj.
4. PHC (N) Dingar.
5. PHC (N) Podadihi.

PHC (N) Daltola.
PHC (N) Gudum.
PHC (N) Kantabad.
PHC (N) Parichal.
PHC (N) Siko.
PHC (N) Baghamari.]

Sub Center - 20

E. Chilika Block

1. PHC Balugaon.
2. PHC (N) Jaripada.
3. PHC (N) Nairi.
4. PHC (N) Chasangara.
5. Sub Center – 18

C. Bolagarh Bolck

1. PHC Bankoi.
2. Govt. Hospital Bolagarh.
3. PHC (N) Manikgoda.
4. PHC (N) Deuli.
5. PHC (N) Pichukuli.
6. PHC (N) Guadanuagaon.
7. PHC (N) Manibandha.

Sub Center – 23

F. Banpur Block

1. CHC Banpur.
2. PHC Gambharimunda.
3. PHC (N) Niladriprasad.
4. PHC (N) Sunakhela.
5. Sub Center – 19

11. BHUBANESWAR SUB – DIVISION:

A. Bhubaneswar Block.

1. PHC Mendhasal.
2. PHC (N) Itipur.
3. PHC (N) Patia.
4. PHC (N) Chandaka.
5. Govt. Hospital Nuabanta.
6. LEU Bhubaneswar.
7. Sub Center – 21

B. Balipatna Block

1. UGPHC balipatna.
2. PHC (N) Banamalipur.
3. PHC (N) Abhayamukhi.
4. PHC (N) Rajas.
5. Sub Center – 19

C. Balianta Block.

1. PHC Balianta.
2. PHC (N) Pahal.
3. PHC (N) Benupur.
4. Govt. Hospital Bhingarpur.
5. Sub Center – 18

D. Jatni Block.

1. PHC jatni.
2. PHC (N) Janta.
3. PHC (N) Retanga.
4. PHC (N) Taraboi.
5. PHC (N) Benapanjuri.
6. Sub Center – 14

Staffing Pattern of PHC(N)

Doctor-1

Phamacist-1

Headquarter ANM-1

Attendat-1

Sweeper-1

INSTITUTIONS INSIDE BHUBANESWAR MUNICIPAL CORPORATION

The institutions inside Bhubaneswar Municipal Corporation can be devided broadly into three categories like Institutitons under the administrative control of Health

department,Institutions under the administrative control of Urban department and other hospitals.

Under the Health Department-Capital Hospital with 14 peripheral dispensaries.

Under the Urban Department-Municipal Corporation hospital with 5 peripheral dispensaries,

Other Hospitals-Police hospital.OSAP Hospital.Gridco Hospital and ESI Hospital

Health facilities under health Department	Health Facilities under Urban Department	Other Govt Health Facilities
Capital hospital	Municipal Corporation HospitalOld town	OSAP 7TH Battalion Hospital
Kalpana Dispensary	Municipal Dispensary Kapilaprasad	Police Reserve Hospital
Jharapara Dispensary	Municipal Dispensary ,Bharatpur	ESI Dispensary,C.S.Pur
Satya Nagar dispensary	Municipal Dispensary Brahmeswarpatana	Gridco Dispensary
Unit IV Dispensary	Municipal Dispensary Rasulgarh	
C.S.Pur Dispensary	Municipal Dispensary Gadakana	
IRC Village Dispensary		
ental Dispensary		
Unit VIII Dispensary		
Dumuduma Dispensary		
Rajbhawan Dispensary		
UnitIX Dispensary		
Unit IX-F Dispensary		
SisuBhawan		

The health facilities in the urban set up excluding the two major hospitals only serve as outpatient department consultation and with no emergency service.There is no defined geographical boundary for any of the dispensary within the urban area and they are not held responsible for a defined number of population

Staffing of urban Dispensary-

Doctor-1

Pharmacist-1

Staff Nurse-1

Attendant-1

Sweeper –1

Total Bed strength Available in Khurda District

PHC beds-42

CHC/UGPHC beds-78

Other Hospital beds-78

District Hospital plus capital hospital beds-367

So total bed strenghth in Khurda is 585

Some big private hospitals have also come up like Kalinga Hospital,Nilachal Hospital ,Apex Hospital and some small to medium hospitals..

In case the DHH Khurda couldn't manage a patient adequately then the patient is referred to Capital Hospital Bhubaneswar or Municipal Corporation Hospital Bhubaneswar for better treatement (27 K.M. away). Capital Hospital is a well-equipped Hospital with provision of specialistic consultancy in all departments and super specialistic facilities in Cardiology.

If any patient needs super specialistic intervention, is referred to SCB Medical College Cuttack (55 K.M. from Khurda) for better treatement or a super specialistic Kalinga Hospital at Bhubaneswar which is declared as a referral center by Govt. of Orissa.

REFERAL STRUCTURE

Medical College Hospital/Capital Hospital/Kalinga Hospital

District Hospital/Municipal Corporation Hospital

CHC/UG PHC/ Area Hospital

Block PHC

Sector PHC

So considering the Health facilities in Khurda district and the referral Hospitals around Khurda are sufficient enough to cater health services to the people of the district but the referral system is not well organized due to want of proper communication system and due to want of ambulance facilities. The scenario is changing fast and it is anticipated that in near future it will not be impossible to develop a well-organized referral system from PHC (N) to the Medical College Hospital.

Blood Banks:

There are two Blood Banks in the district. One is functioning inside the premises of Capital Hospital and the other is in the Municipal Corporation Hospital. Recently at the District Headquarter Hospital Khurda, a new blood bank has started functioning

.

NGOs Functioning-Totally 70 number of NGOs are functioning in the district.

HEALTH STATISTICS

Health indicators of Orissa and India

As per SRS bulletin October 2000

		category	Orissa	India
1	Infant mortality rate.	total	97	70
		Rural	100	75
		urban	65	44
2	Crude Death Rate	total	10.7	8.7
		Rural	11.1	9.4
		urban	7.1	6.3
3	CrudeBirth rate	total	24.1	26.1
		Rural	24.6	27.6
		urban	20.3	20.8
4	Still Birth Rate	Total	14.4	8.9
		Rural	13.6	7.3
		urban	21.6	19.6
5	Neonatal Mortality	Total	65.3	47.4
		Rural		
		Urban		
6	Post Natal Mrtality	Total	32.6	26
		Rural	14.4	8.9
		urban	13.6	8.3
7	Peri Natal Mortality rate	Total	63.1	32.5
		Rural	63.1	42.5
		urban	49.1	38.4
8	Total Fertility rate	Total	2.5	2.7
		Rural	3.3	3.5
		urban	3.4	3.8
9	Mean Marriage Age(Fem)	Total	19.6	19.4
		Rural	19.5	19
		urban	20.4	20.7

Disease specific Incidence rate-

Simple Diarrhoea-3.2%

Severe Diarrhoea-0.37%

Bloody Diarrhoea-0.3%

Acute Jaundice-1%

Suspected Malaria-2.7%

ARTI---4.5%

Some Health Indicator of Khurda 2001

	indicators	Magnitude
1	Still birth rate	10.06
2.	Crude birth rate	20.3
3.	Crude death rate	6.08
4.	Infant mortality rate	43
5	Maternal Mortality Rate	132.6
6	Couple Protection Rate	39%

Vital Statistics of Khurda from 2000 to 2002

Sl no	year	Birth	death	Infant death	Still Birth
1	2000	34511	8747	761	344
2	2001	35126	8949	785	357
3	2002	37203	9312	791	362

Diseases that are important public health problem-Malaria,Filaria,Severe diarrhea,,Dysentary,Measles tuberculosis and leprosy.

Cming to the infectious-Tubrculosis,Measles,Malaria,Filaria,HeppatitisA,

Non infectious Diseasses-Hypertension,D Mellitous

Children 0-6 years age group-

Total-222141

Male-115686

Female-106455

,

Injuries and accidents-

	1997	1998
Total accidents	667	780
Persons killed	165	158
Persons injured	743	800
Snake bite		16
Elephant attack	2	1
Fire accidenrs	180	183

Life style related problems-Drug abuse,alcoholism, and other life style related problems are yet to emerge as issues here.

Nutritional Deficit-No such nutritional deficit disorder is seen here in epidemic proportion inkhirda district.

Outbreaks-Within last 2years only two epidemics of diarrrhoeal disorders have occurred

Baliguda-I death and affected 14 persons.

Sisupal-No death and twelve affected

Measures adopted-Disinfection of water sources,prompt camp hospitals and prompt referral services

Health Programmes-

Revised national Tuberculosis Control programme

National Leprosu eradication Programme.

Nationalmalarial control Programme.

National Aids Control Programme

National Filarial Control Programme

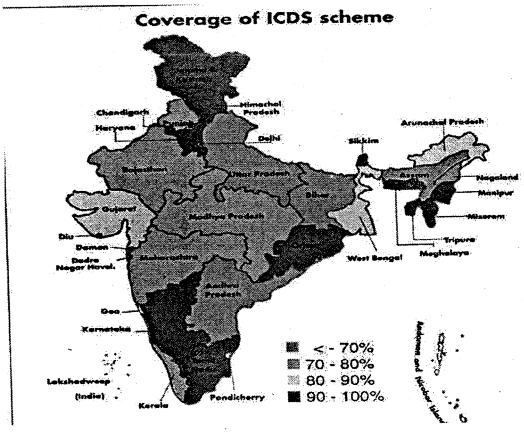
National Blindness Control programme

RCH programme

.....

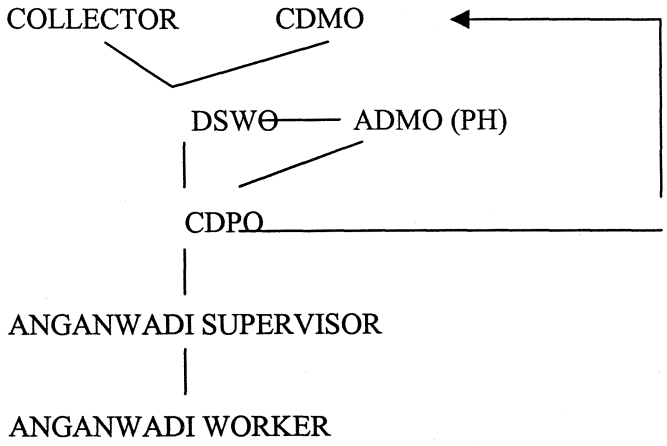
OTHER LINKED SECTORS

Integrated Child Develpoment Scheme



All the 30 districts of Orissa and All the 10 blocks of the Khurda district are covered under the ICDS.

Staff Structure: -



All the ten CD Blocks of Khurda District have been declared as ICDS Blocks. The grass root level is the Anganwadi workers who is supervise by the Anganwadi supervisor. All the supervisor in a block are under the control of the CDPO. To control and supervise the work of the CDPOs the DSWO is the district officer. ADMO (PH) is the program officer to coordinate the health component of the ICDS project with intimation to CDMO and collector is the overall authority to look after the ICDS work of the districts.

The objective of the Scheme is

To improve the nutritional and health status of pre-school children in the age-group of 0-6 years;

To lay the foundation of proper psychological development of the child;

To reduce the incidence of mortality, morbidity, malnutrition and school drop-out;

To achieve effective coordination of policy and implementation amongst the various departments to promote child development; and

To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

Drinking water facilities:

The people of the district depend mostly on well water i.e. private wells and few govt. wells are also there in different villages. Now through the Dept. of RWSS govt. is trying to put tube-wells instead of dug wells. In some places like Khurda, Jatni, Daruthenga, Mendhasal etc water supply provisions are there with construction of over a tank and pump houses. But most of the time major water supply structures depend upon the local river systems. They may face troubles sometimes due to bad monsoon or lowering of the water table during late summer. The govt. wells and the private wells are disinfected by Health staffs regularly.

INSTITUTIONS OF ALTERNATIVE SYSTEMS OF MEDICINE-

The district has also a number of institutions of alternative systems of medicines like homoeopathic and ayurvedic dispensaries. Now a day these institutions also help in different programs like pulse polio programme and also other programme. A detail list of ayurvedic and homoeopathic institutions are given below.

Name of the Ayurvedic Institutions

DISTRICT	SL.NO	NAME OF THE LOCATION WHERE DISPENSARY HAS BEEN SET-UP	GRAM PANCHAYAT	BLOCK
KHURDA	1	BHUSANDAPUR	BHUSANDAPUR	TANGI
-DO-	2	MANGAL JODI		-DO-
-DO-	3	NACHUNI	NACHUNI	NABAPUR
-DO-	4	ANKULACHATI		-DO-
-DO-	5	CHANDESWAR	CHANDESWAR	CHILIKA
-DO-	6	SORAN	SORAN	-DO-
-DO-	7	KADAB	KADAB	BOLAGARH
-DO-	8	DABARDHUAPATANA		-DO-
-DO-	9	BRAJAMOHANPUR		KHURDA
-DO-	10	PAIKARAPUR	PAIKARAPUR	BHUBANESWAR
-DO-	11	M.L.A. COLONY		-DO-
-DO-	12	SAMANTARAPUR	BHUBANESWAR	-DO-
-DO-	13	TAPOBAN	-DO-	-DO-
-DO-	14	TAMANDO		-DO-
-DO-	15	ANDHARUA		-DO-
-DO-	16	MADANPUR		JATNI
-DO-	17	RETANG		-DO-
-DO-	18	BISUNIAPADA		BALIANTA

Homoeopathy Institutions

KHURDA	1	BANALEI	BHETESWAR	MANPUR
-DO-	2	BHETESWAR	-DO-	-DO-
-DO-	3	PRATAP	TUMURPUTSASAN	-DO-
-DO-	4	HALANDA	NARENDRAPUR	-DO-

-DO-	5	ODAGAON	DEOGANON	-DO-
-DO-	6	GOLBAI	GOLBAI	KHURDA
-DO-	7	JANKIA	-DO-	-DO-
-DO-	8	KURADHAMAL	PALATOTAPADA	-DO-
-DO-	9	DANGARPADA	DANGARPADA	BEGUNIA
-DO-	10	SIMARE	BEGUNIA	-DO-
-DO-	11	ARIKAMA		BOLAGARH
-DO-	12	HATABAREDI		CHILIKA
-DO-	13	PRATAPRUDRAPUR	PRATAPRUDRAPUR	BALIANTA
-DO-	14	BHAIRIPUR	RAJAS	BALIANTA
-DO-	15	LAXMISAGAR	BHUBANESWAR	BHUBANESWAR
-DO-	16	SIRIPUR	-DO-	-DO-
-DO-	17	BHIMPUR	-DO-	-DO-
-DO-	18	DARUTHENGA	DARUTHENGA	BHUBANESWAR
-DO-	19	O.L.A.	BHUBANESWAR	-DO-
-DO-	20	PRADHANSAHI	PRADHANSAHI	JATNI
-DO-	21	BELPADA BADTOTA		-DO-
-DO-	22	CHHANGAGARH		-DO-

Educational System:

The state as well as the district of Khurda has adopted the pattern of 10+2+3. So starting from a small hamlet of a revenue village to district headquarters LP Schools, UP Schools, ME Schools, Boys high schools and girls high schools, +2 Colleges, +3 Colleges, Pharmacy Colleges, Womens Polytechnic, ITI for Boys, Utkal University, Dental College, Engg. College, MCA and MBA Institutes, Different Schools of C.B.S.E. and I.C.S.E. course, Utkal Sangeet Mahavidyalaya etc.The no of educational institutions are described in detail in the following.

Educational Institution	No of schools	Students enrolled in 1ooo	No of Teachers
Primary	1262	165	4742
Middle English	415	47	977
High School	235	87	1987
Generl College	72	33	901

Excluding this 6 Engineering colleges,3 ITIs and 1 women's Plytechnic are also established in he district

CONCLUSION: -

The obseved disease burden is more due to the water borne diseases whose incidences are more during Rainy season and the diseases are directly related to the arrival and departure of Monsoon.

The possible control measures for safe drinking water and effective IEC both by Health, ,ICDS,Panchayati Raj department and Non-governmental organization can be able to change the scenario.

In some blocks there are more number of health institutions and in some blocks grey patches are there.Those are to be identified. And new institutions to be established.Strong and effective IEC about services rendered by the Health department to be explained to the people.

Immunization Programmes to be publisized more for effective utilization of the programme.

From the observations it is evident that health facilities in Orissa is improving a lot, which is duly reflected in the infant mortality rate. It is slowly and steadily decreasing and is 90 during 2001. If we will look to the comparison made above between Orissa and Khurda district it is seen that IMR in Khurda was 87. The literacy rate, the female literacy rate which is best in the state along with good IMR when the state average is concerned.

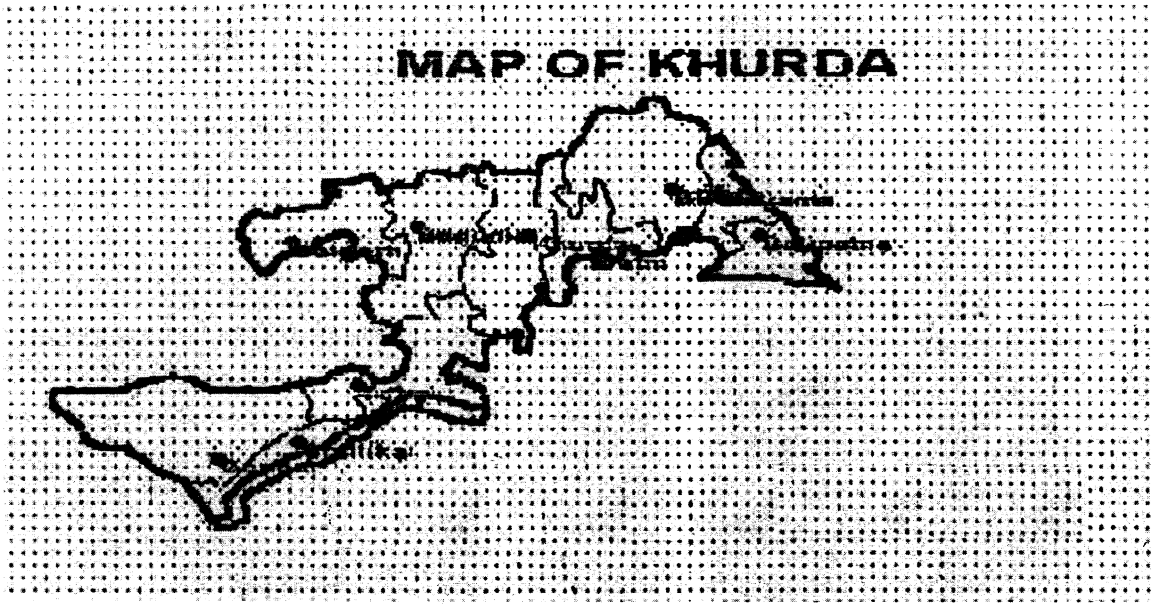
If IEC activities can be made still better with better improvement in referral system with provision of Ambulance, improvement of village roads, improvement in education, agriculture, industry and last but not the least empowerment of women to participate in planning process of their own locality the district will be in a position to show improvement in health indicators in near future.

1.2 LABORATORY FACILITIES IN KHURDA DISTRICT

Khurda district is the epitome of social cultural and political heritage of Orissa. It was carved out from the old district of Puri and was born on 29th September, 1993. It is situated in the coastal plain of Orissa having Eastern Ghat hilly tracks and deep forests surrounded by Puri district on the South East, Nayagarh on the West, Cuttack on the North, Ganjam on the South. It is a prestigious district to have the state capital city Bhubaneswar within its geographical territory. It has an area of 2813 sq. kms with a population of 1874405 (2001 Census), which is highest in the state with a population density 666 per sq. km. It has a great historical background as during British period Khurda was the last independent fort to be captured by British regime. Bravery of the Paikas (a special type of soldiers) reared by the King were responsible for the internal and external security of the country.

The people are well sensitized regarding their health institutions and less sensitized regarding the laboratory infrastructure prevalent in the district from sub center level to district head quarters level. The laboratories take a very important part in providing correct and effective health services to the people and also help the public health personnel containing out breaks arising in the area from time to time. So it is an important organ of the public health system as well as individual patient treatment.

The detail laboratory supports of the district along with Bhubaneswar Municipal Corporation are as follows. Some of the state level referral laboratories are also discussed here.



OBJECTIVE-To know the different laboratory facilities available at different level of health services.

-To know the workload they can take up routinely.

Different laboratory linkages beyond the district and state.

Response of these institutions at the time of outbreaks and epidemics during disasters.

If any lacuna observed,appropriate suggestions

METHODOLOGY-

Collection of information from Sub Centres

Collection of information from the sector level health Centres,Block Level PHCs.Collection of information from the District Headquarters Laboratories,Lab of area hospital,Blood Banks,District Malaria Office,District T.B. office.Private Hospitals and Nursing homes.

Information of Referral Laboratories like Medical College Laboratories and Regional Medical Research Centre(RMRC)Laboratory are given below.

AVAILABLE HEALTH INFRASTRUCTURES

Sl. No	Name Of Available Infrastructure	Total No.
1	Total no of CHCs(Community Health center)	03
2	Total no of UGPHCs(Upgraded Primary Health Centre)	02
3	Total no of PHCs(Primary Health Centre)	06
4	Total no of Hospitals	07
5	Total no of PPCs(Post Partum Center)	03
6	Total no of PHC (New)	52
7	Total no of LEUs(Leprosy Eradication Unit)	03
8	Total no of FRUs(First Referral Unit)	02
9	Total no of Sub-Centers	193
10	Total no of LHV Centers(Ladies Health Visitor)	34
11	Total no of MTP Centers(Medical Termination Of Pregnancy)	19
12	No of Centers with Ambulance facilities	08
13	Total no of Ayurvedic Institutions	18
14	Total no of Homeopathic Institutions	22

LABORATORY FACILITIES:

Sub Centers : Facilities for taking a blood slide for Malaria Parasite,checking for Hb% and checking of urine albumin in ante natal clinics.

P.H.C (N) 52 Nos :-. I had been to P.H.C (N) Chandaka and met Dr. Benudhar Satpathy.The institution has already received an electric microscope, but no provision has been made for Lab Technician, chemicals and other allied instruments essential for a Laboratory.Though not at all places in some of the PHC(NEW) routine examination for Stool and urine,blood slide for MPand Haemoglobin estimation are done

I had also been to P.H.C. (N) Rajasha.The situation is exactly the same as described above. Enquiring from the concerned section in the C.D.M.O.'S(Chief District Medical Officer) office no P.H.C, (N) has got any Lab facility.

They receive their microscope and other necessary things from the central store under C.D.M.O. Khurda.

Block PHCs

I had been to P.H.C.Mendhasal and enquired about the Lab facilities from Dr.Hadibandhu Rautra. Only Malaria Lab Technicians are available so generally they do only Malarial work i.e. seeing MP slides for RT purposes. In a few institutions like PHC Balakati and UGPHC Banapur routine examinations of stool & urine are done. One Lab. Technician examines 60 slides per day usually. In case of exigencies a team along with L.T. and microscope move to the field for on the spot examination of the slides. The Lab Technician Mr. Sahu is due to retire the same month and the planning is to send the slides to D.M.O. directly for examination by a special messenger.

They receive their chemicals, microscopes, stains etc. from the central store of C.D.M.O. Khurda. The average slide collection is around 30 per day because the area belonging to mendhasal PHC are situated around Bhubaneswar so any body suffering from fever goes straight to Capital Hospital and get instant treatment. All the PHCs averagely collect around 30-40 slides excluding CHC Banpur and CHC Jatni where slides collection ranges from 50-80 per day.

UGPHC & CHC

I had been to UGPHC Balipatana. As medical officer incharge was not available I talked to the paediatrics specialists Dr. A.B. Nayak. Like the block PHCs only Malarial LTs are posted, no pathological LTs are posted because no sanctioned posts for pathological LTs are available. So the Malarial LTs only examines Mp slides and some times routine examination of stool & urine. In case of exigencies a team along with L.T. and microscope move to the field for on the spot examination of the slide. They usually examined 40-50 slides per day. But they can handle 80-90 slides per day.

I also visited UGPHC Tangi. I met the medical officer incharge Dr. Sethy. Like UGPHC Balipatana also they do not have any sanctioned strength of pathological laboratory technician. The existing laboratory technician who belongs to malarial side only sees slides

collected for M.P. side. Some times they do routine examinations of stool and urine. In epidemic situations they can handle slide upto 80-90 in number. Also lab tech. moves to the field for instant examination of slides. Sometimes routine examination of stool and urine are done.

Area Hospital

There are 7 Hospitals in the district including the district head quarter's hospital. The other area hospitals are at Bolgarh, Olasing, Bhusandhapur, Bhingarapur and Nuabanta. There is no lab. Facilities available at the above institutions. When lab. Facility is concerned these institutions are almost like PHC (N) and the details regarding lab. Facilities available at the district head quarters hospital, Khurda are described below.

District HQ Hospital

Only at this level one Malarial LT and one Pathological LT and a pathology specialist are posted. Malarial LTs do their examinations of their usual Malaria parasites slides.

In pathology section – routine examinations of stool & urine.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	40	90
2	Routine exam. Stool	35	60
3	Routine exam. Urine	35	60
4	DC	25	60
5	TLC	20	40
6	ESR	12	15
7	Haemoglobin	10	15
8	BTCT	5	Any Number
9	Occult Blood	2-3	Any Number

In Haematology-- DC, TLC, ESR, Haemoglobin %, BT, CT, occult blood and in the blood bank there is provision for blood grouping, RH factor, antigenic test for HepatitisB (Australian Antigen) and Elisa test.

The above Lab facilities are available in the Khurda District Health System. As the capital city Bhubaneswar is coming within the geographical jurisdiction of Khurda district

any Lab test other than the above are done in the near by Labs situated in the Capital city like Capital Hospital, RMRC, Municipal corporation Hospital etc. The detail Lab facilities available are described below.

Leprosy laboratories in the district of Khurda

At the following leprosy eradication units the leprosy laboratory facilities are available: -

Name of the Institutions	Skin smear tests Conducted- average Per month	Sanctioned post of Lab technicians	Lab technicians in Position
LEU KHURDA	35	1	1
LEU TANGI	35	1	1
LEU BHUBANESWAR	30	1	1

LEU- leprosy eradication unit

Zonal Hospital Unit – IV

This is like an area hospital inside Bhubaneswar where no malarial L.T. is there but on pathology L.T. is posted. He along with following jobs also sees the malarial slides.

Routine Examinations of stool & urine.

Hematology DC, TLC, ESR, Hemoglobin %, BT, CT, occult blood.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	15	30
2	Routine exam. Stool	15	30
3	Routine exam. Urine	20	35
4	DC	20	35
5	TLC	10	20
6	ESR	10	10
7	Haemoglobin	10	15
8	BTCT	5	Any Number
9	Occult Blood	2-3	Any Number

Seventh Battalion Hospital

This is the hospital for the special arm police force. No pathologist is posted there but one pathological L.T. is posted. He does the following examinations.

Routine Examinations of stool & urine.

Hematology DC, TLC, ESR, Haemoglobin %, BT, CT, occult blood, test for blood group, test for RH factor, TRBC and total platelet count. As there is a good photocolorimeter they also do the following Biochemical test.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	10	30
2	Routine exam. Stool	15	30
3	Routine exam. Urine	20	30
4	DC	15	30
5	TLC	10	10
6	ESR	5	5
7	Haemoglobin	10	10
8	BTCT	5	Any Number
9	Occult Blood	2-3	5

Bio – Chemical

Fasting Blood sugar, Post Prandial blood sugar, Serum Cholesterol, Serum Urea, Serum Creatinin.

Sl.No	Name of the test	Done per day	Maximum samples
1	FBS	6	10
2	PPBS	4	7
3	Serum Cholesterol	5	10
4	Serum Urea	3	6
5	Serum Creatinine	3	6

E.S.I Hospital

In Pathology section – routine examinations of stool & urine.

In Hematology - DC, TLC, ESR, Hemoglobin %, BT, CT, occult blood, TRBC and total platelet count.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	18	30

2	Routine exam. Stool	20	30
3	Routine exam. Urine	20	35
4	DC	16	20
5	TLC	12	20
6	ESR	5	10
7	Haemoglobin	10	15
8	BTCT	3	Any Number
9	Occult Blood	2-3	Any Number

Bio Chemical

Fasting blood sugar, Post Prandial blood sugar, Serum Cholesterol, Serum Urea, Serum Creatinin.

No Pathology specialist is currently available at the hospital. The Pathology specialist of Choudwar is deputed twice a week to do the need full.

Sl.No	Name of the test	Done per day	Maximum samples
1	FBS	6	10
2	PPBS	4	6
3	Serum Cholesterol	5	8
4	Serum Urea	3	6
5	Serum Creatinine	3	6

Municipal Corporation Hospital

This is the institution of the Dept of Urban and administered by Bhubaneswar Municipal Corporation. Two pathology Lab Tech. and one Patho Spl are available here.

In Pathology section – routine examinations of stool & urine.

In Hematology - DC, TLC, ESR, Hemoglobin %, BT, CT, occult blood, TRBC. Comment on peripheral smear, platelet count.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	30	40
2	Routine exam. Stool	30	50
3	Routine exam. Urine	30	40
4	DC	22	30
5	TLC	15	20
6	ESR	10	20
7	Haemoglobin	10	15
8	BTCT	3	Any Number
9	Occult Blood	2-3	Any Number
10	Platelet count	1-2	5
11	Comment on peripheral smear	As and when necessary	

Bio Chemical

Fasting blood sugar, Post Prandial blood sugar, Serum Cholesterol, Serum Urea, Serum Creatinin.

One Pathology specialist is available here.

Sl.No	Name of the test	Done per day	Maximum samples
1	FBS	16	20
2	PPBS	10	15
3	Serum Cholesterol	8	10
4	Serum Urea	5	10
5	Serum Creatinine	5	10

Serological tests.

Widal tests,ASO Titre,Blood group,Rh factor.Australian antigen.-The serological tests are done as and when necessary.

They procure their stock from the municipal corporation stores department.

Regional Directorate of H&FW (Malaria Clinic). Govt. of India. BJB Nagar. BBSR

Here only Malarial Parasites slides are examined. Both negative & Positive slides from the peripheral institutions of all 30 districts of Orissa are cross checked here also.They take slides from 10.a.m to 2p.m. and declare the result by 4p.m..

They can handle any number of samples as the no.of LTs are eight.So they are able to tell the result the same day and they work under the direct supervision of doctors.

RMRC Lab (ICMR). Chandrasekharpur. BBSR.

Malarial & Molecular strain typing

Diarrhoeal disorder.

Culture/ Isolation of Vibric cholerae, E coil, shigella, Salmonella.

Bio Chemical & Serological characterization of Vibrio cholerae, E coil, Shigella, Salmonella.

Molecular typing of Vibrio cholerae by (simplex/ multiplex/ PCR and RAPD)

Hereditary Hematological disorder:

Hemoglobinopathies.

Thalassemia.

G6PD.

Hemoglobinopathles : Hb Electophoresis.

Thalassemia : Hb A2 Estimation.

Hb F Estimation.

G6PD :

Screening by DCIP Method.

Enzyme purification.

Enzyme kinetics.

Molecular typing of G6PD (by PCR RFLP)

State Forensic Lab. Rasulgarh. BBSR. – I met the Director of the Institute Dr Basanta Kumar das.The Institute is under the Home department (police).SoCrime related lab tests of

They procure their stock from the municipal corporation stores department.

Regional Directorate of H&FW (Malaria Clinic). Govt. of India. BJB Nagar. BBSR

Here only Malarial Parasites slides are examined. Both negative & Positive slides from the peripheral institutions of all 30 districts of Orissa are cross checked here also.They take slides from 10.a.m to 2p.m. and declare the result by 4p.m..

They can handle any number of samples as the no.of LTs are eight.So they are able to tell the result the same day and they work under the direct supervision of doctors.

RMRC Lab (ICMR). Chandrasekharpur. BBSR.

Malarial & Molecular strain typing

Diarrhoeal disorder.

Culture/ Isolation of Vibric cholerae, E coil, shigella, Salmonella.

Bio Chemical & Serological characterization of Vibrio cholerae, E coil, Shigella, Salmonella.

Molecular typing of Vibrio cholerae by (simplex/ multiplex/ PCR and RAPD)

Hereditary Hematological disorder:

Hemoglobinopathies.

Thalassemia.

G6PD.

Hemoglobinopathles : Hb Electophoresis.

Thalassemia : Hb A2 Estimation.

Hb F Estimation.

G6PD :

Screening by DCIP Method.

Enzyme purification.

Enzyme kinetics.

Molecular typing of G6PD (by PCR RFLP)

State Forensic Lab. Rasulgarh. BBSR. – I met the Director of the Institute Dr Basanta Kumar das.The Institute is under the Home department (police).SoCrime related lab tests of

blood, stains and visceras and left over food,vomitus etc are tested for any toxins or poisonous material. A main job of the laboratory is to opine regarding ballistic affairs.

The Institute is administered by one IG of police. And they procure their laboratory materials, chemicals etc. from police department.

State Malaria Clinic. Convent square. BBSR.

Only MP slides examined here for the local patients and referred patients also.From periphery institutions negative slides are cross examined here. They see around 60 slides per day and in exigency they can see the double of it to clear the backlogs.

Capital Hospital

Hematology, DC, TLC, Hemoglobin %, ESR, BT, CT, Total Eosinophily count, TRBC, Peripheral smear.

Stool

Routine examinations, occult blood.

Urine

Routine examinations, Microscopic examinations, occult blood, Bile pigment &Bile salt, Ketone body, Specific gravity.

Sl.No.	Name of the test	Done per day	Maximum samples can be handled
1	MP slides	40	60
2	Routine exam. Stool	50	50
3	Routine exam. Urine	30	40
4	DC	22	30
5	TLC	15	20
6	ESR	10	20
7	Haemoglobin	10	15
8	BTCT	3	Any Number
9	Occult Blood	2-3	Any Number
10	Platelet count	1-2	5
11	Comment on peripheral smear	As and when necessary	

Bio – Chemical

Fasting blood sugar, Post Prandial blood sugar, Serum Cholesterol, Serum Urea, Serum Creatinin,

Lipid Profile, Serum Bili rubin, SG OT, SG PT, Alkanaline Phosphatasu, Serum Albumin and Serum Globulin, Uric Asid.

Sl.No	Name of the test	Done per day	Maximum samples
1	FBS	16	20
2	PPBS	10	15
3	Serum Cholesterol	8	10
4	Serum Urea	5	10
5	Serum Creatinine	5	10

Serology

VDRL, Widal, Toxo.

Microbiology

Culture & Sensitivity

Blood Bank

Elisa test, HBs Ag, HIV, Hepatitis C, VDRL, Blood group, RH Factor, Malaria parasite.

HIV-ELISA 30 to 100

SPOT

HBS Ag-SPOT 30 to 100

VDRL 50 to 100

Blood sampling 30 to 50

And cross

Matching

DC, Peripheral30 to 50

Smear, LCT

Malaria parasite any Number

Equipments: - ELISA machine, Insulator, Centrifuge machine, Electric Microscope

Personnel: - 3 doctors, 3 lab technicians and 6 attendants

Infrastructure facilities are not adequate as per the demand on the laboratory

Though it was necessary to map out the laboratory facilities of khurda district I came to know that either for one epidemic investigation or for any individual patient treatment the lab facilities are not sufficient. So I enumerated the lab institutions in the capital city Bhubaneswar. They also became insufficient for epidemic purposes or single individual patient treatment purposes and follow up.

In order to protect the health of the individual or of the community the state referral lab. Centers are to be considered. The near by such centers are state pathology institute, cuttack and S.C.B. Medical College, Cuttack. The lab facilities available in the mentioned institutions are described below.

Laboratory facilities In the Blood bank: -

The blood bank is situated in Khurda city near the hospital campus. The following Laboratory investigations are conducted here.

HIV-ELISA SPOT	15 to25	
HBS Ag-SPOT	20 to30	Equipments: - ELISA machine, Insulator, Centrifuge machine, Electric Microscope
VDRL	30 to 50	
Blood sampling And cross Matching		Personnel: - 3 doctors, 3 lab technicians and 6 attendants
DC, Peripheral Smear, LCT	30 t0 40	Infrastructure facilities are not adequate as per the demand on the laboratory
Malaria parasite	900 to 1000	

REFERRAL LABORATORIES

State Pathology Laboratory, Cuttack

A State Pathology Laboratory is situated at Jobra area of Cuttack city, which is within one km from the SCB Medical College and Hospital. This laboratory has been set up since 1948 as a state level public health laboratory. Besides the pathological and microbiological investigations the laboratory was also conducting vaccine testing, which is not in practice now. This laboratory functions under the Director of Health services, Orissa and meant for the whole state as the referral laboratory.

Following laboratory investigations are conducted here: -

Types of laboratory investigations	*Average No. Of tests conducted perMonth*
Pathological: -	
Stool-Routine and microscopic	80 to 90
Urine-Routine and microscopic	80 to 90
Stool for occult blood	3 to 5
F.U.S	40 to 50
P.P.U.S	40 to 50
P.G.U.S	5 to 10
Sputum for AFB	2 to 5
Skin smear for AFB	1 to 3
Skin smear for fungus	1 to 3
Nasal smear for Eosinphil	10 to 15
Vaginal swab	1 to 3
Vaginal smear	1 to 3
Seminal fluid	1 to 3
Urethral swab	1 to 3
Urethral smear	1 to 3
Haematology: -	
Blood D.C	150 to180
T.L.C.	100 to 150
Peripheral smear	100 to 150
Hb%	100 to 120
TRBC	30 to 50
PCV	30 to 50
B.T.	30 to 50
C.T.	30 to 50
M.P.	120 to 150
E.S.R.	130 to 170
Platelets	1 to 5
VDRL	5 to 10
Urine for pregnancy test	2 to 5
Serology: -	
VDRL	10 to 15
Widal	10 to 15

Bio-chemistry: -	
Blood sugar	
Blood cholesterol	150 to 180
Blood urea	50 to 70
Blood creatine	50 to 70
N.P.N.	50 to 70
Uric Acid	1 to 2
Billirubin	30 to 60
Direct Van Den Burgh	20 to 40
Serum protein	20 to 40
Serum globulin	5 to 10
Albumin-Globulin Ratio	5 to 10
24 hour urine protein	5 to 10
24 hour Urine Creatine	1 to 5
Serum Alkaline Phosphatase	1 to 5
	5 to 10
Bacteriology: -	
Stool culture	80 to 120
Urine culture and sensitivity	40 to 60
Sputum culture an Sensitivity	1 to 15
Throat swab culture and sensitivity	10 to 20
Aural swab culture and sensitivity	3 to 6
Pus culture and sensitivity	5 to 10
Blood culture and sensitivity	1 to 3

Laboratory manpower: -

State Bacteriologist and Pathologist –1, Assistant to state Bacteriologist and pathologist-1. Mobile medical officer–1, Medical officer (biochemistry)-1, senior microbiologist-2

(Now one post is vacant), junior microbiologist-2 (Now one post is vacant), Media maker-1, senior lab technician-1, junior lab technician-3 (Now 2 are in position and one is on deputation to other place), Peon-1, Sweeper-4, Watchman-1

Suggestions for up gradation of the laboratory: -

This lab is now facing lot of problems due to shortage of staffs and funds. Due to such constraints many investigations, which were previously done, are now discontinued such as antigen typing tests for Salmonella, Shiegella, Vibrio cholerae etc. But in the context of emerging and remerging infectious diseases in the sate of Orissa this laboratory is important and it needs to be strengthened. As this laboratory is situated inside the Cuttack City with a back up of a Medical College this lab can be declared a referral center for rural health institutions of the district for lab investigations and of the whole state also.

The State Pathology Lab. should be well connected to all Labs. Of district HQRS and State HQRS by telephone/fax/Internet etc. This should be well connected by telephone/fax/Internet with other national laboratories for communicable diseases in the country.

Modern Laboratory equipments like spectrophotometer, Plain photometer, ELISA reader for IIIV and Autoanlyser are needed for the Laboratory.

Continuous facility for training and reorientation of the staff to be done skill up gradation of the staffs is essential.

Coordination should be established between medical college laboratories and the state pathology laboratory. Adequate number of technical staffs as well as support staffs are to be in position with definite work schedule.

2) Laboratory facilities in SCB Medical College Cuttack

SCB Medical college & hospital, Cuttack is the oldest Govt. Medical college
And Hospital of the state of Orissa. Medical college and hospital laboratories are the referral laboratories for the state. As this medical college is situated in Cuttack district, it caters the needs of the population of Cuttack districts to a large extentand the nearby ten districts.

Following Lab facilities are available here.

Microbiology laboratory

Bacteriology: -

Culture of purulent fluids like, pus, CSF, Blood, Cynovial fluid, Urine, sputum.

Bacteriological culture includes- aural swab, throat swab, conjunctival swab, nasal swab, and high vaginal swab.

Serology: -

In serology following tests are conducted- ASO, RA, CRP, DNA Test, ICT for malaria (Pt & Pv), Brucella agglutination test, widal test, VDRL.

Mycology: -

In this section following investigations are conducted-Culture of fungus for nail, skin.Hair and all other fungal diseases.

Spirochete: -

Tests are conducted for Leptospirosis, Trepanoma pallidum, N. Gonorrhae (Fluorescent antibody test). Microbiology Laboratory of SCB Medical College is the referral center for

VTCT (voluntary blood testing and counseling center sponsored by NACO)

Anthrax

Vibrio cholerae

Staining used in the microbiology Laboratory: -

Gm staining, Zn staining, LCB staining (lacto phenol cotton blue), Negative staining and Albort staining.

Special tests: -

CFT for JE virus, Haem agglutination tests for influenza and JE and other Arboviruses.

Sl No.	Types of tests conducted	Average per month	Maximum per month
1	Culture	1000 to 1200	1200
2	Serology	600 to 700	800
3	Virology	200 to 250	300
4	HIV/AIDS by ELISA	2000	2500
5	Hepatitis (A B C)	300 to 500	500
6	Fungus (Leptospirisis)	300 to 500	500
7	Staining	500 to 700	800

Instruments available in the Microbiology Laboratory

Incubator, incipirator, autoclave, vertical laminar flow, mycology instrument such as hood, Anaerobic and Aerobic culture facility, double distiller plant, ELISA reader, ELISA machine for hepatitis investigations, colony count instrument, dark ground illumination microscope, fluorescent microscope. Type II safety unit for Anthrax investigation, facility for CD4 and CD8 cell count for HIV and AIDS monitoring of treatment.

Personnel available for the laboratory: -
Microbiology-4, Postgraduate microbiology students, Laboratory technician-16, Laboratory attendant-6, Sweeper-6

Communication Facilities: -
Phones, Fax, Computer with Internet facilities are available in this laboratory.

Laboratory records are well maintained in the laboratory.

Pathology Laboratory

Haematology section

Types of investigations	Average investigations Done per month	Maximum investigations that Can be done per montb
Iib%	300	400
DC	300	400
TLC	300	400
ESR	70	100

Total platelet count	200	300
Malaria parasite	150	250
Peripheral smear comment	150	250
BT, CT	30	50
Reticulocyte count	30	50
Gragility	8	20
G6PD	10	30
LE (lupus erythrocyte)	10	20
Nasal smear for Eosinophil (N.E)	2	5
Sickling	50	100
CSF	100	160
Mirtofilaria	2	5
PCV	8	5
Bence Jone protein in urine	2	5
Seminal fluid	15	20
Hb F	15	10
Serum electophoresis	15	10
Bone marrow	20	30
Blood aldehyde	1	2

Laboratory personnel available: -

Pathologists-5, Lab technician-4, attendant-1, sweeper-1

Lab equipments: - Electrophoresis chamber-1, Microscope-15, Incubator, Hot woven-1, water bath-1, Centrifuge machine-2

Reagents supply to the laboratory is adequate.

Lab records are well maintained.

Infrastructure facility is not adequate.

Chemical Section

Types of investigations	Average Investigations done per month	Maximum that can be done
Blood glucose	1900	2000
Blood urea	400	600
SGOT	230	300
SGPT	230	300
ALP	230	300
Bile	500	600
Creatinine	400	600
Cholesterol	240	300
TG	102	300
PTT	20	150
ALB	230	300
SGPT	63	100
PRO	67	100
CPK	36	50
CKMB	32	50
AMY	35	50
Uric Acid	20	30
Calcium	20	30
Phosphorous	10	30

Laboratory personnel: - Pathologists-5, senior technician-1, junior technician-1, and Lab assistant-1.

Lab equipment: - Auto analyzer-1, Spectrophotometer-1, Auto pipette, centrifuge machine, water bath, Refrigerator etc.

Lab records are maintained properly.

Histopathological Section

In this section of the pathology laboratory, Ilistopathological investigations and special stains are done. Average number of investigations done per month is 550 and maximum that can be done is about 700.

Lab personnel: - There are 5 pathologists to look after the investigations, one senior research assistant, one senior technician, one junior technician, one attendant, one sweeper.

Lab equipments: - Histokinete-1, Micro tome-1, Incubator-1, water bath-1, Hot plate-1, Microscope-8

Lab records are properly maintained.

Infrastructure facility is very clumsy which needs to be equipped.

Clinical pathology Section (at OPD)

Types of investigations	Average investigations done per month
HB%	750
TWBC	670
TPC	15
PCV	15
DC	900
MP	180
MF	10
Peripheral smear comment	5
ESR	360
BT, CT	240
Stool-Routine and Microscopic	150
Urine Routine and Microscopic	450
Nasal smear	0 to 1
Conjuctival smear	0 to 1
Seminal fluid	2

This section of the laboratory is with poor infrastructure but is over loaded. There are 3 lab technicians, 2 attendants and one sweeper for the lab works. Lab records are maintained properly with the available logistic supports.

Central laboratory (pathological section)

Types of test	Average No. Of tests per month
Blood-	
Hb%	2500
DC	2500
TLC	2500
Malaria parasite	1200
Total platelet counts	600
Bleeding time	700
Clotting time	700
ESR	1000
Packed Cell Volume	500
Peripheral smear comment	400
TRBC	100
Micro filarial	50

Laboratory staffs: - There are 3 senior lab technicians, 5 junior laboratory technicians and 4 sweepers.

This Laboratory functions in two shifts i.e. from 8 am to 9 pm.

Lab records are well maintained.

4) Biochemistry Laboratory: -

This laboratory functions inside the Biochemistry Department of the Medical College.

Sl. No.	Types of lab investigations	Monthly average tests done
1	Blood sugar	1600
2	Serum Urea	1600
3	Serum creatinine	1600
4	Serum lipid profile	300
5	Liver function Test	300
6	Serum Albumin	100
7	Serum Calcium and Phosphate	100
8	Uric Acid	120
9	Serum Analysis	8 to 10

Laboratory Equipments Available: - Semi autoanalyser-1, Colorimeter-1, Freeze-2, Centrifuge-2,

Auto pipette-4, Incubator-2, Hot wire woven-2

Laboratory staffs: - Besides the faculties of Biochemistry department there are 4 senior technicians, 1 junior technicians, 1 lab attendants, 3 sweepers and 3 attendants.

Laboratory records are well maintained.

5) Regional Medical Research Center, Bhubaneswar

Regional Medical Research Center (RMRC), Bhubaneswar is an ICMR branch situated at a distance of 40 km from the CDMO office of Khurda district. This center has the laboratory facilities on the following aspects.

Laboratory investigations done

1) Immunology Leptospirosis, IgM, ELISA

2) Clinical Malaria – Strain typing of Malaria Parasite (P. falciparum), PCR based

Filaria, OG C 4-

3) Human Genetics Sickle cell, G6PD-Molecular typing of G6PD & β thalassaemia, Based on PCR assay (kinetics method)

Haemoglobinopathies & Thalassaemia

Electrophoresis

HbA_2 & HbF estimation

4) Microbiology AIDS, Cholera

5) Pathology DC, TLC, ESR,

Blood sugar, LFT, RFT

Stool test, Urine test

6) Molecular Biology Anthrax

7) Diarrhoeal disease E. coli (Serotyping)

V. Cholerae up to Molecular typing

Rotavirus

Shigella

Salmonella Sero typing

FLOW CHART OF LABORATORIES

HEALTH SUBCENTRE

SECTOR PHC

BLOCK PHC/AREA HOSPITAL

CHC/UGPHC

DHH KHURDA/CAPITAL HOSPITAL BHUBANESWAR

S.C.B MEDICAL COLLEGE CUTTACK/RMRC BHUBANESWAR

NIV PUNE/KING GEORGE'S INSTITUTE CHENNAI/NICED KOLKOTA/NICD DELHI

RMRC is of immense help to the State and as well as all the district of the state at the time of epidemics. Many a facilities are there which are not found in the state patho Lab and also in Medical colleges. During epidemic emergencies the State Health System seeks the help of this laboratory for various laboratory investigations. Khurda District is a nearby district to the RMRC laboratory so facilities of this center can be utilized for public health purposes of the district. RMRC has already been requested by NIE, Chennai to help the MAE scholars in their local investigations. NIE has also requested KING'S Institute, Chennai and National Institute of Virology, Pune to help us in our local investigations and do the need full at the time of necessity if approached. In this process of co-relation between NIE-ICMR the local Scholars, the local district and the concerned state are benefited in out break investigations from time to time.

PRIVATE HOSPITALS

Some big private hospitals have come up at Bhubaneswar like Kalinga Hospitals,Nilachal Hospitals,Usthi Diagnostics,Ashoka Dignostics etc.But these hospitals will not serve any of our Public Health purposes.

RESPONSE OF THE LABORATORIES DURING THE RECENT OUTBREAKS-

During August 2003 I was at the district headquarter of Mayurbhanj district to train the district doctors on Orissa Multi disease surveillance system.There the CDMO requested meto investigate an outbreak ofdiarrhoea and vomiting.The linkage has developed so nicely that we requested RMRC Bhubaneswar for cary Blair media and we got it within 24 hours.We collected the stool samples and sent it to RMRC.Out of 13 stool samples in 10 samples vibrio Cholerae O1 was isolated.

During July 2002 from the same district I could contact RMRC Bhubaneswar over phone for investigation facilities for leptospirosis.I could come with the blood samples the very next day.Samples were tested for IgM Elisa dipstick method and found to be positive and we could contain the epidemic successfully.

SUGGESTIONS

Laboratory Comittee-It will be ideal to form one laboratory committee at the state level, the Joint Director (PH) as the nodal person.He will coordinate and liason with different laboratories inside and outside the state.The members of the committee will be

-State Epidemiologist

-SMO

-DirectorRMRC

-Prof and HOD dept of Microbiology ,SCB Medical college Cuttack

Quality Control of the Laboratories.-There is no such quality controlmechanism or protocol for the state owned laboratories.,however the RMRC laboratory and the Medical College Laboratorieds can be utilized for that purpose.A decision is to be aken at the policy level if any outside laboratory is to be taken for the qulity control purposes.

Formation Of State Level,Regional Level and District Level Laboratories

Its will be ideal to have one good laboratory in every district and one well equipped Regional laboratory at least in 3-4 districts, so that we can take immediate steps at the time emergency. To deal with poisons, toxins, virus, fungus etc. there must be at least one well-equipped high standard laboratory in the state.

1.3 EXISTING DISEASE SURVEILLANCE SYSTEM IN KHURDA DISTRICT ,ORISSA

INTRODUCTION

Khurda district is the epitome of social cultural and political heritage of Orissa. It was carved out from the old district of Puri and was born on 29th September 1993. It is situated in the Coastal plain of Orissa having Eastern Ghat hilly tracks and deep forests surrounded by Puri district on the East, Nayagarh on the West, Cuttack on the North, Ganjam on the South. It is a prestigious district to have the state capital city Bhubaneswar within its geographical territory. It has an area of 2813 sq. kms with a population of 1874405 (2001 Census), which is highest in the state with a population density 666 per sq. km. It has a great historical background as during British period Khurda was the last independent fort to be captured by British regime. Bravery of the Paikas (a special type of soldiers) reared by the King, were responsible for the internal security and external border surveillance of the country.

During the super cyclone Oct. 1999 due to lack of proper surveillance in Health field we were not in a situation to assess the morbidity and mortality of the community in such a dangerous period. So to overcome such a situation the development of a good surveillance system was thought of immediately after super cyclone to predict, to monitor, to manage epidemics and evaluate the actions taken. The government of Orissa established a weekly multi disease surveillance system in November 1999 with the support of WHO. Initially the system was started in the twelve super cyclone affected districts and later seeing the marvellous result all the district of Orissa were incorporated into the multi disease surveillance system. Now slowly Medical Colleges Homoeopathic Institutions, Ayurvedic Institutions, Urban Medical Institutions are getting incorporated to the system.

KHURDA DEMOGRAPHIC INFORMATIONS

Total Population (2001 census) – 18,74,405

Total Male Population- 986003

Total Female Population- 888402

Sex Ratio- 901 female per 1000 male.

Population Density- 666 per sq. km.

Decadal Growth- 24.79(1991-2001)

Total Area Covered- 2813 per sq. km.

Total literacy rate- 80.19%

Male Literacy rate- 88.38%

Female Literacy rate- 71.06%

Total No of Sub-Division- 2

Total No of Blocks- 10

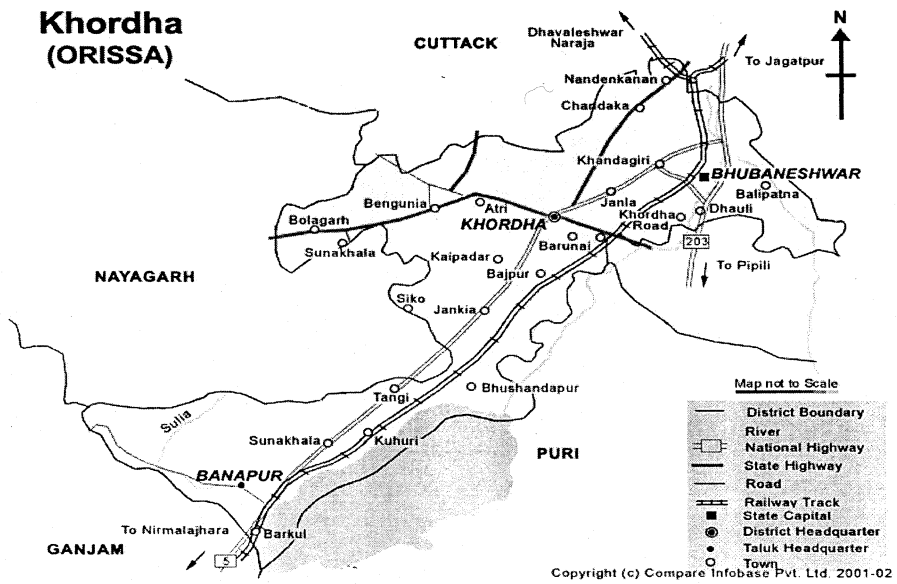
Total No of ICDS Blocks- 10

Total No of Gram Panchayats- 168

Total No of Towns- 5 (1 Municipal Corporation, 2 Municipalities and 2 N.A.C.s)

Total No of villages- 1562

No. of NGO functioning- 70



KHURDA HEALTH- INSTITUTIONS

Total No of Allopathic institutions: - 80

Total No of Ayurvadic institutions: - 18

Total No of Homoeopathic institutions: - 22

Total No of Leprosy Control Unit: - 3

Total No of Blood Banks: - 2

Total No of Hospital Bed sanctioned: -

Total No of Community Health Centers: - 3 (Banapur, Botalama, Jatni)

Total No of Primary Health Centers: - 6 (Balakati, Mendhasal, Haladia, Bankoi, Balugaon, Gambharimunda)

Total No of Up graded Primary Health Center: - 2 (Tangi, Balipatana)

Total No of Primary Health Centers (New): - 52

Total No of Area Hospital: - 7 (Dist. Head Qtr. Hospital, Bolagarh Area Hospital, Olasing, Bhusandapur, Bhingarapur, Nuabanta)

Total No of Sub-centers (sub-units): - 193

Total No of Disease Surveillance reporting units: - 10

Total No of Disease Surveillance Sub-units: - 254

No. of D.D.C. functioning: - 694

No. of F.T.D. functioning: - 175

Bed occupancy rate (2000-2001): -

Maternal Mortality rate (MMR) for 2000: - 132.6

Infant Mortality rate (IMR) for 2000: - 43

Crude Death rate (CDR) for 2000: - 6.08

Crude Birth rate (CBR) for 2000: - 20.3

Total No of Doctors post sanctioned: -

C.D.M.O.: - 1

Addl. C.D.M.O.: - 1

Jr. Cl. -I (Administrative): – 9

Specialist Cl – II: – 23

A/S, LTRMO, SMO, AHO, MHO: – 71

Dental Surgeon: – 2

Total P.P.C.s: - 3 (Dist. Head Qtr. Hospital, Capital Hospital, Municipal Hospital)

Total L.E.U.s: - 3 (Bhubaneswar, Khurda, Tangi)

Total F.R.U.s: - 2 (Tangi, Banapur)

Total L.H.V. Sectors: - 34

Total M.T.P. Centers: - 19 (Govt. 13 + Private 6)

No. of Centers available

with Ambulance services: - 8 (MPLAD Supply – DHH Khurda
Bolagarh,
Botalama,
Banpur,
Balugaon,
Rameswar

ADP Supply: - Balipatna,
Tangi

OBJECTIVE-

The objective of this project is to:

(1) Describe the different Disease Surveillance Systems existing in the district of Khurda.

(2) Identify the strengths and existing gaps in each system.

(3) Suggest appropriate remedial measures to bridge gaps identified and sustain positive attributes.

METHODOLOGY:

Description of existing surveillance system was done by:

Visiting various health institutions and gathering the required information by going through their old and current reports and records starting from the Health Sub center to the District headquarters hospital and to the office of the CDMO khurda to know detail about the Existing Surveillance system..

Informal Discussion with the health personal at different levels like Directorate level, District level, Block level and at the Sub-Center level.

.Disscussing with the Data Entry operators and the compilers at different levels.and problems there of.

TYPES OF SURVEILLANCE SYSTEMS SEEN IN KHURDA:-

1)Multi Disease Surveillance System-Developed after super Cyclone.

2)Surveillance systems for different National Programmes.

3)Sentinel Surveillance system- For HIV-AIDS.

.Orissa Multi Disease Surveillance System(OMDSS).

What is Surveillance?

Surveillance is the ongoing process of systematic collection, collation, analysis and interpretation of data and the dissemination of the same information to the proper quarters so that immediate action can be initiated.

OBJECTIVES OF DISEASE SURVEILLANCE SYSTEM

Epidemic (out break) detection and intervention.
Predicting potential outbreaks.
Monitoring trends in endemic illness.
Monitoring Program performance.
Monitoring Progress towards a control objective.
Evaluating an intervention.
Estimating future disease impact.
RATIONALE FOR DISEASE SURVEILLANCE

Public Health Importance of Disease.

Can Public Health Action be initiated?

Easy availability of relevant data.

Is it worth the effort in terms of Man, Material & Money.

FUNCTIONS

It can be two types one is core function and the other is support function.

CORE FUNCTION

Detection

Data recording and collection

Data Reporting and Compilation

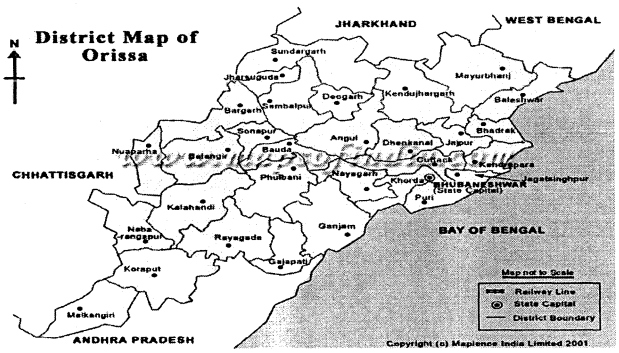
Investigation and confirmation

Analysis and interpretation

Action/ Response and Follow up

Laboratory Confirmation

Feedback



SUPPORTIVE FUNCTION

Training

Supervision

Monitoring

CASE DETECTION-: Cases are detected basing upon the clinical definition of cases of a disease or syndrome.The case definition must be

Simple--:So that the paramedical persons , the real worker in the field can understand it and have a diagnosis

Precise-:So thar there will be no confusion while making a diagnosis.

Uniform-:The case definition is uniform from the HW in the field to doctors,Specialists,Health managers , Policy makers etc

Highly Sensitive-:So that it can catch all the cases of a disease or syndrome under consideration.

FOR INDIVIDUAL CASE DEFINITONS PLEASE REFER TO ANNEXURE NO-1

METHODS OF CASE DETECTION

Patients seek s health care at a hospital

The health worker detects the case in his routine home visits.

Mobile team identifies cases in their village visit.

Actively searching Cases as in Malaria.

Information from a community member.

Report from Media like GE etc.

Good laboratories may notify cases also.

So briefly speaking
From Sub center-The occurrence of a disease event is usually reported first at the Sub center with the HW(M&F)
Health Facility-- BY Doctor.In absence of the doctor the Phamacist or the HS(M or F) or even the Staff Nurse.

DATA RECORDING AND COLLECTION

Once the cases are detected the particulars of the cases like name, age,sex, residence, provisional dignosis, treatment given, and the outcome also are to be documented clearly

and legibly.It must be specified whether it is a New case or Old case came just for follow up..The patient recovered or died and the probable cause of death to be written specifically.The Laboratory-in -Charge should record the finding meticulously and that should be transferred to the case sheet without fail.

DATA COLLECTION

Data Type

For each disease and syndrome, No. of cases and No. of deaths data to be collected.

Age Group-;Below 5 years and 5years and above

Duration--:Data is collected over a week that is from Saturday to Friday. So there can 52 reporting weeks in a year.

The reporting calender of 2002 is provided in annexure no-5

a uniform format is given to all the reporting units from sub centers to dhh and to medical colleges also.

Some tips for collection of quality DATA

Count only the Newly Detected Cases

Count a case with multiple diseases as a single case per visit taking the MDSS defined disease in preference and the disease having OUTBREAK potential.

Suppose all the diseases are in MDSS and are having equal outbreak potential then the disease with maximum CFR to be counted.

A tally sheet to be used to count the cases daily and all for the 7 days to be added to give the weekly report

.if no cases or deaths are recorded then it must be marked zero instead of leaving blank or putting a stroke..

FOR DATA COLLECTION & COMPILATION PERSONS RESPONSIBLE AT VARIOUS LEVELS

Table. No: Persons Responsible for data collection and compilation at different levels

Reporting units	Person responsible for collection	Person responble for compilation
Person from community	AWW School teachers, Panchyat	Member, Motivated Person
Sub Center	Health Worker (Female)	Health Worker (Female)
PHC (N)+Sector	Pharmacist	Health Supervisor
OPD of SDH. DHH and Municipality Hospital	Pharmacist	Staff Nurse or Clinical /Record Clerk
IPD of SDH, DHH, Municipality Hospital	Staff Nurse	Pharmacist/Staff Nurse/Clinical Clerk
OPD IPD of Medicine, Pediatrics departments at Medical college hospitals	Senior Pharmacist/Staff Nurse	Staff Nurse/Clinical Clerk

DATA REPORTING (TRANSMISSION)

It is essential to adhere strictly to the deadlines so that the time is reduced in between data collection and initiation of action. Reports to be sent in due time without waiting for the defaulter r as it can be sent as an supplementary REPORT. The data can be sent over phone followed by a hard copy.

The person assigned to receive the reports maintains a log so that it becomes easier for him to know the completeness and timeliness of reporting.

Table

Mode of report compilation & transmission, reporting deadlines and persons responsible at the various levels of reporting.

From	To	Person responsible	Mode of transfer	Day
Nodal person from community	Sub center	Designated person from panchayat or village.	Manual/verbal	Friday
Sub center	sector	HW(M&F)	Manual	Saturday
Sector	Block level	Pharma&HS(M)	Manual	Monday
Mobile health unit	Block level	Pharmacist	Manual	Monday
Block level	District level	Spl messenger/Phone	Manual	Tuesday
Hospitals(SDH,DHH)	District Level	Special messenger/Phone	Manual	Mon
Medical college Hospital	District level	Fax/spl msr/E-mail	Manual/Electronic	Mon
District level	State Level	E-mail/Fax/Phone	Electronic	Wed

N.B—Special care to be taken during the holidays as problems are encountered in data transmission and causing undue delay.

DATA TRANSMISSION IN THE EVENT OF ONE SUSPECTED OUTBREAK

Though in MDSS the report is transmitted weekly in some situation s there is provision to transmit the report daily.

-An Epidemic prone disease is detected by the Health Facility,

-A disease in Eradication mode is detected.

-Unusual Clustering of cases or any health related event with more CFR in a short span.

DATA COMPILATION

Data is compiled at four levels-Sector PHC,Block PHC,District Level and State Level.

The filled weekly format has to be sent to the next higher level for compilation. Data compilation levels and the persons responsible are shown in the Table No-

DATA COMPILATION AT VARIOUS LEVELS & PERSONS RESPONSIBLE FOR IT
TABLE NO

Data From	Compiled At	Compiled By
Sub centers	SEctors	Health Supervisors(M&F) at PHC(N)
Sectors	Block	St. Asst/VSC at CHC/PHC
SDH/DHH	District	DEO/St.Investigator or any one assigned With the job
Districts	State	DEO/Statistician at the Disease SurveillanceCell,DHS

ANALYSIS, INTERPRETATION AND FEED BACK

At the Sector level sub center wise data are compiled and analysed and interpreted weekly and then sent to Block PHC. Similarly at Block PHC sector wise data and at district level block wise data are compiled, inerpreted and analyzed with help of computers weekly and sent to state level.

The analysis of the morbidity and mortality pattern is reviewed at sub center, block, district and state level sharing with all the higher-level health authorities and necessary feedbacks are sent down below.

TABLE NO Persons responsible for DATA ANALYSIS at various levels

Level	Persons Responsible
Sector	Medical Officer in Charge
Block	Medical Officer in Charge
District	ADMO(PH),AHO or In charge Of DTF
State	Joint Director(PH),Surveillance Medical Officer

By analysis we can detect the trigerring events like Clustering of cases and monitoring the completeness and timelines of the reporting of the surveillance units.

Response and follow up.-

Surveillance means action. The intervention is planned after analyzing the surveillance data. Now all the districts are equipped with the Rapid Response team After weighing the necessity of the site the response team has to move,

A regular response is needed in-

-Investigation of Outbreak

Initiating control measures

Any problem in the system efficiency

Outbreak investigation and response-occurrence of a disease or disease entity clearly in excess of the expected number or two epidemiological linked cases of a disease of outbreak potential. If there is need for investigation then proceed for an outbreak investigation.

Steps of Outbreak Investigation

1) Verify if there is an outbreak

2) Confirmation of the outbreak

3) Epidemiological Investigation

4) Formulation of Hypothesis.

5) Provisional diagnosis with initiation of control measures

6) Follow up action and spot verification if the actions are proceeding in the correct direction

7) Monitoring the containment measures with supply of required logistics, community involvement, media response.

8) Declaration of the outbreak to be over ad submit a report to the appropriate authority.

DISEASES MONITORED

Simple diarrhea.

Severe diarrhea.

Bloody diarrhea/ Dysentery.

Suspected Malaria.

Acute Respiratory Tract infection.

Measles.

Acute Jaundice syndrome.

Neonatal tetanus.

Suspected Meningitis.'

Heat Stoke.

Any unusual severe syndrome.

Others

The unusual severe syndrome cases are reported with details like patients history, chief complains, probable diagnosis etc. and detail investigation done on these cases by the District Task Force team.

In the context of disasters other epidemic prone diseases like skin infection and snakebites during flood and heatstroke during summer months.

ACHIEVMENTS

90%-95% reporting regularly by reporting units.

95%-100% reporting regularly by sub-units.

Made accountable to all the persons concerned with the Disease Surveillance.

Regular discussion and analysis of the Disease Surveillance report in monthly MO s & staff meeting respectively at district and block level.

Weekly analysis of reports regularly at district level with CDMO and ADMO (PH).

Weekly, monthly and seasonally report generation by both tabular and graphical method.

CURRENT SITUATION

Since Apr' 2001all 30 districts reporting regularly. (314 blocks + 53 DHH, SDH) 367 reporting units.

1st round training in 2000 of general health care staff from the state level to the H.S.C (~14,000)

Computer + HMIS software & data entry personnel in all districts placed by OHSDP (WB assisted)

Weekly reporting without interruption

Data on morbidity & mortality – 10 diseases normally + 1 seasonal + 2 disasters

Data collected under two age groups (<5 & >=5)

Around 95% of the reporting units are reporting every week.

Technical support from MSF initially & who now

PERSONNEL INVOLVED

Sub centre----------MPHW (F) & MPHW (M)

Sector PHC----------MO, Pharmacist

Sector compilers----------MPHS (F/M)

Block PHC----------MO, Pharmacist

Block compilers----------Vs Clerk/Pharmacist

Dist. HQ. Hospital----------MO, Pharmacist

District compilers----------Vs Clerk & Data Entry Operator(DEO)

State----------surveillance medical officer, (DEO)

OMPUTERISATION

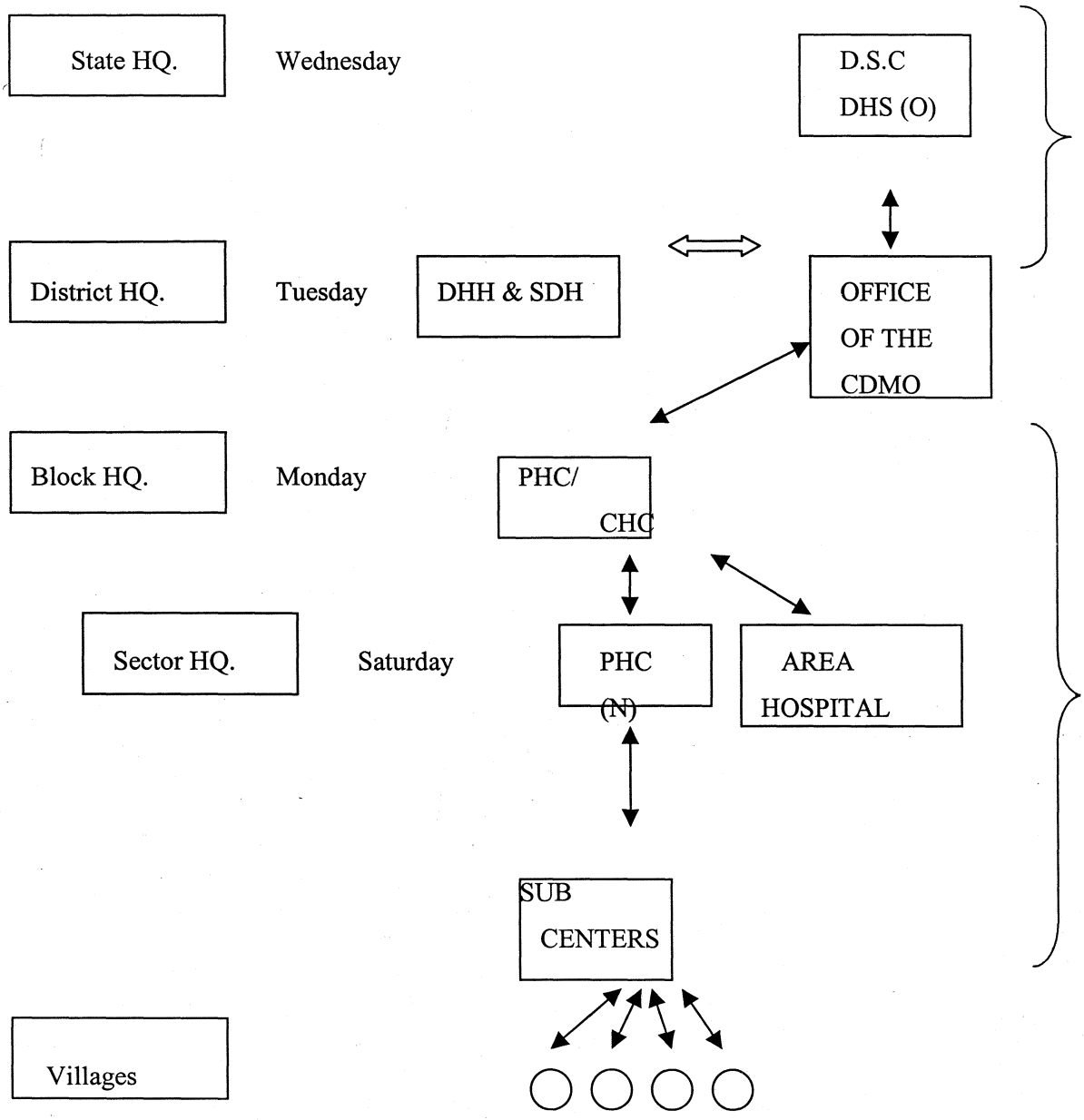
At district & state levels- Hardware, Software & Accessories are in place.

Data entry operators to facilitate the work and simultaneously orient few staff of CDMO offices.

Computer with internet connection

HMIS Software in Oracle Developed by TATA Consultancy Services.

FLOW OF DATA


State HQ.
Wednesday
D.S.C
DHS (O)
District HQ.
Tuesday
DHH & SDH
OFFICE
OF THE
CDMO
Block HQ.
Monday
PHC/
CHC
Sector HQ.
Saturday
PHC
(N)
AREA
HOSPITAL
SUB
CENTERS
Villages

DISTRICT TASK FORCE FOR M.D.S.S.

Assistant health officer, statistical investigator, laboratory technician, attendant, driver
Mobility support-vehicle, dol-supplied by OHSDP
Outbreak investigation & control
Routine tour programme of district
Reports to ADMO-public health
Active in most districts
Now all the District Task Force Teams have been converted to Rapid Response Team(RRT).They are now moving with any information of outbreak, proceeding to the field and after their investigation report steps are taken.

OUTPUTS

Monitoring of the incidence of common diseases
District task force (DTF) in all districts
Early identification of outbreaks resulting in immediate control measures by the DTF
Technical committee meets every week to reviews reports & provide feedback
Staff are sensitized to communicable diseases
Feedback through MEMOS & Quarterly bulletin

FUTURE DIRECTIONS

Strengthening & sustainability of the existing disease surveillance system.
Ensuring the quality of the reporting—Quality of reporting can be enhanced by ensuring timeliness & completeness of reporting, field supervision & monitoring of surveillance work at different levels.
Ensuring timely & appropriate response at all levels.

Strengthening the laboratories to support the outbreak investigation teams

Laboratories play a very vital role in Outbreak Investigation and controlling the outbreak. Every District must be well equipped with good laboratory. If it is not possible at least a Zonal laboratory to be set up taking 3 to 4 districts as a zone. A good Reference Laboratory must be there in a state and all these labs. are to be linked with each other to act efficiently at time of need.

Three medical colleges are already brought under MDSS.

Coverage of MDDS to be extended to include Homoeopathy & I.S.M institutions, ESI Hospitals, Municipal Hospitals and Dispensaries, Public & Private sector health providers.

Linking with I.C.D.S.

Integrating the existing monthly reports of vertical programme into single DSS report

RESPONSE DURING DISASTERS

There is an inbuilt mechanism to convert the weekly system to daily system.

During 2001 Orissa flood, DSC served as the health emergency control room with daily surveillance system

Skin disease and snake bite were added to the disease list with respect to flood/epidemic emergency

Also during summer heat stroke disorder surveillance is undertaken daily

FLOW OF INFORMATION DURING DISASTERS

Disease surveillance reports are transmitted on daily basis during natural calamities/epidemic situations.

As far as practicable all the PHC/CHC/Hospitals those are not cut off should report without fail on daily basis.

Disease data from health camps, mobile health units (both Govt. and Non- Govt.) should be collected in the same format at PHC, CHC, and DHH.

Data at PHC/CHC/hospitals to be compiled daily and report to be transmitted on the same day to District Headquarters.

At District Headquarters it is to be compiled the same day and to be transmitted to State Headquarters to State level Disease Surveillance cell by Fax/E-Mail/Phone/Special messenger.

As soon as the emergency situation is over, again it is converted to a Weekly Surveillance System.

STRENGTH AND WEAKNESSES

Reporting system and analysis

Man power

Laboratory

Connectivity

Training facilities

Role of private sector

Surveillance Mechanism Tools

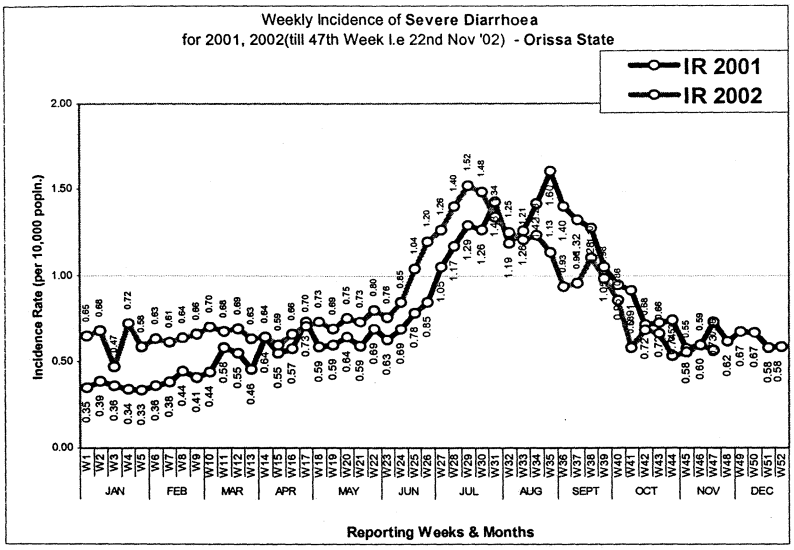
Formats

Feedback

1)Reporting system and analysis:

The weekly system that is from Saturday to Friday helps the staff to do week's job and report at the weekend. There is no definite mechanism to transfer any information within the week.

The data collected is giving early warning signals of the field.,predicting disease trends. In orissa water borne diseases are more during monsoon.so a seasonal trend of the water borne diseases is well predicted from the surveillance data. But this trend calculation is only possible at district level and above.The following graph(Figure2) shows the weekly trend of severe diarrhea for 2001 and 2002.The cases rise from the 2nd week of June ,reaches a peak in August 2nd week or September 1st week and slowly declines in 2nd week of October as monsoon becomes powerless.



A monitored coloured tool is used to know the timeliness and completeness of the data given by different reporting units.

gure 3

on time and complete, On time and incomplete, Late and complete, late and incomplete Not reported at all. So from the coloured monitor the reporting status of a particular unit. can be evaluated.

Monitoring of District-wise Weekly Disease Surveillance Reporting Efficiency												
MONTH & YEAR	August - 2001		September - 2001				April - 2002				May - 2002	
WEEKS ->	34	35	36	37	38	39	14	15	16	17	18	19
DISTRICTS :												
Angul	2	4	2	2	1	2	2	2	2	2	2	1
Balasore	2	1	1	1	1	2	2	1	2	1	2	2
Baragarh	2	2	4	2	2	2	2	2	1	1	2	2
Bhadrak	1	2	1	2	1	1	1	1	1	1	1	1
Bolangir	4	1	1	1	2	2	1	2	1	2	2	2
Boudh	1	2	2	1	1	1	1	1	1	1	1	1
Cuttack	4	2	2	1	1	1	1	1	1	1	1	1
Deogarh	1	1	1	1	1	1	1	1	1	1	1	1
Dhenkanal	2	4	2	2	2	2	1	1	1	1	1	1
Gajapati	1	1	1	1	1	1	2	1	1	1	1	1
Ganjam	2	1	2	2	2	2	1	2	2	1	2	1
JSinghpur	1	1	2	1	4	2	1	2	1	2	1	1
Jajpur	2	1	1	2	2	2	2	2	1	1	1	2
Jharsuguda	1	5	1	1	1	1	1	1	1	1	2	1
Kalahandi	2	2	2	2	2	2	1	1	1	1	1	1
Kandhamal	2	2	2	2	2	2	2	1	2	1	1	2
Kendrapara	2	1	1	2	1	1	2	2	1	1	1	1
Keonjhar	4	2	2	2	2	2	1	1	1	1	1	1
Khurda	2	2	2	2	2	2	1	1	1	1	2	1
Koraput	4	2	2	2	2	2	1	1	1	2	1	1
Malkangir	2	1	2	1	2	2	2	1	1	1	1	1
Mayurbhanj	4	2	1	2	1	2	2	2	1	1	1	1
Nabrangpur	2	1	1	2	2	2	2	1	1	2	1	1
Nayagarh	2	1	2	2	1	2	1	1	2	1	1	1
Nuapada	2	2	1	1	1	2	1	2	1	1	1	1
Puri	1	2	2	1	1	1	1	1	1	1	1	1
Rayagada	1	1	1	1	1	1	2	1	2	1	1	1
Sambalpur	2	2	2	2	2	2	1	2	2	2	2	2
Sonepur	1	1	1	2	1	1	1	1	1	1	1	1
Sundergarh	4	2	2	2	2	2	1	1	2	1	1	1
TOTAL %												
1	30.0%	43.3%	43.3%	43.3%	50.0%	33.3%	63.3%	66.7%	73.3%	80.0%	73.3%	80.0%
2	43.3%	36.7%	50.0%	56.7%	33.3%	63.3%	36.7%	33.3%	26.7%	20.0%	26.7%	20.0%
3	6.7%	10.0%	3.3%	0.0%	13.3%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	20.0%	6.7%	3.3%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1		2		3			4				5	
ON TIME AND COMPLETE		ON TIME AND INCOMPLETE		LATE AND COMPLETE			LATE AND INCOMPLETE				NOT REPORTED	

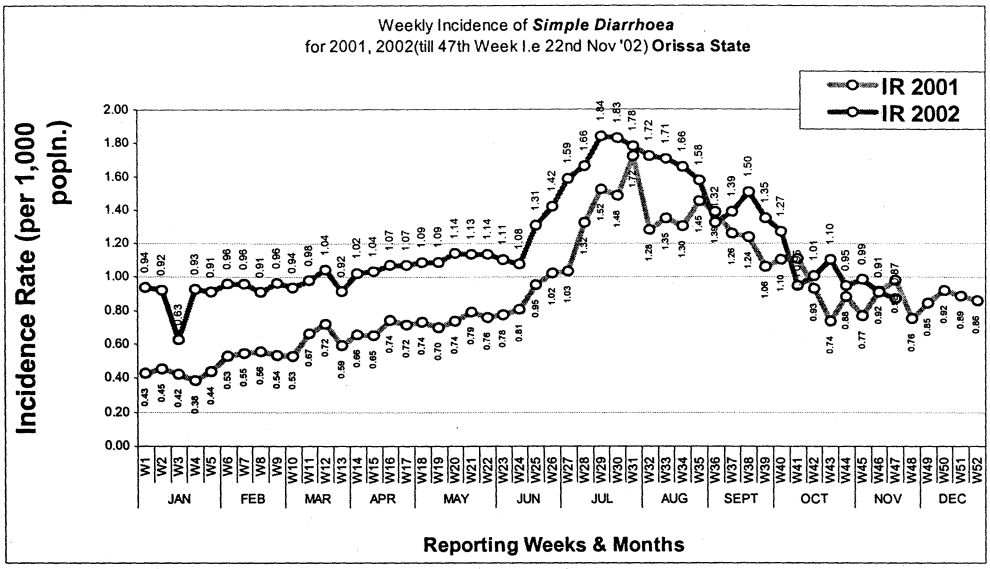
Analysis:

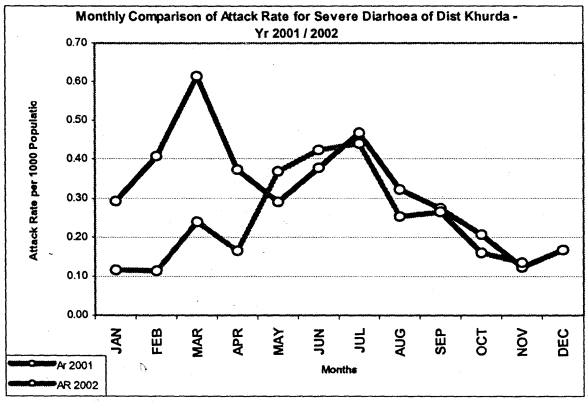
Now analysis is almost restricted to district headquarter and state headquarter. The training of all the doctors of the state in multi disease surveillance system is will be over soon. They will start analysis even at the sector level, so that no early warning signals will be lost.

Tabulation of Data--Now done also at sector level PHC.

Calculation of rates--Now getting done only at district headquarters and above, will gradually be done at block and sub block level once the block level training, continuing now, will be finished.

Now also weekly and monthly trends are calculated from district level and above-Weekly trend of simple diarrhoea in monsoon.


Weekly Incidence of *Simple Diarrhoea*
for 2001, 2002(till 47th Week I.e 22nd Nov '02) **Orissa State**
IR 2001
IR 2002
Incidence Rate (per 1,000 popln.)
Reporting Weeks & Months
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEPT
OCT
NOV
DEC


Monthly Comparison of Attack Rate for Severe Diarhoea of Dist Khurda - Yr 2001 / 2002
Attack Rate per 1000 Populatio
Months
Ar 2001
AR 2002

5. During Monsoon the waterborne diseases increases in khurda. Generally the incidents starts mounting up after second week of june, reaching the peak around August end and September First week and starts descending, reaching base line by October (Figure 4 an 5)

Manpower:

The persons those really work in the field out of them, HW (female) – 12 posts vacant, MPW (male) 63 posts are vacant, Pharmacists 4 posts are vaccant. Block extention Educator(Family Welfare) – 3 posts vacant and multipurpose health supervisor male – 29 posts are vacant. Doctors-8 posts vacant.

In case of vacancy the nearby sub center staffs are given the additional charge to do the surveillance work reporting of the concerned sub center.

Laboratory:

The laboratory Facilities are not adequate in the state. Even there is not a single District Headquarters .Hospital where culture can be done.

So at the time of Outbreak Investigation either the samples are sent to medical colleges Or to Regional Medical Research center , Bhubaneswar.

Now also a network has been developed by the help of National Institute of Epidemiology Chennai and a liasoning has been made with NICED Kolkata, NIV pune,Kings Institute Chennai. to carry out investigations at time of necessity.

It is proposed to have 4 Regional Laboratories one each in central , Western zone ,Northern and southern Zone. One well equipped reference laboratory to be established in the whole state to deal culture of virus ,Fungus etc

Connectivity:

Most of the Institutes are connected though not by good roads but by panchyat roards.Public transport is not found at all the places and even at some places abus plies once only during the whole day to the Block level PHC.In and around Chilika lake the mode of transport is through water by boats.

The district headquarters and the state headquartersare connected by telephone ,fax and by internet.Computers are there at all the district headquarters with one data entry operator.No rovision for block headquarters.

Training Facilities:

A state core group trainers and District core group trainers have been created. The trainings upto th e block level have been completed and now the district trainers have been assigned to train the block and the sub block level staffs.

Role of private sector:

Slowly we are trying for the big private hospitals in the state to come to the fold of OMDSS.The private nursing homes and reknown private practitioners will be provided with post cards.They have to just drop the surveillance data on Saturdays.

Recommendation:

The post of MPW (Male& Female) to be filled up as early as possible.

The post of MPHSW (male & Female) posts are to be filled up and they should be engaged more in surveillance activities.

Laboratory camponent to be strengthenned. At least 4 regional .Laboratories and one reference laboratory to be set up in the state.

Private bodies are encouraged to be a part of the system

computer facility-

All the thirty district headquarters and the state headquarters are provided with computer facility.to have a full proof system all the block headquarters should be given computers.So that any feedback from director can be appraised to all the institutions in the state.All the block reports coming from the block on Monday can be sent to district/state headquarters within no time.

Shortage of Formats

There is shortage of formats and Minor ailment register and week formats also .These should be supplied in plenty

Training component to be incorporated in the system to reorient the staff as and when necessary. throughout the year.

The leader of the DTF, the post of AHO.to be made a permanent post in all the 30 districts.

Sentinel surveillance System

Sentinel surveillance is for Aids control programme under NACO is functioning in Orissa. With its headquarters at Bhubaneswar.The authrised sentinel sites for (STD) are M.K.C.G medical college Berhampur,DHH Koraput,SCB Medical college Cuttack,Capial Hospital Bhubaneswar,DHH Balasore,DHH Sambalpur And DHH Puri and the ANC sentinel sites are City Hopital Berhampur,RGH Rourkela,SCB Medical college,Cuttack and VSS Medcal college Burla.The project was started in 1990 first.The first case of AIDS was detected in 1993 from Ganjam District.In all the blood bank of aorissa all the donor blood are screened for the purpose.and surveys were carried out twice a year. Now the surveys are done once a year.Till now totally 111 cases of AIDS have been detected with 14 death Orissa. once . The survey activity starts from 1st August to 31st October.

. Objective of Sentinel surveillance for HIV –AIDS:

The objective of this surveillance is to do annual cross-sectional survey by unlinked anonymous serological testing procedures of the high-risk group and the low risk group that is at the STD Clinics and the Ante-Natal Clinics and to estimate the burden of disease in the high risk and the low risk population.

Case definition:

Case definition used at the STD clinic is as those who are coming with complaint of any one of the following four syndromes:

Genital Ulcer male or female.

Cervical discharge or Cervicitis.

Urethral discharge.

Genital Wart.

Sample size taken for sexually transmitted diseases is 250 and for antenatal cases it is 400.The collected samples are sent once in fortnight to the referral laboratory, which is SCB Medical College Cuttack.

From starting of the project to till 1st October 2001 totally 781793 blood samples have been tested,1586 blood positive cases and 111aids cases have been detected with 14 death

Give state Summary Report Table of the round August 2001 to October 2001

Sl.No	Name of site	Sentinel Group	Number Tested	Number positive	Perchantage Positive
1.	MKCG Medical college, Berhampur	STD	250	12	4.8
2.	DHH,Koraput	STD	250	3	1.2
3.	SCB Medical College, Cuttack	STD	250	3	1.2
4.	Capital Hospital Bhubaneswar	STD	250	2	0.8
5.	DHH Balasore	STD	250	1	0.4
6.	DHH Sambalpur	STD	250	1	0.4
7.	DHH Puri	STD	250	1	0.4
		Total	1750	23	1.31
1.	City Hospital Berhampur	ANC	400	1	0.25
2.	RGH Rourkela	ANC	400	1	0.25
3.	SCB Medical College, Cuttack	ANC	400	0	0
4.	VSS Medical College Burla	ANC	400	0	0
		Total	1600	2	0.125

Table of the Scenario of HIV Positive and AIDS scenario of Orissa upto 2001.

Year	Total Blood Sample Screened	Blood +Ve cases	AIDS Cases	Death
1990	540	0	0	0
1991	3590	0	0	0
1992	12,580	1	0	0
1993	25,965	18	1(Ganjam)	0
1994	42.022	64	4(Ganjam)	3(Berhampur)
1995	74952	60	4 (Nayagargh-2, Ganjam-2)	2(Nayagarg)
1996	77,821	60	2 Baripada-1, Ganjam-1	2(Baripada-1) Ganjam-1)
1997	69,572	79	1 (Khurda-1,Kendrapara_1)	1(Kendarapara)
1998	1,07,193	72	1(Baripada)	1 (Baripada)
1999	1,12,500	230	1(Bhadrak	1.(Rajendra Nagar, Kendarapara)
2000	1,32,206	380	20(Ganjam) 23(S.C.B.M.C,Cuttack (T.B & Chest Dept) 7Kallinga Hospital, Bhubaneswar,khurda	1(Ekatala,Jaipur 1((kelimela,Malkanagiri 1 (buluria,Pattamundei)
2001	1,19,198	379	26(M.K.C.G.M.Cberhampur 15(S.C.B.M.C Cuttack 2(I.G.H,Rourkela 4(DHH Malkangiri	1(Taradipal Patamundai Kendarapara)
Total	7,81,793	1,586	111	14

The trends at the STD is on the decrease it is increasing. At the STD clinic sites the trend is increasing for district Ganjam but not so for other sites.

Strengths:

It gives a trend among the high-risk group i.e. at the STD sites and ANC sites that is the low risk group.

Constraints:

As people with sexually transmitted disease tend to visit private sector more than the government sector it does not estimate the burden of the disease. More ever the HIV –AIDS presenting with other diseases is not taken care of.

Suggestion:

As is known know that HIV –AIDS patient is more prone to get infected by tuberculosis bacterium microscopic centers for tuberculosis may also be included under the sentinel surveillance system for HIV-AIDS.

Reproductive and Child health Programme having following components.

Family Welfare.

Maternal Health.

Child Health.

Adolescent Health.

Reproductive Tract Infection's.

Revised National Tuberculosis control Programme

National Leprosy Eradication Programme.

National Programme for Control of Blindness.

National Anti-Malaria Control Programme.

National Iodine Deficiency Disorders Control Programme.

National Aids Control Programme.

ANNEXURE -1

DISEASES MONITORED

Simple diarrhea.

Severe diarrhea.

Bloody diarrhea/ Dysentery.

Suspected Malaria.

Acute Respiratory Tract infection.

Meales.

Acute Jaundice syndrome.

Neonatal tetanus.

Suspected Meningitis.'

Heat Stoke.

Any unusual severe syndrome.

Others

The unusual severe syndrome cases are reported with details like patients history, chief complains, probable diagnosis etc. and detail investigation done on these cases by the District Task Force team.

In the context of disasters other epidemic prone diseases like skin infection and snakebites during flood and heatstroke during summer months.

CLINICAL CASE DEFINITIONS USED

These definitions are uniform to all types of health professionals starting from Health worker at periphery to to a super specialistic doctor of a medical college.

SIMPLE DIARRHOEA: -

Three or more loose motions within 24 hours without dehydration are called simple diarrhoea. In children, passage of even one large loose stool can be labeled as Simple Diarrhoea.

SEVERE DIARRHOEA: -

Acute Diarrhoea with severe dehydration.

BLOODY DIARRHOEA/ DYSENTRY: -

Diarrhoea with visible mucus and blood in the stool. Blood must be visually confirmed.

ACUTE JAUNDICE SYNDROME: -

Fatigue followed by acute onset of Jaundice i.e. yellow coloration of the Eyes, associated with deep yellow urine with or without fever.

SUSPECTED MALARIA: -

Fever or history of fever associated with symptoms such as head ache, chill, rigor and myalgia. Sweating usually follows rigor. (Other infectious diseases should be excluded).

ACUTE RESPIRATORY TRACT INFECTIONS: -

Person with Fever and cough (with or without expectoration) for less than 15 days should be considered to have ARI. A chilled (<5Yrs.) who has a respiratory rate of >40 per minute or an adult with a respiratory rate of >20 per minute should be diagnosed to have Acute lower Respiratory Tract Infection.

MEASLES: -

Any person with fever, cough, coryza, conjunctivitis and maculo-papular rash is considered as a case of measles. The rash may remain discrete, but often becomes confluent and blotchy.

NEONATAL TETANUS: -

In neonate with a normal ability to suck and cry during the first two days of life but then develops a difficulty in sucking and becomes stiff or has convulsions or both between the 3^{rd} and 28^{th} day of age should be diagnosed to be a case of Neonatal Tetanus.

SUSPECTED MENINGITIS: -

Fever (sudden in onset and usually more than 38^0C- 39^0C) associated with vomiting, headache, and neck stiff ness is suspected for meningitis. A disturbance in the level of consciousness is present in most of the cases. In infants there is bulging fontanels.

HEAT STROKE: -

A History of exposure to environmental heat or sunlight and humidity followed by raised body temperature (>106^0F or >41^0C), absence of sweating and a disturbance of in the level of consciousness.

ANY UNUSUAL SEVERE SYNDROME

It includes any life threatening conditions that are not in the above list.

Current shortcomings

1) Data transmission:-During long government holidays the data transmission efficiency gets reduced.As this the part of an emergency servicesome alternative arrangements are to done.

No more special messenger service for m the block headquarter to the district`.

2)Data Analysis-Only done at district and state level.

Needs to be done at the block and sub block level.

Analysis to be sent along with the compilation report.

3)Response mechanism is not satisfactory

4)Feedback is also to be improved

5)Utilissation of OMDSS data all the levels

6)Integration and convergence with other health programmes does not come out very clearly.

7) Reporting efficiency-It is observed that the reporting efficiency of big institutions are less than the peripheral health facilities thojugh their manpower are more.

Recommendations and discussions with health officialThese points were discussed with Joint director(PH) and Director Health Services Orissa.

1)Data Transmission-It was discussed in case of long holidays a roster list may kindly be prepared and the responsibility of sending the surveillance report may be given to a specific person so that the problem can be avoided.This was accepted .

The system is to be made self sustaining .So the assistance that was give to the supervisory staff to tke the report from the PHC to the Distic was discontinued.

2)Data Analysis-All the Medical officers are already trained so slowly they will be submittingthe compilation report.They are to be directed to submit the analysis report along with thecompilation report.

3)Response mechanism-The response mechanism is not upto the mark so all were sensitized by the Joint Director to act immediately in case of outbreaks.

4)Utilisation of OMDSS Data – Now the vertical programme like E data to find out the cases and following of the cases.

5) The feedback: The feedback to be improved.Usually it is very less from the higher quarter to lower .So reviewing officers were already advised to issue appreciation letter to the staff or the junior medical officer for their good work.

5)Integration with other Institutions-Already the Homoeopathy and the Ayurvedic hospitals, Medical colleges and urban local bodies body of he pournd included Director was briefed and he agreed for the training of the newly persons

Reporting efficiency:

The bigger hospitals are perinially defaulters.They were advised to submit reports in scheduled time as their manpower is more.

1.4 ANALYSIS OF SECONDARY DATA KHURDA DISTRICT, ORISSA.

The State of Orissa is rich in minerals,forest products, Tourist Spots,Long Coastal Lines and a rich cultural heritage, still it is taken as one of the backward states of India due to poverty ,lack of proper education and health.The state is having the highest Infant Mortality Rate in the country and the morbidity and mortality due to communicable diseases are still high leading to loss of inummerable man-days in industrial sector, agricultural sector and also in the domestic sector.This makes the per capita income of the state miserable forcing the planners to assess the disease burden by analyzing the the health data available,intertpreting it and to address the thrust areas in health on a priority basis.Due to lack of adequate resources and due to lack of proper analysis of the available health data at different levels it has not been possible till now to address the thrust areas of health effectively. And so this exercise.For example a Railway Project, connecting two tribal districts Koraput and Rayagada in orissa was planned to be completed in four years.But due to the problem of malaria the project took ten years for its completion.Not only this exercise gives us the information but also spells out the priority in resource allocation

.I intend to collect the data related to the major disease events occurring in the district from different sources,analyse them by calculating the AR%,CFR% and interpreting duly ,why it is so , with possible recommendations to overcome the situation.

II. Objective:

A. To describe and to study disease trends over a period of time.

B. Identifying disease of epidemic potential.

C. Identifying diseases that need to be included in the surveillance system.

D. To develop action plan for strengthening existing health infrastructure and to reduce diseases burden

III-Methodology.-

Study Area-Khurda District,Orissa

Source of Data.-

Hospital records and registers.

Data from district and state headquarter

Disscussions with officials at the district and state. Headquarters..

At the state head quarters met different joint directors, and discussed regarding the disease burden of the state and data related to my district that is Khurda..Then met CDMO Khurda, ADMO(ph),ADMO(FW),ADDL CDMO and got the district data. Also went to some of the PHC,CHC,UGPHC to get Block wise data.

Coming to the vertical programmes I collected the district data from the wing officers. As there is no post of DTO till today in Khurda district data pertaining to TB are copmiled at the mother district Puri..

In the Post Super Cyclone era the state has developed a Multi Disease Surveillance System covering the following diseases showing the cases, deaths, AR%, and CFR% .The morbidity and Mortality status is analysed block wise with recommendations wherever necessary.

Simple Diarrhoea

TABLE NO--1 CASES ,DEATH,AR%,CFR% OF SIMPLE DIARRHOEA-2001OF KHURDA DISTRICT

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	7018	0	6.7	0
2	Balianta	103227	3851	0	3.7	0
3	Bhubaneswar	105937	6305	0	5.9	0
4	Jatni	82768	6899	0	8.3	0
5	Khurda	118696	4458	0	3.7	0
6	Begunia	114660	7124	0	6.2	0
7	Bolagarh	117737	5473	0	4.6	0
8	Tangi	139791	7014	0	5.0	0
9	Banapur	106977	8127	0	7.5	0
10	Chilika	106237	5422	0	5.1	0

Simple Diarrhoea-Acute Watery Diarrhoea (passage of three or more loose or watery stools within the past 24hrs) without dehydration. (Table No-1)

The AR% is highest in the block of Jatani and followed by each Balianta and Banapur

The overall AR% of the total district is3.2% and all the blocks of the total district is affected with simple diarrhea the most probable cause is consumption of bad water.

The people of the above two blocks depend more on river water and general sanitary condition are not up to the mark.

Severe Diarrhoea-It is seen inall the blocks of Khurda .The mortality is seen more due to severe dioarrhoea. In Khurda.

Table No-2: Cases, Death, AR% and CFR% of Severe Diarrhoea of 2001.

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	215	0	.20	0
2	Balianta	103227	193	0	.18	0
3	Bhubaneswar	105937	280	1	..26	.35
4	Jatni	82768	431	1	.52	.23
5	Khurda	118696	280	0	.23	0
6	Begunia	114660	124	0	.10	0
7	Bolagarh	117737	886	0	.75	0
8	Tangi	139791	1936	0	1.3	0
9	Banapur	106977	1839	1	1.7	.05
10	Chilika	106237	800	1	.75	.12

Acute Watery Diarrhoea with dehydration with or without vomiting.(Table no 2)

The AR% is maximum1.7% in Banapur Block thenTangi Block.The CFR% is more in BBSR block.The overall AR% of the district is.59%.

The areas showing high AR% are mainly due to the villages who depend more on river water for drinking purpose also.Though tube wells are there people do not use it due to the hardness & more iron content in the water.

Bloody Diarrhoea: Bloody diarrhea is seen also in all the block areas due to consumption of unhealthy water.

Table No-3: cases, death, AR% and CFR% of Bloody Diarrhoea 2001of Khurda dist.

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	2804	0	2.69	0
2	Balianta	103227	2016	0	.26	0
3	Bhubaneswar	105937	4942	0	4.6	0
4	Jatni	82768	2222	0	2.6	0
5	Khurda	118696	2088	0	1.7	0
6	Begunia	114660	3850	0	3.3	0
7	Bolagarh	117737	4651	0	3.9	0
8	Tangi	139791	4428	0	3.1	0
9	Banapur	106977	6113	0	5.7	0
10	Chilika	106237	3582	0	3.3	0

It is evident from the table that there are bloody diarrhea(stool with visible blood and mucous) cases occurring through out the District

The highest AR% is 5.7% that is , more in the same Block Banapur where severe Itdiarrhea cases and death were more.(Table No3)

Overall AR% of the Dist-1.9

The AR% due to bloody diarrhoea is also due to consumption of dirty water .and open air defaecation by the people.

Acute Jaundice Syndrome:It is also one disease syndrome very much important in the state mostly due to water borne infections.

TABLE NO-4 CASE S OF ACUTE JAUNDICE SYNDROME WITH CASES ,DEATH,AR%,CFR% in District Khurdha 2001

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	51	0	.04	0
2	Balianta	103227	62	0	.06	0
3	Bhubaneswar	105937	8	0	.075	0
4	Jatni	82768	75	0	.09	0
5	Khurda	118696	40	0	.03	0
6	Begunia	114660	97	0	.09	0
7	Bolagarh	117737	92	0	.08	0
8	Tangi	139791	108	0	.07	0
9	Banapur	106977	30	3	.03	10
10	Chilika	106237	79	1	.07	1.2

The table shows that all the blocks the district is affected by diseases giving rise to jaundice. The AR% is more in Jatni Block where Acute watery diarrhoea was highest. CFR% is more in Banapur block where both severe diarrhoea and bloody diarrhoea AR% was the maximum.

Suspected Malaria Malaria is an important disease in the state requiring urgent attentions through out the year.

TABLE NO-5: CASES ,DEATH ,AR%AND CFR% DUE TO SUSPECTED MALARIA IN KHURDA DISTRICT DURING 2001.

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	4708	0	4.5	0
2	Balianta	103227	1145	0	.11	0
3	Bhubaneswar	105937	2782	2	2.62	0.07
4	Jatni	82768	3785	0	4.5	0
5	Khurda	118696	3080	0	2.5	0
6	Begunia	114660	7908	0	6.8	0
7	Bolagarh	117737	6191	0	5.2	0
8	Tangi	139791	5585	0	3.9	0
9	Banapur	106977	12418	2	11.6	.016
10	Chilika	106237	4777	0	4.4	0

Suspected Malaria-

The AR% is more in Banapur block.Most of the portion of the block is the catchment area of the rivers draining to Chilka Lake.There is also one medium irrigation resorvoir known as Salia.The west side of the block is covered with a dense tick forest..The inhabitants are tribal people having no health consciousness

The over all AR% of the Dist.is2.7%.CFR% is more in Bhubaneswar block as the people are not immuned to Malaria.

Acute Respiratory Infection (ARTI) Acute respiratory infections are very high in orissareporting through out the year inall the outdoots of all the health Institutions of Orissa

Table No-6: ARTI cases,death,AR% and CFR% of Khurda DIST.2001

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	4119	0	3.9	0
2	Balianta	103227	4958	0	4.8	0
3	Bhubaneswar	105937	10529	2	9.9	0
4	Jatni	82768	5988	0	7.2	0
5	Khurda	118696	3376	0	2.8	0
6	Begunia	114660	21938	0	19.1	0
7	Bolagarh	117737	8187	0	6.9	0
8	Tangi	139791	8308	0	5.9	0
9	Banapur	106977	10105	10	9.4	.09
10	Chilika	106237	7527	0	7.0	0

AR% is more in(21.2%) in Begunia block followed by Bhubaneswar block..

Deaths have occurred in Banapur block (where in most of the diseases this block shows more AR% or CFT%..Here AR%is10.5% and CFR is.09%

Overall AR% of the district is 4.5%. The morbidity and mortality of the district is increasing due to the health status of Banapur block so a special strategy to be taken up.

Measles-Like the scenario throught the globe measles also takes its toll in Orissa.

TABLE NO—7: CASES ,DEATH,AR% AND CFR% OF MEASLES IN KHURDA DIST.2001

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	18	0	.017	0
2	Balianta	103227	2	0	.002	0
3	Bhubaneswar	105937	13	0	.01	0
4	Jatni	82768	25	0	.03	0
5	Khurda	118696	4	0	.003	0
6	Begunia	114660	10	0	.009	0
7	Bolagarh	117737	47	0	.03	0
8	Tangi	139791	2	0	.001	0
9	Banapur	106977	13	0	.012	0
10	Chilika	106237	1	0	.001	0

The AR% is more in Bolagarh block (.04%) followed by Jatni block (.03) Death has not occurred in any of the blocks. Due to mass measles Immunisation Programme people have become conscious to take the kids for doctor's advise. This level of consciousness can only be confirmed watching the situation next year. (Table No-7)

Meningitis-The epidemic burden of epidemic Meningitis is reduced in Orissa still some blocks do have cases and even same importanceis given if a suspected case seen.

TABLE NO-8 CASES,DEATH,AR% AND CFR% DUE TO SUSPECTED MENINGITIS IN THE DISTRICT OF KHURDA.2001.

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	17	0	.01	0
2	Balianta	103227	1	0	.0009	0
3	Bhubaneswar	105937	0	0	0	0
4	Jatni	82768	1	0	.001	0
5	Khurda	118696	0	0	0	0
6	Begunia	114660	0	0	0	0
7	Bolagarh	117737	28	0	.023	0
8	Tangi	139791	0	0	0	0
9	Banapur	106977	4	1	.003	25
10	Chilika	106237	0	0	0	0

As the table shows AR% is more in Bolagarh Block-0.023% but CFR-25% is again high in that Banapur block.

HEAT STROKE:Newly emerging in Orissa and the morbidity led the Govt to be a very important in summer months in Orissa.

TABLE NO-9 CASES AND DEATH DUE TO HEAT STROKE IN THE DIST. OF KHURDA 2001

Sl.	Name of the Block	Populn.	cases	Death	AR%	CFR%
1	Balipatana	104197	0	0	0	0
2	Balianta	103227	0	0	0	0
3	Bhubaneswar	105937	1	0	.0009	0
4	Jatni	82768	0	0	0	0
5	Khurda	118696	1	1	.0009	100
6	Begunia	114660	0	0	0	0
7	Bolagarh	117737	7	0	.005	0
8	Tangi	139791	2	0	.001	0
9	Banapur	106977	1	1	.0009	100
10	Chilika	106237	10	0	.009	0

In the post Super cylone era the cases due to Heat Stroke and death due to heat Stroke has increased.

AR% is more in Chilika Block.Out of 22 death 50% are only in Chilka Block.CFR% is 100% in both Khurda & Banapur.

Heat Stroke was not seen usually in Orissa.After the cyclone it has become a major health problem of the state.From month of March to June.

MALARIA: The vertical control programme reports the diseases incidences separately.The load of Malaria in Orissa is as follows

Table No-10 BSC,BSE,TOTAL +Ve, RT Done,Death and API for all of blocks Khurda2001

Sl no	Name of Block	Blood slide collected	Blood slide Examined	Total +ve	RT	Death	API
1	Balipatana	5836	5836	201	201	0	1.93
2	Balianta	2410	2410	80	80	0	0.74
3	Bhubaneswar	5539	5539	52	52	0	0.40
4	Jatani	8060	8060	170	170	1	1.29
5	Khurda	6985	6985	130	130	0	1.01
6	Begunia	6435	6435	196	196	0	1.70
7	Bolagarh	4572	4572	76	76	0	0.76
8	Tangi	6852	6852	93	93	0	0.80
9	Banapur	6697	6697	392	392	1	3.15
10	Chilika	3859	3859	83	83	1	0.74

Only in three blocks Death due to malaria was recorded.The API is more in Banapur block.Taking the above diseases into consideration the same block is also reeling under the problem of Malaria.

Khurda is a costal district.The problem of filariasis was very high peviously.Now due to DEC therapy, consciousness amongst the people ,using mosquitonet and rise in education is changing the scenario slowly.The Micro Filaria Morbidity report is given below.

Table 12

M.F.Morbidity Report of Distrct Khurda foe the years 2000-02

Year	BSC/BSE	No +ve for MF	Mf Rate	No +ve for Disease	Disease Rate	Endemicity Rate
2000	4807	93	1.9	1396	29.04	30.97
2001	3513	77	2.2	951	27.07	29.26
2002	8046	146	1.8	1922	23.9	25,69

It is observed that from the available data the Endemicity Rate is declining slowly and also the disease rate.The DEC programme with people's participationcan change the scenario.

NTCP---National Tuberculosis contro.l Programme-:

The NTCP was started in the mother district PURI and subsequently the district was devided into three districts out of which one is khurda.till now no DTO(District Tuberculosis officer) post is not created in the newly formed district of Khurdha . So now also the TB part is still monitored at puri and the charge is given to ADMO(med) to supervise the programme for last two years. The data of Puri district as a whole for analysis of TB Programme for last two years is shown. It is seen that new sputum positive cases are declining .

Performance of National Tuberculosis Control Programme in Puri District Orissa 2000 –01, 2001-02.

Table 11-TB cases of undevided puri district for the years for 2000-01

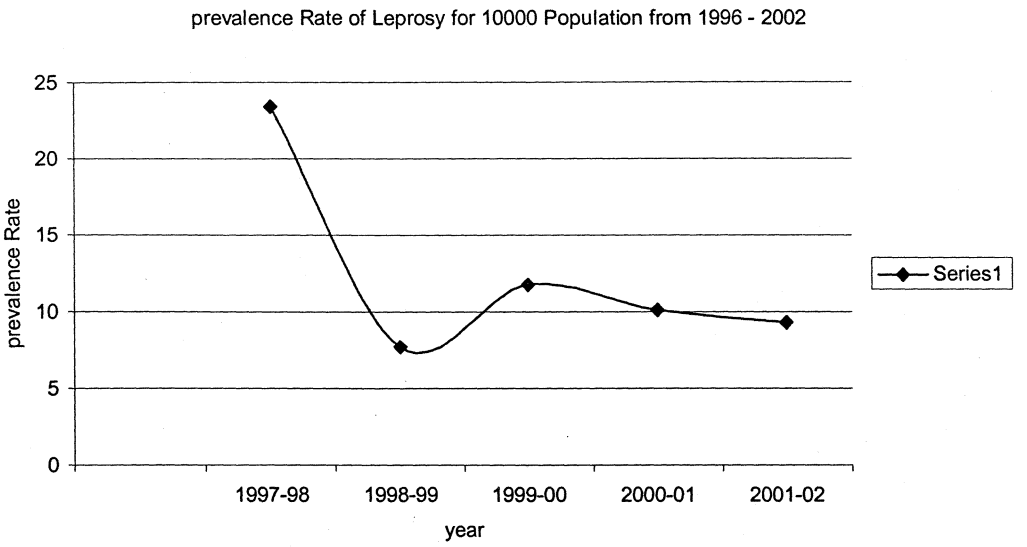
year	New Sp+ve	New Sp-ve	Ext. Pulm	Total	Completed treatment	Death cases	New Sputum Exam	New Xray Exam	Old patients of 1999-2K	Total patients treated
2000-01	585	2792	297	3674	815	0	8295	2197	2252	5926
2001-02	299	640	209	1448	645	1	2732	983	3165	4316

Leprosy:The data for Leprosy in Khurda is shown for last five years.After 1997-98 the prevalence rate has not gone beyond 10 exclding during!(1999 -2000) and the Prevalence rate is decreasing steadily.

Table 12 Details of Leprosy cases form1997-2002 for the district of Khurda,Orissa.

Year	New cases			Cured			Active cases			Prev /10000	Acdr /10000	MB Rate%	Defor Rate%	Child Rate%
	mb	pb	total	mb	pb	total	mb	pb	total					
97-98	1217	3622	4839	816	1065	1881	919	3162	4081	23.41	27.76	25.15	2.07	25.29
98-99	537	1642	2179	774	3416	4190	516	852	1368	7.70	13.38	24.64	3.58	24.51
99-00	823	2577	3400	517	1960	2477	829	1306	2135	11.78	18.76	24.21	2.71	22.59
00-01	803	1811	3004	704	1833	7923	810	1055	1869	10.12	16.27	26.73	2.03	19.91
01-02	697	1807	2600	687	1642	2425	707	1079	1786	9.30	13.54	26.81	1.42	23.00

Figure-1



The prevalence Rate for leprosy per 10,000 population was 23.41 in 1997-98 and subsequently decreasing with arise during 1998-99.(due to active search in MLEC programme)During 2001 –02 it was 9.30 per 10,000 population.

Desciption of outbreak

III-Diseases of EpidemicPotential-

After looking at the data available, and also going through the recent data the diseases identified are as follows:Severe diarrhoea,Bloody diarrhea,Acute Jaundice Syndrome,Malaria,Acute respiratory Tract infection,Tuberculosis and Leprosy.In the recent years due to high rise in mercury during summer days death due to heat stroke has increased.

Atfer the Super Cyclone in 1999 ,the Government of Orissa has set up a Multidisease Surveillance System.It covers almost all the diseases having high epidemic potential in the state.While designing disaster situation are also kept in mind to put the diseases.In flood situations skin diseases and snake bites are kept in the list and in summer heat stroke is kept in the list.The seasonal diseases when included the system of daily reporting comes into

force.Once the disaster situation is over again the weekly system resumes.The diseases included are

DISEASES MONITORED

Simple diarrhea.

Severe diarrhea.

Bloody diarrhea/ Dysentery.

Suspected Malaria.

Acute Respiratory Tract infection.

Measles.

Acute Jaundice syndrome.

Neonatal tetanus.

Suspected Meningitis.'

Heat Stoke.

Any unusual severe syndrome.and the seasonai diseases as described above

By establishing the surveillance system by now most of

The Basic objectives: have been fulfilled like capacity building at the district and the subdistrict level for effective detection ,investigation and cotntrol of outbreaks.

Strengthening of laboratories-As huge finance is involved here no remarkable development has been done so far but positive steps have been taken to establish regional and state level laboratories.

Network of electronic communications are already established and almost 27 districts are sub mitting their reports by E-mail.

Entomological services are yet to be strengthened.

The analysis and interpretation part to be initiated from the sub block level.

It was not possible to include all the diseases to the surveillance system like the diseases that are on the verge of eradication or in elimination mode. The diseases that the local facilities can be able to control at their level.

Existing Facilities

The real person who comes in contact with the cases or gets the first information is the MPW(M and F).They alert the HS(Male and Female) who visit the spot immediately with intimation to the Sector Medical officer.After the sector Medical officer visits the site ,he

decides whether to alert the BMO(Block Medical Officer)orthe district is to be moved to mobilize the District Task Force

In case District Task Force seeks the help of state Task Force, state task force moves,In special situations,.already pre defined teams to handle the epidemic situation zone wise,like the team from SCB Medical college will move for the central districts ,VSS Medical college ,Burla for the western districts and MKCG Medical college for the southern districts are formed..

For laboratory issues now the samples are sent to the three medical colleges and Regional Medical Research Centre.Linkages have been established through National Institute of Epidemiology Chennai to take the help of National Institute of Virology,Pune and King George's Institute Chennai.

Diseases having surveillance potential-Cholera,(Acute diarrhea),Severe Diarrhoea,Bloody Diarrhoea/Dysentery,Viral Hepatitis(Acute Jaundice Syndrome),Typhoid fever,Measles,Chicken pox,Meningitis(Meningococcal),Neonatal Tetanus,Acute Resiratory Tract Infection,,Any unusual severe syndrome complex, heat stroke.etc

DEVELOPMENT OF RAPID RESPONSE TEAMS

Rapid response teams are already constituted at the state and district level. At the state level Joint Director (PH) is the nodal person to navigate the whole state.

At district level Assistant District Medical officer(ADMO) Public Health(PH) is the nodal officer.

The members of the Rapid Response Team are

1-Assistant Health Officer

2-Laboratory Technician.

3-Health Supervisor

4-Attendant

5-Driver

Secondary data Analysis for MALARIA for the year 2001 in Khurda District

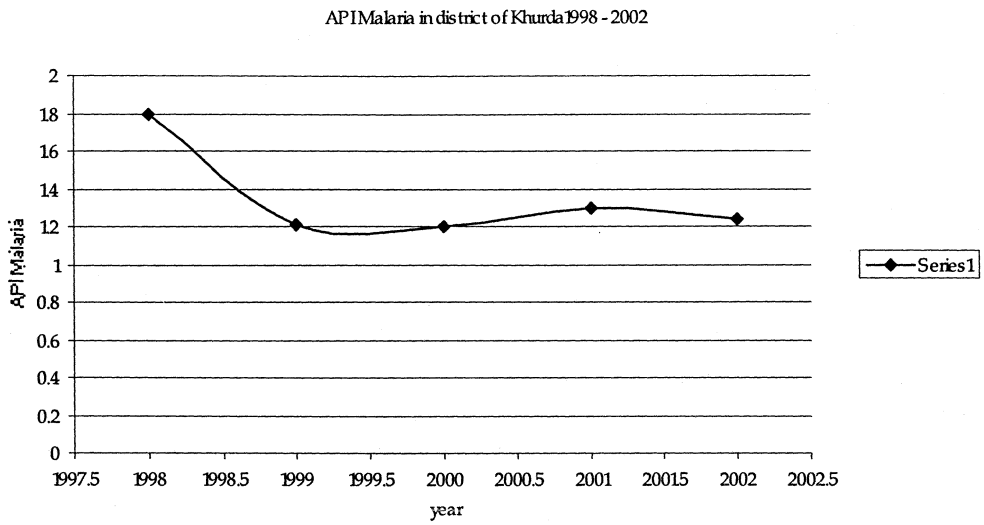
Malaria is a major public health problem in the World.Globally 300-500 million clinical cases of malaria occur with 2.7 million deathevery year.During 1960 the risk due to malaria was about 10% of world population .Now ti has almost increased 4 times.The estmation goes that every minute 3-5 children die out of malaria (WHO estimates 2001)
In South East Asiea region almost 80% of the population are in risk of malaria.

In India the first programme to fight against malaria started in 1953.India was having 75 million cases with 0,8 million death .aafter significant decline in1960's it re-emerged as a major health problem of the country.
North –eastern states and Orissa contribute a major share to the National malaria load and Orissa almost 50% of the malaria death of the country.All the thirty districts of the state are affected by malaria.Within the state also the Falciparum is found around 85% of the areas. Previously in Orissa malaria was only seen in rural areas .Now it is also seen in urban areas also.
Malaria in Khurda District-Khurda is one of the costal districts of Orissa.previously the load of malaria in the cosytal districts were low. Now thw scenarieo has changed and the prevalence of malaria is also high in the costal districts of Orissa.

Activities conducted during 2002-2003

1-Insecticidal residual spray-nil
2-impregnated msquito nets received-nil
distributed -nil
3-Drug distribution center established/functional-1276/977
4-Fever treatment Depot Established/functional-169/149
5-MLV Functional--nil
6-Microscopic centers-12
7-Number medcal officers trained-3
8-No. of sensitized programmes conducted-27
Detail malarial Scenario Blockwise

The API of the district was 1.8 during 1998. after 1998 till 2002 it is around 1.2. showing no impact of the programme.



District information on Malaria Programme

1. Name of the district: Khurda

2.EMCP/NonEMCP: Non EMCP

3.No.of Block Covered under EMCP: Nil

4.Epidemiological stataus from 1998 to 2002

Sl.No	Non EMCP Block	Years	BSC/Exam	+ve cases	Pf cases	Death	ABER	SPR	Pf%	API
1	Banpur Block PHC Gambharimunda	1998	9697	723	544	-	9.6	8.0	75.0	7.2
		1999	11241	938	671	1	11.0	8.0	71.1	7.5
		2000	8187	604	371	-	7.4	7.3	61.4	5.5
		2001	6697	392	236	1	10.0	5.8	60	3.1
		2002	9119	802	527	-	7.16	8.7	65.71	6.30
2.	Chillika Block PHC Balugaon	1998	3647	62	9	-	3.2	1.7	15.0	0.5
		1999	3232	48	6	-	3.7	1.4	2.5	0.5
		2000	3454	69	15	-	3.2	1.9	21.7	0.6
		2001	3859	83	12	1	3.44	2.15	14	0.74
		2002	3776	60	8	-	3.36	1.58	13.33	0.53
3	Tangi Block UPHC Tangi	1998	5211	93	93	-	5.1	1.7	1.7	0.8
		1999	5487	83	79	-	5.1	1.5	1.4	0.7
		2000	7235	83	70	-	5.9	1.1	84.3	0.6
		2001	6852	93	64	-	6.4	1.3	0.9	0.8
		2002	8305	130	104	-	7.77	1.5	8.0	1.21
4	Bolagarh Block PHC B Ankoi	1998	5983	135	106	-	5.3	1.1	8.0	1.1
		1999	5805	137	109	1	7.0	2.6	8.0	1.5
		2000	5952	125	95	-	5.5	2.5	7.6	1.1
		2001	4542	76	58	-	4.5	1.67	7.0	0.62
		2002	6188	110	65	-	5.4	1.77	5.9	0.97
5	Begunia Block CHC Botalama	1998	8343	50	17	-	7.4	0.5	4.0	0.4
		1999	7607	63	2	-	6.9	0.8	3.2	0.5
		2000	6923	74	8	-	6.7	1.0	10.8	0.7
		2001	6425	196	57	-	5.58	3.05	29.08	1.7
		2002	8525	317	69	-	7.40	3.71	21.76	2.75
6	Khurda Block	1998	11632	143	103	-	10.5	1.2	7.8	1.2

	PHC Haladia	1999	9743	117	77	1	8.8	1.2	7.7	0.86
		2000	7421	77	54	-	5.4	1.0	70.1	0.5
		2001	6985	130	60	-	55.15	1.86	46.15	1.02
		2002	10184	286	153	-	7.81	2.80	53.49	2.10
7	Janti Block	1998	6336	20	6	-	9.0	0.3	30.0	0.3
	CHC Janti	1999	5800	32	16	-	8.2	0.6	53.0	0.4
		2000	6437	222	38	-	5.2	3.4	17.1	1.8
		2001	8060	170	15	1	61.28	2.10	8.8	1.29
		2002	8011	120	19	-	60.91	1.49	15.8	0.91
8	Bhubaneswar	1998	4742	40	20	-	5.2	0.9	50.0	0.4
	Block PHC	1999	4581	39	21	-	3.6	1.4	7.0	0.3
	Mendhashal		4370	29	12	-	4.6	0.6	41.3	0.3
		2001	5539	52	35	-	4.35	0.93	6.73	0.40
		2002	3184	42	26	-	2.49	1.31	61.90	0.32
9	Balipatna Block	1998	4434	21	4	-	4.8	0.5	20.0	0.2
	U.PHC	1999	4240	5	-	1	4.3	0.1	-	-
	Balipatna	2000	4454	14	4	-	4.8	0.3	28.5	0.1
		2001	4836	201	23	-	5.63	3.44	11.44	1.93
		2002	7607	151	9	-	7.34	1.98	5.96	1.45
10	Balianta Block	1998	1970	39	-	-	1.5	1.9	-	0.3
	PHC Balakati	1999	1902	79	-	-	1.8	0.9	-	0.8
		2000	1693	59	-	-	1.7	3.4	-	0.6
		2001	2410	80	-	-	2.23	3.31	0	0.74
		2002	2662	122	1	-	2.47	4.58	0.81	1.13

After observing the malarial data for five years it is seen thatno block of Khurda district is free from Malaria.

API:Taking all the five years into consideration the prevalence of malaria amongst all the blocks the highest API is seen in Banapur block.The highest API 7.5 in the whole district for the five years and the lowest in that block is diuring2001 is3.1.The second block that is to be taken careof is the Bolagarh block where all the years the API is maintained above 1 and /or nearer to 1.As a whole the distrct API is maintained around 1.2.

Percentage of Pf cases: Out of the total positives the % of Plasmodium falciparum is more than 60% of the total positive casesin the blocks where the API is very high.In the blos=ck of Banapur having the highest API there all the five years the % of Pf is more than 60%.

Slide Positivity Rate:It is a vital indicator which tells the trend of transmission and the parasite load in the community.This can tell us the extent of effectiveness of the containment measures taken.In Tangi block,Chilika block,,Bankoi block,Khurda block and Balianta block the SPR is maintained through out the five years though the API is not high.Attention to be given to these blocks while planning for the malarial programme in the district .

The state average for Pf% was 13.38 in1961 and from 1988th Pf% is maintained above 80.The API for the state was 0.29 in 1961 and it is maintained almost over 8 for last thirty years.

As per NSPCDat the district level a Rapid Response Team should have the following members.

A nodal person

Epidemiologist/public health specialist

Microbiologist

Entomologist

Clinician

Stistcian

Problems Describing Disease Burden

In all the Government Offices to get any data pertaining to any disease is a problem by itself.In many a stages cooperation may not be anticipated..

The data set available are not upto the mark.No concrete statistical job can be done.Age and sex data in relation to a disease is a rare thing and not maintained in most of the instances.

Disscussions and Suggestions The burden of communicable and also non communicable diseases are increasing day by day.Assessing the problem it has become necessary to adopt appropriate control and preventive strategy.,so that morbidity and mortality can be brought down.

The incidence of Malaria is a product of ineraction of human being ,malarial parasite and the mosquito.So the endemic form of malaria is achieved if all three get free chance for interaction.As described earlier Orissa as well as Khurda are predominantly infested by the

Falciparum group.It is the dangerous variety amongst all the malarial parasites that causes cerebral variety.The percfentage of Pf and API are highest in Banapur PHC area. Due to the presence of the Berbera forest,Saliia medium irrigation project and peripheral areas of Chilika lake.So changing of the environmental or the local factor is not possible in thjis situation..Planning to be done to stress more upon preventive and EDPT(Early diagnosis and prompt treatment)

The emergence of the 4-AQ is also amatter of concerned.Thoughit has already been described in 1970s no established study has confirmedit in Khurda district..

Malaria was a disease of the rural areas in Orissa.But soon after the super cyclone ther eis achange in trend of the parasite.Now they are also seen in the urban areas.It is due to the migration of the tribal peopleto the towns for construction works.

In khurda district three blocks are there filled with forests areas suitable for rise in the incidence of malaria.The district health administration is recommending these three blocks to come under the cover of Enhenced Malaria Control Programme (EMCP) .But before starting a new programme,it is to be known if the community,the people are given ample knowledge,and opportunity to protect themselves from the disease and to implement the control programme with community participation.

Conclusion:

-Evaluation studies are to be made to assess the functioning of the programme from its inception to find out the strength and weaknesses in the programme.

-Blocks with high API and Pf% are to be given high preference in implementation of the programme.

-If really the 4-AQ resistant variety is existentt through proper scientific study

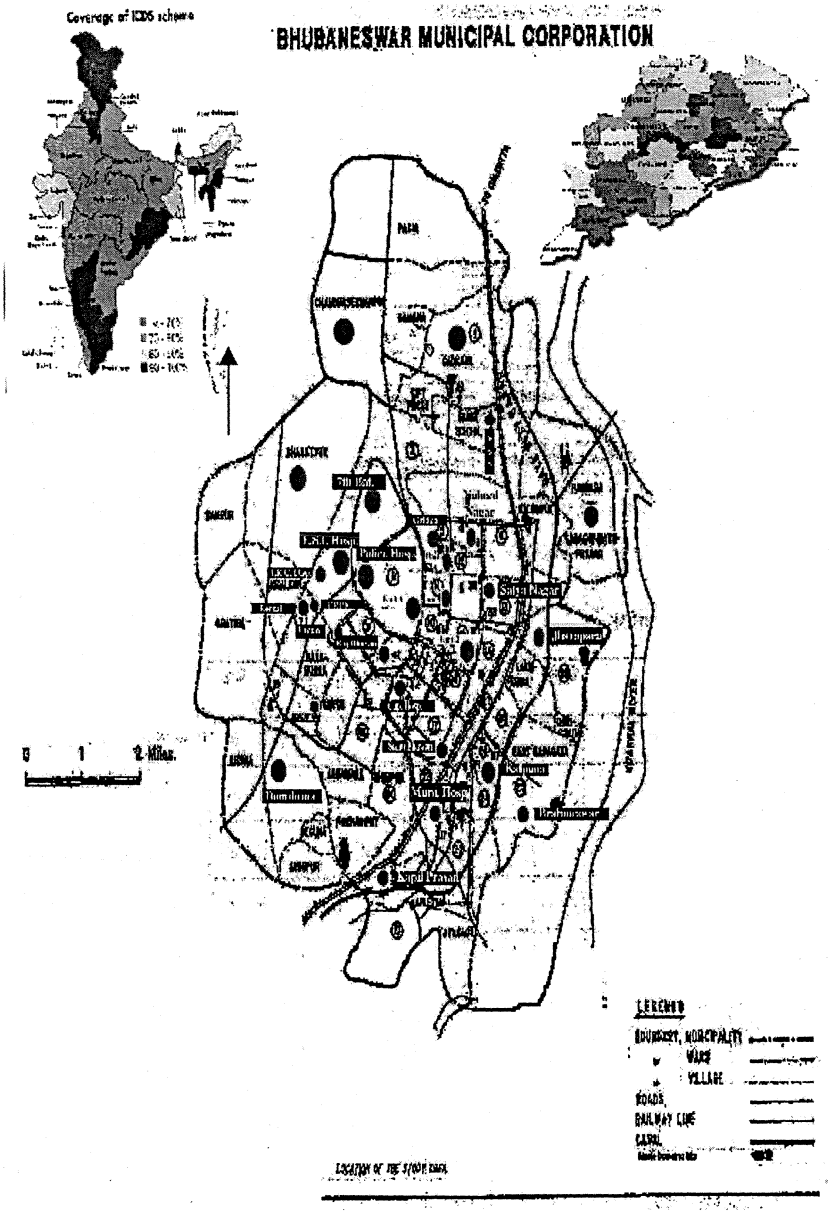
-In Orissa integration is to be brought between NAMP and the OMDSS.

-Inter and intra.sectoral coordination to be strengthened with key address to community participation.

SECTION.2

SECOND FIELD POSTING

2.1 DESIGNING A MULTI DISEASE SURVEILLANCE SYSTEM FOR BHUBANESWAR MUNICIPAL CORPORATION ORISSA



Introduction:

Orissa is situated in the eastern coast of India. The state was very much in the news media globally due to the Super Cyclone Oct 1999. Immediately after the super cyclone it became very much difficult for the state Govt. to carry out outbreak investigations and to plan, monitor and take effective health care measures during a disaster situation due to lack of a disease surveillance system. So Govt. of Orissa decided to start a multi disease surveillance system in the state to take appropriate health care measures and to conduct outbreak investigation systematically. Initially it was started in the 12 affected coastal districts in the first phase during Nov 1999 and remaining 18 districts in the 2nd Phase after assessing the performance of the 1st Phase by July 2001.

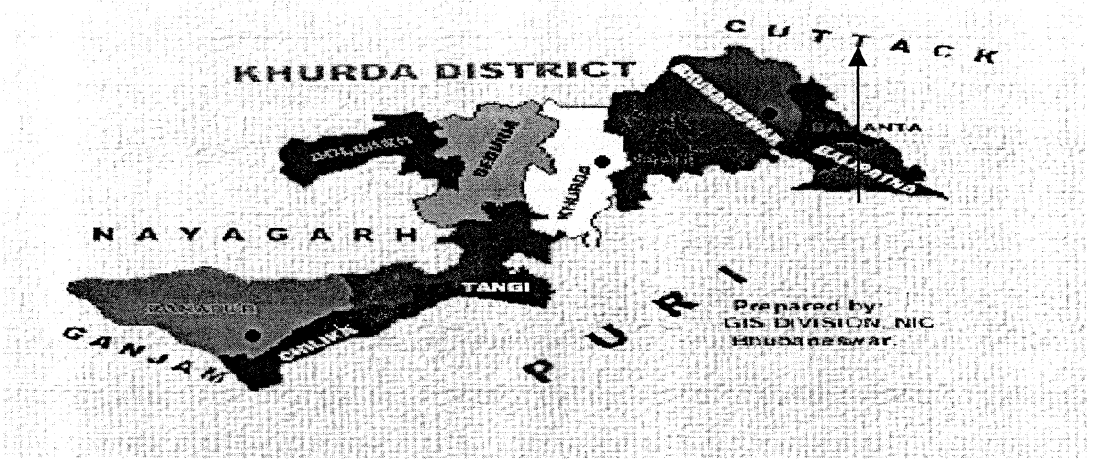
The surveillance system covering multiple diseases and known as "Orissa Multi-disease surveillance system"(OMDSS) is working well since its inception in all the rural areas of Orissa. No such system exists in the urban local bodies of Orissa. In this context it is proposed to design a multi disease surveillance system (OMDSS) first for the Municipal Corporation of Bhubaneswar (the capital city of Orissa) using the existing health infrastructure lying within one of the urban areas of Khurda District.

Bhubaneswar is the mid place in between kolkata & Chennai connected by N.H.-5 and 203 and also the headquarters of Eastern Railway. It is also connected to the whole of the country by Air. Bhubaneswar is going to be declared as one International Airport very soon.

It gets tourists from state, national and international level as it is situated in the center place of Tourism Golden triangle of Orissa in between Konark Puri. It is also known as the Temple city of Orissa and famous for Lingaraj, Rajarani & Mukteswar Temple.

Every day a good number of people come to the corporation area of Bhubaneswar for availing academic, medical and computer software facilities.

DISTRICT MAP



Evolution of Bhubaneswar Municipal Corporation

Bhubaneswar is the capital city of Orissa. It was declared as Notified area committee on 01.02.1948 as per Orissa-Bihar Municipal Act 1922. Then it became Notified Area council (NAC) on 01.10.1952 as per Orissa Municipal Act 1950. It was declared as Bhubaneswar Municipality vide notification number 1078-11366/HOD. Dt. 29.03.1979 of Housing and urban Development Department.

Finally Bhubaneswar Municipal area was declared as Bhubaneswar Municipal Corporation on 15.08.1994 vide H & UD Dept's notification no.- 24148/dt. 28.07.1994.

Now an elected council headed by a Mayor, a Deputy Mayor & the elected Corporators manage the corporation

.

Bhubaneswar at a Glance

Bhubaneswar belongs to old Gondwana landmass of India. It lies on the western fringe of the mid coastal plain of Orissa & an average elevation of 45 metres above sea level. Most part of Bhubaneswar is covered with laterite soil.

Its having a healthy climate mostly 3 seasons reign here, summer, rainy and winter. May is the hottest month and now a days sometimes mercury is touching 46^0C. January is the coolest month & dipping of mercury is sometimes going upto 10^0C. The annual average rainfall is 1470mm.

The name of Bhubaneswar shines almost like a star in the history of India for transforming the great Mauryan Emperor Ashoka from "Chandashoka to Dharmshoka" after the Kalinga War, fought at the bay of Bhubaneswar in 261 BC. The corporation is very much famous for its culture and heritage and slowly marching towards an Information Technology Centre.

Demography

The city of Bhubaneswar was planned initially for 40,000 persons & square area 1684 hectares. Now the area has increased to 13589 kilometers & appx. 10 lakh population. Population of the city is increasing rapidly & also an increase in number of slums. Once during 1961 to 1971 it has recorded a population growth of about 176% which is the highest in the country during that period

Population profile of Bhubaneswar

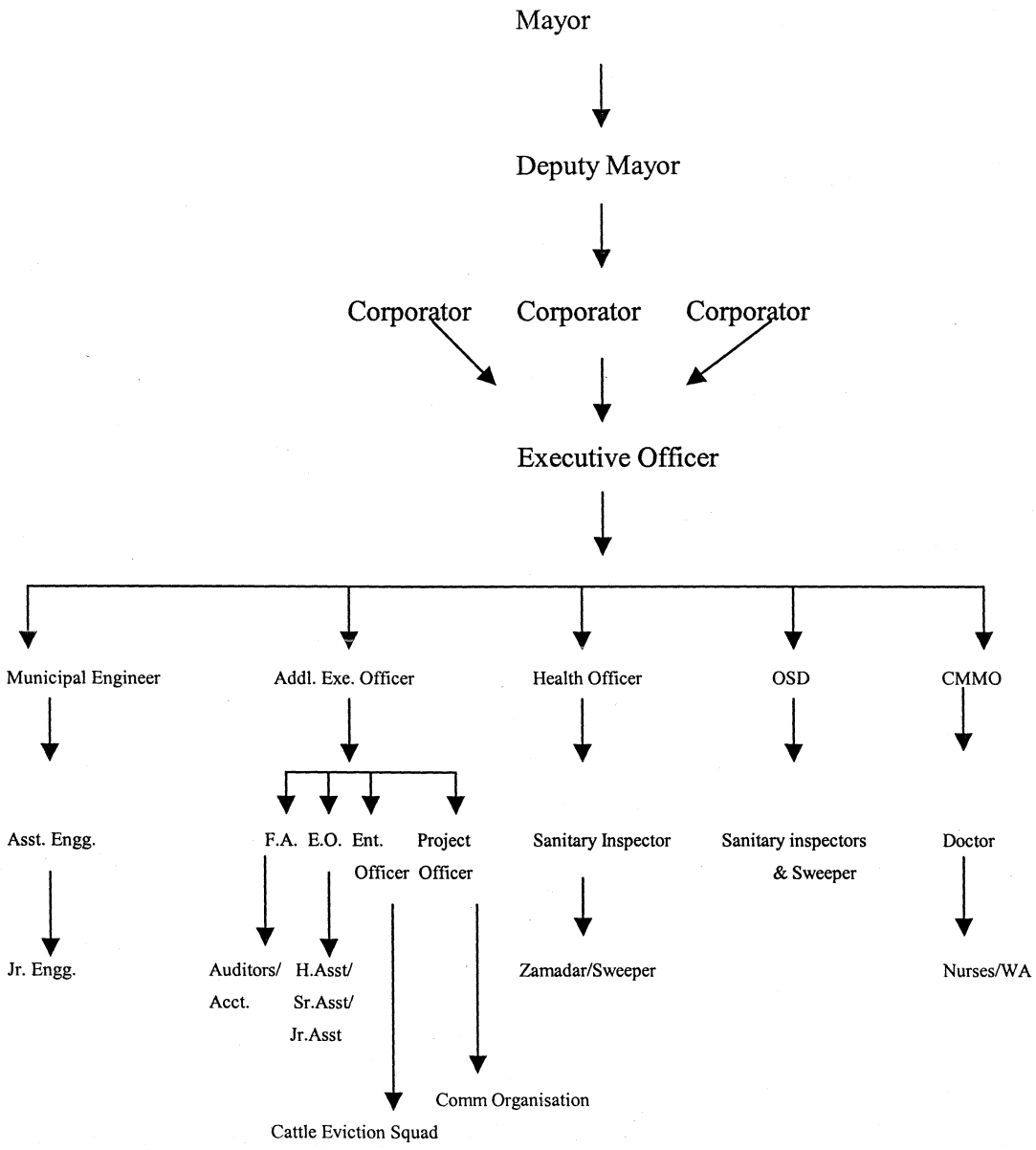
	Total	Male	Female
Bhubaneswar	647302	360476	286826
% to Orissa (urban)	11.8	12.4	11.04
% to Khurda(urban)	80.43	81.38	79.26

Bhubaneswar Municipal Corporation- A Profile

.

State	Orissa
District	Khurda
Area	135 km^2
Height from sea level	45 metres.
Population	4,23,465
No of wards	39
Primary Schools	9
M.E. School	1
High School	7
Hospital	1
Allopathic Dispensaries	5
Homoeo dispensary	11
Market	11
Sulabha Souchalaya	11
Public Toilet	6
Public Urinal	9
Public Park	7
Ponds	20
Fountains	3
Cold drinking water centre	5
Water supply pump House	10
Aww	100
Total road length	900 km
Length of drain	500 km
Street light posts	15101
Slums	190
Burrial ground & crematorium	1
Slaughter House	1
Kalyan Mandap	6

ORGANISATIONAL CHART OF BHUBANESWAR MUNICIPAL CORPORATION



Staff Position:

Sl.No.	Category	Class-I	Class-II	Class-III	Class-IV	Others	Total
1	Deputation	11	33	27	13	-	84
2	L.F.S.	-	-	150	-	-	150
3	Non-LFS	-	-	413	854	-	1267
4	Govt. Pry. Teachers	-	-	29	-	-	
5	N.M.R. Workers	-	-	-	-	80	
6	D.L.R. Workers	-	-	-	-	555	555
7	C.L.R. Workers	-	-	-	-	912	912
8	Consolidated	-	-	-	-	-	08

Basic amenities:

Water supply:

Presently about 128 MLD water is being supplied to the City. The source of water to the city are river Daya. Kuakhai and Mahanadi at Naraj. About 40 MLD water is extracted from ground. The supply of drinking water to city is looked after by the Public Health Engineering Department. However, the entire city has not yet been covered with safe drinking water. The problem becomes more acute during the summer especially in slums and newly developed areas. The Bhubaneswar Municipal Corporation has taken steps in this regard and established 10 numbers of Water supply pump house, 473 numbers of Tube well and 5 numbers of Cold Drinking water centers in the City.

Drainage system:

The entire city has not yet been covered with surface drain, However a total length of 500 Km. Of drainage system is existing at present under the control of Bhubaneswar Municipal corporation. Another 800 Kms of drainage facility could not be provided due to fund constraints.

Sewerage system:

It is estimated that 182 MLD of water is daily supplied to the capital city, out of which 136 MLD sewage is generated i.e. 80% of the water supplied. There is no integrated sewerage treatment system in the city.

Electrical section:

Total Nos of Street Light Points	-	15101
1. Tube Light Points	-	10425
2. High Power Sodium Vapour Light Point	-	4604
3. Three Armed Light Point	-	70
4. High Mast Light Point	-	2

Vital statistics

Year	Sex	Birth Regn	Death Regn	Still Birth Regn
1999	male	6203	1541	112
	Female	5426	839	98
	Total	11629	2380	210
2000	male	6768	1803	141
	Female	5970	980	111
	Total	12738	2783	252
2001	male	6665	1818	181
	Female	5998	972	156
	Total	12663	2790	337

Epidemic Control Programme

Nos of well disinfected	-	14218

Nos of Houses disinfected	-	81
Qnty of Bleaching Powder used	-	1740 bags (43,500 Kgs)

Filaria control Programme

Nos of Govt. staff from H & F.W. Deptt.		
Asst. Unit Officer	-	1
Filarial Inspector	-	2
Other Office/field staff	-	22

Antilarval workers from BMC	-	152

Various Larvicides used for antilarval meanance		
Baytex	-	250 Ltr
Abet	-	Nil
Malathion	-	Nil
M.L. Oil	-	84,000 Ltr
Baygon Spray	-	210 Ltr
Sulfac	-	30 Kg.
Dettol	-	35 Kg.
Nos of House sprayed	-	455 Nos
Nos of room sprayed	-	1649 Rooms

Solid waste Management:

After the introduction of Municipal solid waste (Management & handling) Rules 2000, the H & UD department created one post of class-I officer as officer on special duty from Orissa Administrative Officer cadre in Bhubaneswar Municipal corporation exclusively to look after the implementation of various provisions of the rules on solid waste Management. He is the laisoning officer in between health officer & Municipal engineer for smooth implementation of solid waste management. For better implementation the city is

divided into 31 wards headed by a sanitary inspector & assisted by one Jamadar. Three people look after street sweeps, garbage collection and transported through 1409 sweeper & 54 no of vehicle. Solid waste is approxiamately 300-metric tone per day. The collection ranges from 80-85% and deposited at diff. Points & cemented bricks. Then collected & transported to dumping sites where these are exclusively now dumped for filling purpose.

Door to door Garbage Collection: -

On trial basis in 3 words door to door garbage collection is initiated on experimental Basis. Steps are initiated to include all the wards in this system.

Innovative Idea:

First Time in India the corporation has initiated a good idea for collecting garbage from

Hospital and nursing homes

Hotels and Restaurants

Apartment cleaning service

Bio-Medical waste Management:

Keeping in view the recommendations of the committee constituted by the Hon'ble Supreme Card India, about Bio-Medical waste (Management and Handling) rules 1998, Bhubaneswar Municipal Corporation, took immediate steps for scientific collection and disposal of biomedical waste of the capital city. So an express cleaning service of the Nursing homes & hospital was born on Dt. 26.01.1999. All the Govt. & Private nursing homes were told to enroll with the corporation..,The biomedical waste products are transferred in polythene bags and covered vehicle to a dumping site and the persons handling were given Hepatitis B Vaccine & supported by gloves, aprons and boots.

Slowly the registration is increasing and slowly BMC will be able to do Biomedical waste Management to the satisfaction of pollution control Board and the Hon'ble Supreme Court.

Schools:

There are 7 high Schools with 3087 students and 109 regular & 4 CLR teachers.

Also there are 10 primary schools with 3080 students & 74 teaching staff.

Hospital & Dispensary:

Hospital		Patient Treated
Municipal Hospital, Old Town, Bhubaneswar	18,903	6,875

Allopathy Dispensaries

G.G.P. Colony Municipal Dispensary, Rasulgarh	28,356
Gadakan Municipal dispensary, Gadakan	25,817
Bharatpur Municipal dispensary, Bharatpur	14,332
Kapilprasad Municipal dispensary, Kapilprasad	26,243
Brahmeswarbag Municipal dispensary, Brahmeswarbag	17,153

Staff Position

Sl.No.	Name of the Post	Sanction Strength	Existing	Strength Vacant
1.	C.M.M.O.	1	1	0
2.	Medicine Specialist	5	4	1
3.	Surgery Specialist	3	2	1
4.	E.N.T. Specialist	1	0	1
5.	Paediatric Specialist	3	3	0
6.	Eye Specialist	2	2	0
7.	Skin & V.D. Specialist	1	0	1
8.	O & G Specialist	4	4	0

9.	Orthopedic Specialist	1	0	1
10.	Surgery (Endoscopy)	1	0	1
11.	Radiologist	1	0	1
12.	Psychiatric	1	1	0
13.	Pathology Specialist	2	1	1
14.	Anesthesia Specialist	1	1	0
15.	Dental Surgeon	2	2	0
16.	Asst. Surgeon	12	11	1
TOTAL		41	32	9

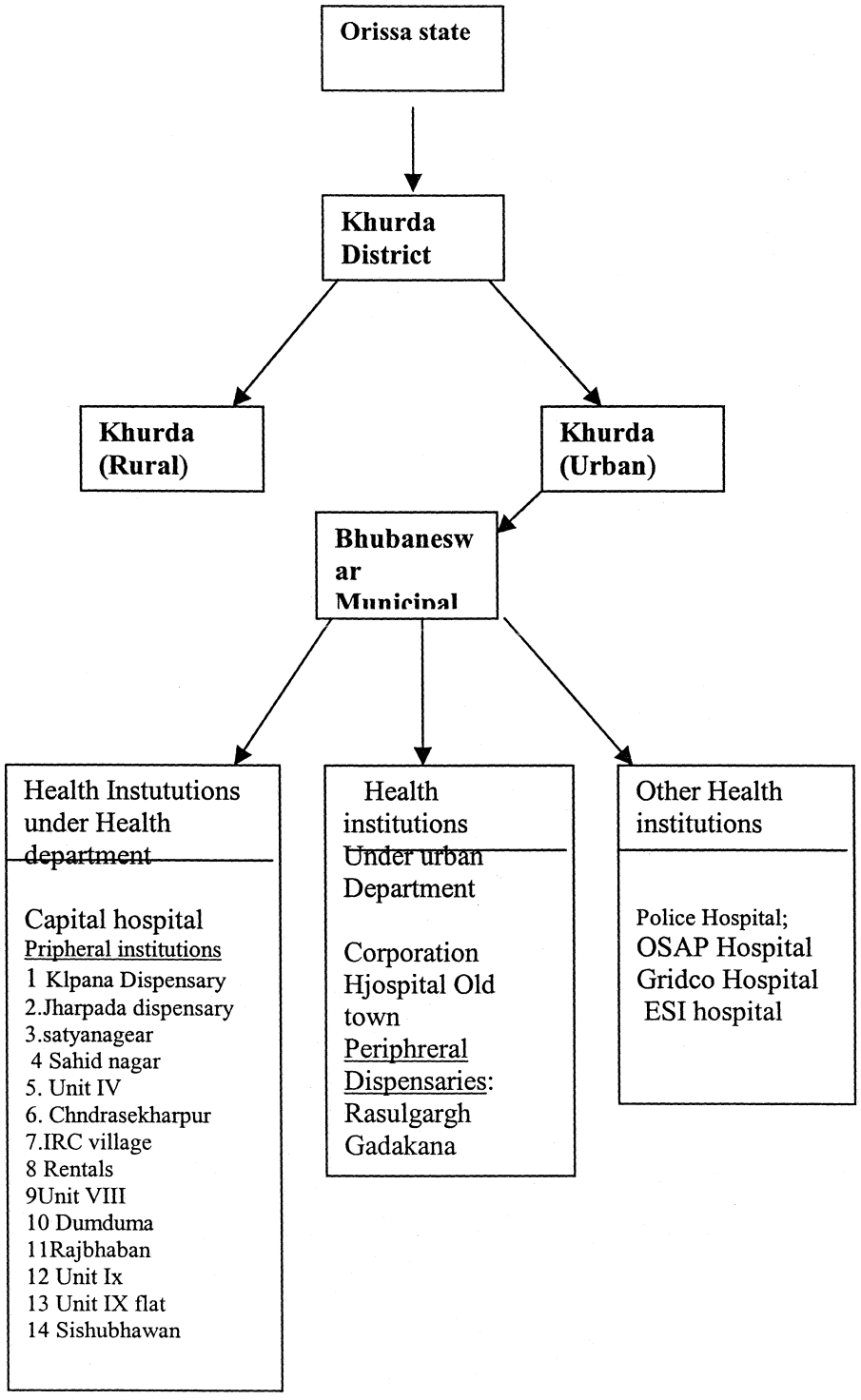
Blood Bank

1. Nos of Blood Donation Camp held 48
2. Nos of Blood Bottles collected from voluntary doners - 1812
3. Nos of Blood Bottles collected on Exchange - 1232

DESCRIPTION OF THE HEALTH INSTITUTIONS OF THE BHUBANESWAR MUNICIPAL CORPORATION (BMC)AREA.

In the corporation area of Bhubaneswar mainly the Health Department and the Urban Department cater Health Services. Under Health Dept there is a big Hospital known as Capital Hospital and fifteen peripheral dispensaries are there. The Urban Dept is the second

major Dept to provide Health Care facility to the urban people of Bhubaneswar. The Urban



Dept has a Hospital and five peripheral dispensaries. Excluding these two Depts. there are many health institutions of different Govt and semi-Govt organisations out of which these four dispensaries of other departments, like police Hospitals (Home Department),OSAP hospital(Home Dept), Gridco Dispensary (Energy Department), ESI Dispensary (Labour Department).

Organizational Structure- (Health control)

Minister Health and Family Welfare.

↓

Secretary Health and family Welfare

↓

Director Health Services Orissa

↓

CMO Capital Hospital

↓

Medical Officer

Peripheral Health Facilities

Capital. Hospital --

CMO-cl-1
DCMO-cl-1
Specialistic doctors (both cl-1 & cl-ii)

Asst Surgeons

Phamacists
Staff nurses
Lab Assts

HW (M&F) attached to ppc

Attendants
Sweepers

Manpower Profile—Peripheral Health facilities (urban control)

A doctor
A pharmacist
A staff Nurse
A sweeper
An attendant

Manpower Profile—Peripheral Health facilities (Health control)

A doctor
A pharmacist
A staff Nurse
An attendant
A Sweeper

EXISTING DISEASE REPORTING SYSTEM

There is no systematic and regular disease reporting system in BMC Area. There are no field workers posted in different wards to carry out the different health activities like Health Workers in the rural areas. They use to give a monthly report to their authority at the beginning of a month for the succeeding month both in the corporation and also in health side. peripheral health facilities are mostly for out patients consultation. only one hospital that is the biggest hospital "Capital Hospital." It is giving report in time that is also not analysed properly for any public health purpose and feedback is not given usually. The record room of the Capital hospital provides the data of disease burden of the corporation area(Annexure-II)

.

Hence it was decided to design an institutional based surveillance system in the primary phase instead of a community based Surveillance System. On a pilot basis first BMC is taken up for starting the urban surveillance.For the convenience of better reportingthe total Area of Bhubaneswar has been devided into 11 (eleven Zones) for facilitating data collection compilation , reporting and transmission also..The zones are as follows:-

ZONALISATION OF THE CORPORATION AREA:

Zone no	Zone name	Zone I/C	Reporting Institutions
1	Old Town	CMMO Municipal Corp. Hospital	Municipality Dispensary Kapila Prasad IPD & OPD Of M.C.H.
2 &	Kalpana	MoI/C Kalpana Dispensary	Municipality Dispensary Brahmewsarpatana OPD of Kalpana Dispensary

3	Jharapada Jharpada Dispensary, Jharpada	MoI/C	Municipality dispensary GGP colonies & OPD
4	Sahid Nagar Sahid Nagar Dispensary	MoI/C	Municipality Dispensary Gadakana.& OPD of Sahid Nagar
5	Chandrasekharpur Chandrasekharpur Dis.	MOI/C	OSAP Hosp& OPD of Chandrasekharpur
6	IRC IRC Dispensary	MOI/C	ESI Hosp CSPur & OPD of IRC dis.
7	Unit-8 Unit 8 Dis.	MOI/C	Rental Disp, & OPD of Unit 8
8	Unit-4 Unit 4 Zonal Hospital	MOI/C	Police Hosp, & IPD & OPD of Unit 4 Zonal Hosp.
9	Unit-3 Unit 3 Dispensary	MOI/C	Satyanagar Dis. & OPD of Unit 3 Dis.
10	Unit-9 Unit 9 Dispensary	MO I/c	Unit-9F,Gridco & OPD of Unit 9 dis.
11	Capital Hospital Capital Hosp.	CMO	Dumuduma Disp,IPD & OPD of Shishu Bhawan & IPD, OPD & Casuality of Capital Hospital.

Epidemic Control Mechanism:-Only for the epidemic of diarrhoeal disorders the corporation has one epidemic cell. Generally after getting some report of outbreak the disinfection water sources are done and the house of the affected are disinfected in required cases .No doctor is attached to the epidemic cell.Moreover the cell is concerned with disinfection rather than systematic epidemic investigation and taking effective control measures.

Disease Reporting System in BMC

There is no systematic & regular disease reporting system in BMC area. The peripheral institutions report monthly to their authority at the beginning of a month for the succeeding month both in the corporation and also in health side. Only one hospital that the biggest hospital of the city 'The Capital Hospital' reports timely. Since it is not analyzed properly for any public Health Purpose and feedback is not given. The record room of capital Hospital provides the following data of disease burdend of the Corporation area.

The existing response Mechanism-

Till now in urban areas there is no systematic response mechanism.They depend upon the district Khurda which is around 28 kms away from the town..On request the CDMO Khurda sends a team or the ADMO(PH) is directed to visit the epidemic stricken area So in case of any exigencies the team from Khurda has to come to Bhubaneswar to initiate any containment measures.

The authority to respond immediately is the Municipality health Officer responsible for all the Public health & vital statistics activities of the corporation. Under him are a fleet of Health supervisors, Sanitary Inspectors,Vital statistics clreks,Sweepers & other class iv employees.

Summary

The Bhubaneswar Municipal Corporation is growing very rapidly in area, traffic and population. Always potential threats exist for outbreaks of infectious diseases and communicable diseases due to the prevailing environment of lack of drainage, urban slums,ununiform distribution of health facilities,lack of community level health workers etc. Health services are cattered by different departments and agencies but in case of exigencies like supercyclone, Bhubaneswar is yulnerable to outbreaks. As the disease hurden of capital hospital suggests, it is the appropriate time now to start a diseases surveillance system for the municipal corporation area.

Rationale for a Surveillance system

There is no systematic response mechanism and no field workers posted in different wards of Bhubaneswar Municipal Corporation to look after the primary health care activities, as it exists in the rural areas. The peripheral health facilities are mainly for Out Patient consultation and not even for any emergency activities. There is no specific geographical jurisdiction of the health facilities in the municipal area which is very much important for the public health point of view. So in the initial stage it is proposed to design an Institutional Based Surveillance System.

There are 190 slums inside the municipal corporation area ,potentially dangerous for outbreaks and foci for communicable diseases.

As several new buildings are coming up within the city area, Labourer from tribal pockets of the state and nearby states come to the corporation area and brings diseases like Malaria ,polio etc.

Surveillance

Def.- It is a systematic ongoing process of collection, compilation, analysis & interpretation of data and dissemination of information to those who need it so that action can be initiated.

Objective of Surveillance in BMC

Detection & Prediction of enlisted disease.

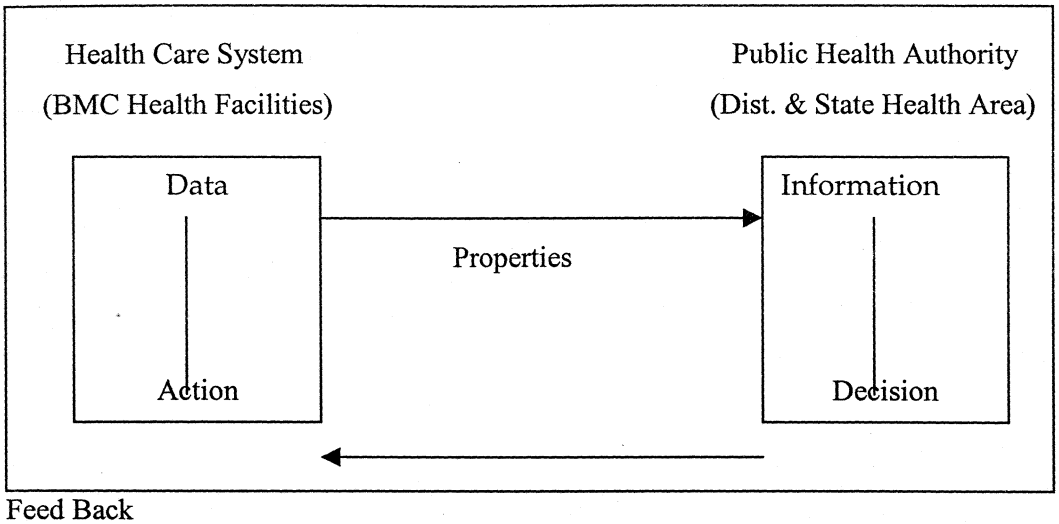
Monitioring the trend of recorded diseases.

Monitoring progress towards control objective some of the enlisted diseases.

Evaluating interventions aimed at control of enlisted disease.

Estimating Future impact of Enlisted diseases.

BASIC PRINCIPLE OF SURVEILLANCE SYSTEM



Basic Ingradients of a good Surveillance system to be developed in BMC .

Good network of motivated people.
Clear case definition
Proper Reporting
Efficient communication system

Basic and sound Epidemiology
Good Lab. Support.
Good rapid response back up..

Functions
- Core Function
- Support Function

Core Function

Disease detection

Reporting
Investigation & Confirmation
Action/Response
Training
Supervision
Resources
Hand outs/Guideline

STEPS TO BE FOLLOWED
case detection
collect data
Compilation
Transmission
Analysis & Interpretation
Response & Feed Back

Case Detection

Till today in the urban local body of BBSR Municipal Corporation the cases were detected as per clinical case definition. But henceforth cases will be detected as per the case definition defined in the OMDSS. The case definition used in the OMDSS are simple ,easy to interpret and the same definition is used from the health worker in the field upto the super specialist in a Medical College.

The Case Definition

The Case definition to be used in the BMC surveillance is finalized after consulting the
WHO Case definition and the state protocol info consideration.

Data Collection

The Data will be collected from all the health facilities under administrative control of health department, under the administrative control of urban department and dispensaries

like OSAP, Police, Gridco, ESI dispensary etc. Data will be collected for the diseases/syndromes covered under the MDSS, which is listed in Annexure No.-

Data Source

The data source will be OPD, IPD and casualty registers of the health Facilities either of the Health or Corporation or of other institutions.

Two types of data will be collected i.e. Morbidity and Mortality data Morbidity data will be collected only for new cases and for mortality both new and old cases. will be collected.

Age

Two age groups will be covered in the data

<5 Years

>=5 Years

Data Compilation and Transmission

Data from IP and OP registers will be compiled on weekly basis in the primary data collection format. Data will be compiled on weekly basis (Saturday to Friday) on Saturday at the local health facility. They will transmit the data to the Zonal headquarter on Monday. Zonal headquarter will compile the data on Monday and send it to CMO Capital hospital on Tuesday. CMO will consolidate all the data and send to DSC Cell on Wednesday.

Peripheral Institutions	Zonal Institute	Mode of Transmission	Max. Deadline
Health Facilities	Zonal Headquar.	Manually Phone	Monday
Zonal Facility	CMO Capital	Phone Manually Fax	Tuesday
CMO	State Disease Surveillance Cell	Fax Phone E-Mail	Wednesday

Analysis and Interpretation

At the Health Facility- Medical Officer

At the Zonal Headquarter- Medical Officer

At the Capital /Municipal Corporation Hospital- Dy CMO/CMMO

Feedback

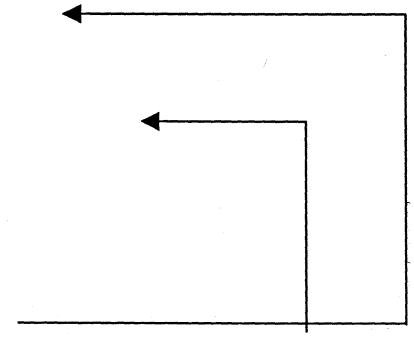
Health FacilityPerson Responsible

Peripheral Health Facility M.O I/C

Zonal health Facility Zonal M.O. I/c

Capital Hospital Deputy C.M.O.

State Surveillance Cell Joint Director (PH)
STC, SMO



LABORATORY FACILITIES AND NET WORKING:—

The role of laboratory is very crucial in a surveillance system. Starting from a case definition to the confirmation of a disease or syndrome scientifically, laboratory finding is very important. A good network of laboratories is necessary for an effective surveillance system.

The laboratory plays a vital role in:-

-Detection of an Epidemic and subsequently confirming it.

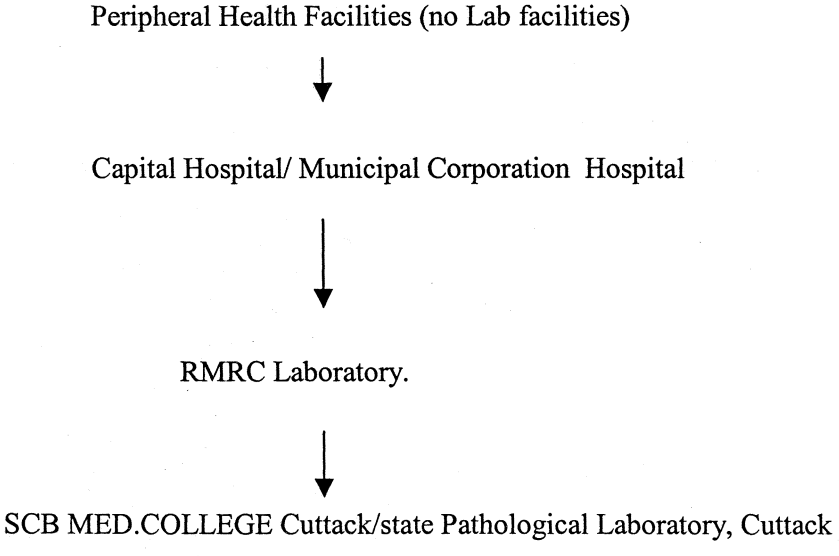
-Endemic disease surveillance like malaria and filaria.

-Detection of new emerging diseases(like Leptospirosis in Mayurbhanj in Orissa)

-Surveillance of diseases of eradication mode.

-Predicting the trend of a disease

But in the Municipal Corp. Hospital and also in Capital hospital good Laboratories are there with a set of Lab Assts.



Required Tools: -

As there was no existing surveillance system in the ULBs earlier new proforma, formats, printed post cards with diseases, data collection proforma, data transmission proforma etc. for CMOs are to be developed.As a multidisease surveillance System already exists in the state if the tools used are linked up with the MDSS it will be easy for training and implementation also.

Periodicity: -To be made weekly. As the M.O. i/c, CMO, CDMO etc are already acquainted with the weekly system it will be very easy to analyse, interpret and initiate actions.

AGE AND SEX: --

In the OMDSS Primary Data are collected of the New cases (above and equal to 5 years and also below 5 years) and Death cases also (above and below 5years), but no specific data are collected on sex

IMPORTANT DISEASES TO BE INCLUDED IN THE SURVEILLANCE SYSTEM

In urban areas more no of patients are seen with Road Accidents. So it is to be incorporated in the disease list. Though skin infections and snakebites are rare these are included in the list keeping the urban slums in view. And all other diseases as per the Orissa MDSS.(Annexure-1)

Simple Diarrhoea
Severe Diarrhoea
Bloody Diarrhoea
Suspected Malaria
Acute Respiratory Infection
Measles
Neonatal Tetanus
Acute Jaundice Syndrome
Suspected Meningitis
Unusual Syndrome

Others

Heat Disorder (During summer)

Skin Infection (During floods) Urban slums

Snakebite (During floods)

Road Traffic Injury (Urban set up)

EPIDEMIC PREPAREDNESS & RESPONSE: -

Routine Analysis of weekly data may some times reveal occurrence of an outbreak or epidemic which are to be investigated immediately to gather some additional information to institute control and preventive majors to stop the transmission of the infective agents and to contain the progress of the outbreak. Now RRT at block level ,

DTF at district level and STF at state level for the rural set up. But for Bhubaneswar Municipal Corporation no such body exists.

So for contingency planning of outbreak control it is necessary to constitute a multi-disciplinary Emergency Action Committee.

EMERGENCY ACTION COMMITTEE(EAC)

It is entrusted with all administrative Action and coordinates all activities with the objective of Emergency I intervention.

CONSTITUTION: -

The EAC will comprise

Members:

Chairman- Chairman Bhubaneswar Municipal Corporation/E.O.BBSR Mun. Corpn.

Vice Chairman- CMO Bhubaneswar Municipal Corporation Hospital/CMO Capital Hospital

Member Secretary- Health Officer Bhubaneswar Municipal Corporation.

Local Hospital Medical Officer

Director RMRC

SMO/Joint Director (PH)

Deputy CMO Capital Hospital, Bhubaneswar

Director SIHFW

FUNCTIONS: --

To take all administrative actions and to coordinate activities.

To draw urgent plan of action and resource mobilization

To coordinate with other department

To interact with media for dissemination of information in relation to Health education and community participation.

RAPID RESPONSE TEAM: -

The RRT under takes epidemiological investigation and control measures.

Constitution

The RRT will comprise

Local Zonal Medical Officer

Municipality Health Officer

Health Inspector or Supervisor

Laboratory Technician

FUNCTIONS: -

To Undertake urgent epidemiological Investigation.

To take immediate preventive and control measures.

To provide emergency logistical support.

Training of Health Staff If necessary for the cause.

To carry out EIC activities.

Need for lab. Support: -

Laboratory support is highly essential for: -

Rapid identification of

The causative organism

The likely source of transmission

Mode of Transmission

Lab finding is vital in arriving at a particular diagnosis from a bunch of differential diagnosis. Special care and training is required for collection, storage, packing and transport of the specimen.

The ability of the lab. to be taken into consideration whether it can accurately perform the tests?

Health facility	Lab support
Peripheral/Sector PHC	Block or Zonal level Labs like Unit-4 disp lab.
Zonal/Block Level Inst.	Block, Zonal, District level LabsUnit-4 lab
Capital hosp. Lab, Kalinga Hosp etc	
Dist. Level Health Inst.	District Labs, Lab of Capital Hospital Lab Medical College
Labs. RMRC Lab.	

Beyond this also if there is any necessity beyond the district health facilities now we have been linked up with NIV Pune, NICD Delhi, Kings' Institute Chennai. Etc.

Training Needs:--

Training needs are elaborated here as per the existing health manpower and keeping in eye his job chart and other agencies involved. The following personnel's are to be trained about the Surveillance system of the Urban Local Bodies.

Training of Medical Officers

Under the Administrative control of Health Department

Under the Administrative control of Urban Department

Paramedical workers like Pharmacist/Staff Nurses/Urban Health Supervisors

Municipality/NAC Executive Officers

CMO of Capital Hospital, CMO of Municipal Corporation Hospital

Data Entry Operators/ Statistical Assistant/Vital Statistic Clerk

They will be given a small handout of four to five pages each as a ready reckoner to follow in case of any doubt.

The training will be of one-day duration and the training will be imparted at their respective headquarters as convenient to the participant.

Health supervisor (M & F)—

Supervising the sub ordinate staff, Case definitions, Data collection, reporting, epidemic preparedness immediate preventive and control measures.

Lab Asst-

Collection, packing, storage & transport of the specimens.

Pharmacists and Staff Nurses—

Clinical Case Definitions, Data Collections, Record Maintenance, Compilation and data transmission

VS Clerk/DEO—

Compilation of data and report generation.they are to be trained how data to received, collated in the prescribed format, report generation weekly monthly, quarterly etc. depending on their place of posting.

Medical Officer:--

Identify Suspected Cases, Detect cases as per clinical case definitions, Recording of cases, compilation and transmission, reporting, analysis and interpretation, Epidemic Preparedness, Investigation of reported cases and outbreaks, preliminary Investigation to confirm the outbreak, supervision and monitoring, Feedback and regular training to staff and any other situations arising there.

Sr Med. Officers: --

Like ADMO (PH), CDMO have to supervise SA/DEO at district level.

Reception of data in time, entering of the data in the master format.

Analyzing the data.

Discussion with the committee before any action is taken.

Reminding the default.

Feedback to required corners.

Nursing Homes and Motivated Private Practitioners- collection, compilation and transmission.

Executive Officers of ULB- Take administrative Measures and resource arrangement.

Monitoring system: --

Every system to be effective over long term requires constant supervision and monitoring.

In surveillance supervision and monitoring are required to

- Check the knowledge of the person responsible for surveillance.
- Check if every process is functioning as per the designated procedure.
- Identify gaps & try to mend them.
- Act quickly on the first hand feedback from the field.

For better monitoring and supervision the health facilities are to be visited and the following are to be monitored head wise

Activity head	Monitoring Activity
Identifying Suspected cases and case detection	Local people to be asked about the movement of sanitary inspectors? Community nodal person identified or not?If yes, meet & ask him of his function
Record cases	IPD&OPD registers to be checked,new & old cases,daily tally sheets
Compilation and transmission	Availability of compilation formats. Check the validity of the data.Reports duly signed or not.Transmission log to be checked.
Reporting	Proper formats are used for reporting outbreaks.
Analysis & interpretation	Examination of various kinds of reports graphs etc.Check the monitoring tool.
Epidemic preparedness	Staff and emergency drugs in position or not?
Investigate & confirm reported cases & outbreaks.	Line listing formats & lab investigation results. Basic Information of the area. If outbreak investigation done systematically?
Feedback	If feedback is given and its frequency
Regular training	Training to old and new staff about surveillance.
Any other thing related to surveillance	Display of Monitoring tool, Case definition sheet availability in OPD and field, graphs depicting trends etc.

Community Involvement:

The community involvement in the surveillance system is very important.The key informants are the real persons who help us in identifying the suspected cases thereby helping us in case detection ,helps the investigating team by identifying the household with the disease

They also help the response team in containing the outbreak by mobilizing the community to take the preventive measures.

They pass on the health intelligence to the HW in his absence in the field.Help the supervisory staff in informing the movements of the field staffs. And availability of the MO.The community nodal persons are to be visited during field visits to encourage them and keep their moral high.

Annexure- 1

CLINICAL CASE DEFINITIONS

The Case definitions are formulated only on the basis of the clinical criteria and have been simplified as practicable as possible to maintain uniformity and consistency of case detection and reporting at various levels in the Health Department starting from A Health worker female to The Director of Health Services or a Super Specialistic Doctor.

Major thrust is given on case detection and making the system sensitive to catch the early warning signals of a suspected outbreak, the reliability of which can be ascertained through local field level investigation.

Routinely Reportable Diseases/Syndromes

Simple Diarrhoea: -

Acute watery diarrhoea (passage of three or more loose or watery stools over a period of 24 hours) without dehydration.

Severe Diarrhoea: -

Acute watery diarrhoea with dehydration, with or without vomiting.

Bloody Diarrhoea: -

Acute Diarrhoea with visible blood in the stool.

(Patient or attendant must confirm that blood was visible in the stool.)

Suspected Malaria: -

A case of fever commonly but not always associated with chills, rigor (extreme shivers), myalgia (muscle pain), sweating, headache, backache, nausea or vomiting with or without blood smear collection will be considered a case of suspected malaria.

Acute Respiratory Infection (ARI): -

ARI includes both upper respiratory tract infections (URTI) and lower respiratory tract infections (LRTI)

A case of fever and running or stuffy nose: or sore throat: or ear discharge; or cough with or without expectoration (production of sputum) for less than three weeks can be labeled as URTI.

A case of fever and cough with acute onset of wheeze or chest in drawing or rapid breathing as defined below indicates lower respiratory tract infection, especially pneumonia

Age	Rapid Breathing
Less than 2 months	More than 60 per minute
2 to 12 months	More than 50 per minute
12 months to 5 years	More than 40 per minute
More than 5 years	More than 20 per minute

Measles: -

Acute onset of fever and maculopapular (flat or raised reddish spots) skin rash with or without cough or coryza (running nose) or conjunctivitis (redness of eyes).

Neonatal tetanus: -

A neonate (less than one month old) with normal sucking & crying in first two days of life who develops difficulty in sucking; cries weakly; becomes stiff or has convulsions (fits) or both between the third and 28^{th} day of life (both inclusive) is considered a case of neonatal tetanus, irrespective of the immunization status of the mother.

Acute Jaundice Syndrome: -

Acute onset of Jaundice (Yellow colouration of eyes) typically including deep yellow urine, anorexia (loss of appetite), generalized body aches and extreme tiredness with or without fever.

Suspected Meningitis: -

A case of fever* usually of sudden onset and with one or more of the following:

Neck stiffness (sign elicited by the health personnel),

Severe unexplained headache

Neck pain and 2 or more of the following

Photophobia (discomfort looking into bright lights)

Nausea

Vomiting

Lowered or altered consciousness (confusion to coma)

In children less than 2 years of age, a case is defined as fever* and one or more of the following:

Irritability

Bulging fontanelle

Auxiliary temperature- more than 38^0 in Centigrade scale; 100.5^0 or more in Fahrenheit scale.

Unusual Syndrome: -

Cases with acute onset of symptoms that are unusual or unexplained and affecting more than one person residing in the area covered by a health worker or a health facility and not classifiable under any of the specific disease/syndrome labels of OMDSS.

[The object of providing this case definition is to capture known and unknown communicable/infectious diseases, instances of illness due to food poisoning chemical accidents and other diseases of public health importance. The impact of which can be reduced by rapid health management.

Do not report isolated instances of rare diseases, heart attacks, strokes, accidents vehicle, drowning, fire, building collapse etc and such under this label.

Others: -

All instances of services (promotive/preventive/curative) provided by the health facility/health care worker to individuals who cannot be classified as cases under any of disease/syndrome labels of OMDSS including unusual syndrome, and all repeat visits by a patient for a disease/syndrome which has already been reported, should be included in "others".

[Summation of the cases reported under the others category and the cases reported under each of the named disease/syndrome labels should equal the total number of persons to

whom the health facility/health care worker provided services during the particular period for which the reporting form is being filled].

DISEASES/SYNDROMES TO BE REPORTED DURING PARTICULAR SEASONS OR DISASTERS

In Summer

Heat Disorder: -

A person with history of exposure to or working in a hot environment with high to very high body temperature, associated with any of the following: nausea, vomiting, headache, dizziness, fainting and altered or lowered consciousness, is considered a case of heat disorder. Heat stroke is a very severe from of heat disorder associated with absence of sweating, and oral temperatures of more than 103 degrees Fahrenheit or 39.4 degrees Celsius.

During floods and cyclones

Skin Infection: -

This category includes bacterial skin infections (e.g. Impetigo), fungal skin infections (e.g. Tinea) and scabies.

Snakebite: -

History of snakebite with local symptoms and signs and with or without systemic manifestations.

In Urban local bodies Road Traffic Injury Incidence is high. So it is to be included while designing the urban surveillance.

A "Traffic Accident" is any vehicle accident occurring on the Public highway (i.e., originating or, terminating on, or involving a vehicle partially on the high way). A vehicle accident is assumed to have occurred on the Public Highway unless another place is specified except in the case of accidents involving only off road motor vehicle, which are classified as non-traffic accidents unless the contrary is stated.

Non-traffic accidents: -

Classification of Diseases (Morbidity and Mortality pattern) amongst cases treated in Capital Hospital, Bhubaneswar2000-2001

Name of Diseases	OPD	IPD	Death	Proportional Morbidity to total Cases treated		Proportion Of death to total death	Proportional Mortality amongst indoor cases
				OPD	IPD		
Amoebiasis	33907	251	0	8.7	0.9	0	0
Infections + GE	28210	1455	63	7.2	5.3	5.2	4.3
Anemia	18032	563	31	4.6	2.1	2.6	5.5
Conjunctivitis	18459	661	4	4.7	2.4	0.3	0.6
Ac.Bronchitis and bronchiolitis	25779	486	16	6.6	1.8	1.3	3.3
Influenza	35998	97	0	9.2	0.4	0	0
Teeth and supportive structures	33153	197	2	8.5	0.7	0.2	1.0
Ulcer stomach ad duodenum	13506	559	14	3.5	2.0	1.2	2.5
Gastritis	26230	343	2.0	6,7	1.3	0.2	0.6
Infection of skin,sc tissue	29748	768	5	7.6	2.8	0.4	0.7
Senility without psychoses	22495	354	85	5.8	1.3	7.0	24.0
Transport accidents	3600	273	13	0.9	1.0	1.1	4.8
Typhoid	4315	358	4	1.1	1.3	0.3	1.1
Malarial fever	6692	241	43	1.7	0.88	3.5	17.8
Shigellosis	5304	223	8	1.36	0.81	0.66	3,6
Tuberculosis	8101	397	38	2	1.45	3.14	9.57
Meningitis Meningococcal	444	201	31	0.11	1.6	2.6	15.4
Tetanus	256	256	33	0.06	0.93	2.7	12.9
Measles	2054	50	4	0.5	7.5	4.1	8
Viral hepatitis	2250	127	29	0.6	8.2	2.4	22.8
Filariasis	8223	133	3	2.1	30	0.25	2.25

OPD-Out patient Department
IPD-Inpatient Department
Total Out patient treated –389456
Total Inpatients treated-27367
Total death-1210

ANNEXURE-3

CALENDAR OF OMDSS REPORTING WEEKS: 2003							
WEEK NO.	STARTING SATURDAY	ENDING FRIDAY	REPORTING SATURDAY	WEEK NO.	STARTING SATURDAY	ENDING FRIDAY	REPORTING SATURDAY
1	28-12-2002	03-01-2003	04-01-2003	27	28-06-2003	04-07-2003	05-07-2003
2	04-01-2003	10-01-2003	11-01-2003	28	05-07-2003	11-07-2003	12-07-2003
3	11-01-2003	17-01-2003	18-01-2003	29	12-07-2003	18-07-2003	19-07-2003
4	18-01-2003	24-01-2003	25-01-2003	30	19-07-2003	25-07-2003	26-07-2003
5	25-01-2003	31-01-2003	01-02-2003	31	26-07-2003	01-08-2003	02-08-2003
6	01-02-2003	07-02-2003	08-02-2003	32	02-08-2003	08-08-2003	09-08-2003
7	08-02-2003	14-02-2003	15-02-2003	33	09-08-2003	15-08-2003	16-08-2003
8	15-02-2003	21-02-2003	22-02-2003	34	16-08-2003	22-08-2003	23-08-2003
9	22-02-2003	28-02-2003	01-03-2003	35	23-08-2003	29-08-2003	30-08-2003
10	01-03-2003	07-03-2003	08-03-2003	36	30-08-2003	05-09-2003	06-09-2003
11	08-03-2003	14-03-2003	15-03-2003	37	06-09-2003	12-09-2003	13-09-2003
12	15-03-2003	21-03-2003	22-03-2003	38	13-09-2003	19-09-2003	20-09-2003
13	22-03-2003	28-03-2003	29-03-2003	39	20-09-2003	26-09-2003	27-09-2003
14	29-03-2003	04-04-2003	05-04-2003	40	27-09-2003	03-10-2003	04-10-2003
15	05-04-2003	11-04-2003	12-04-2003	41	04-10-2003	10-10-2003	11-10-2003
16	12-04-2003	18-04-2003	19-04-2003	42	11-10-2003	17-10-2003	18-10-2003
17	19-04-2003	25-04-2003	26-04-2003	43	18-10-2003	24-10-2003	25-10-2003
18	26-04-2003	02-05-2003	03-05-2003	44	25-10-2003	31-10-2003	01-11-2003
19	03-05-2003	09-05-2003	10-05-2003	45	01-11-2003	07-11-2003	08-11-2003
20	10-05-2003	16-05-2003	17-05-2003	46	08-11-2003	14-11-2003	15-11-2003
21	17-05-2003	23-05-2003	24-05-2003	47	15-11-2003	21-11-2003	22-11-2003
22	24-05-2003	30-05-2003	31-05-2003	48	22-11-2003	28-11-2003	29-11-2003
23	31-05-2003	06-06-2003	07-06-2003	49	29-11-2003	05-12-2003	06-12-2003
24	07-06-2003	13-06-2003	14-06-2003	50	06-12-2003	12-12-2003	13-12-2003
25	14-06-2003	20-06-2003	21-06-2003	51	13-12-2003	19-12-2003	20-12-2003

26	21-06-2003	27-06-2003	28-06-2003	52	20-12-2003	26-12-2003	27-12-2003

ANNEXURE-4

CALENDAR OF OMDSS REPORTING MONTHS: 2003

WEEK NO	2003		WEEK NO	2003	
	Month	No. of Weeks		Month	No. of Weeks
1	JAN	5	27	JULY	5
2			28		
3			29		
4			30		
5			31		
6	FEB	4	32	AUG	4
7			33		
8			34		
9			35		
10	MAR	4	36	SEP	5
11			37		
12			38		
13			39		
14	APR	5	40	OCT	4
15			41		
16			42		
17			43		
18			44		
19	MAY	4	45	NOV	4
20			46		
21			47		
22			48		
23	JUN	4	49	DEC	4
24			50		
25			51		
26			52		

ANNEXURE-5

ORISSA MULTI DISEASE SURVEILLANCE SYSTEM (ULB)
PRIMARY DATA COLLECTION FORM
Health Facility _____ PHC
_____

Block _____ District
_____

Reporting Week No: From Date to

Sl. No	Diseases/ Syndromes	Number of new cases		Number of deaths	
		Under 5 years	5 years & above	Under 5 years	5 years & above
	Routine Reporting				
1	Simple Diarrhoea				
2	Severe Diarrhoea				
3	Bloody Diarrhoea				
4	Suspected Malaria				
5	Acute Respiratory Infection				
6	Measles				
7	Neonatal Tetanus				
8	Acute Jaundice Syndrome				
9	Suspected Meningitis				
10	Unusual Syndrome				
11	Others				
	Seasonal/ Emergencies Reporting				
1	Heat Disorder (Only in Summer)				
2	Skin Infection (Only in Flood/Cyclone)				
3	Snakebite (Only in Flood/ Cyclone)				
4	Road Traffic Accident				
	Total				

Signature:_____Date:_____/_____/_____

Name and Designation of the Reporter:
_____

NB: *This from is to be used for the collection of primary date by the HW (F)s and or the pharmacists in the PHC (N), PHC (UG), CHC, Area Hospitals, Urban Health Facilities, Sub-divisional Hospitals and District hospitals.*

Classification of Diseases (Morbidity and Mortality pattern) amongst cases treated in Capital Hospital, Bhubaneswar2000-2001

Name of Diseases	OPD	IPD	Death	Proportional Morbidity to total Cases treated		Proportion Of death to total death	Proportional Mortality amongst indoor cases
				OPD	IPD		
Amoebiasis	33907	251	0	8.7	0.9	0	0
Infections + GE	28210	1455	63	7.2	5.3	5.2	4.3
Anemia	18032	563	31	4.6	2.1	2.6	5.5
Conjunctivitis	18459	661	4	4.7	2.4	0.3	0.6
Ac.Bronchitis and bronchiolitis	25779	486	16	6.6	1.8	1.3	3.3
Influenza	35998	97	0	9.2	0.4	0	0
Teeth and supportive structures	33153	197	2	8.5	0.7	0.2	1.0
Ulcer stomach ad duodenum	13506	559	14	3.5	2.0	1.2	2.5
Gastritis	26230	343	2.0	6,7	1.3	0.2	0.6
Infection of skin,sc tissue	29748	768	5	7.6	2.8	0.4	0.7
Senility without psychoses	22495	354	85	5.8	1.3	7.0	24.0
Transport accidents	3600	273	13	0.9	1.0	1.1	4.8
Typhoid	4315	358	4	1.1	1.3	0.3	1.1
Malarial fever	6692	241	43	1.7	0.88	3.5	17.8
Shigellosis	5304	223	8	1.36	0.81	0.66	3,6
Tuberculosis	8101	397	38	2	1.45	3.14	9.57
Meningitis Meningococ cal	444	201	31	0.11	1.6	2.6	15.4
Tetanus	256	256	33	0.06	0.93	2.7	12.9
Measles	2054	50	4	0.5	7.5	4.1	8
Viral hepatic tis	2250	127	29	0.6	8.2	2.4	22.8
Filariasis	8223	133	3	2.1	30	0.25	2.25

OPD-Out patient Department
IPD-Inpatient Department
Total Out patient treated –389456
Total Inpatients treated-27367
Total death-1210

2.2 EVALUATION OF NATIONAL IMMUNIZATION PROGRAMME IN

A BLOCK

OF KHURDA DISTRICT ,ORISSA

Introduction:

Immunization is the most powerful and the most effective weapon against the vaccine preventable diseases (VPD). There is no better health bargain than immunization. The right of every child everywhere in the globe without exception is to complete the immunization schedule.

But every year three million children die of vaccine preventable diseases without getting proper immunization. That means every minute somewhere in the world 6 children are dying of vaccine preventable diseases (VPD)

Since1980, global immunization efforts have resulted in unprecedented progress in preventing childhood diseases and death. Immunization programmes all over the world appear to have saved 3 million lives annually. They protect 7,50.000 from becoming disabled and 5,00,000 from polio only.

The Government of India (Pre-Independent era) launched its first vaccination campaign in1940s against Small Pox (Lancet Method)., and after independence launched important immunization programmes likeExpanded programme of immunization(EPI) in 1978 and Universal Immunization Programme (UIP) in 1985.Significant achievements have been been made in India under this programme. The available data on vaccine preventable Diseases(VPD) indicate a reduction of over75% in reported VPDs at the national level. The total reported VPDs were around 5,70,000 annually!(1976-79).This came down to around 2,00,000 in the 1980s and has fallen further to less than I,00,000 since 1995.Among the cases reported now majority (>70%) of the cases are measles[3]

Despite the vast area,different cultural variation,infrastructural limitations, the programme had achieved in many areas like cold chain,self sufficiency in vaccine production,service delivery,immunuization coverage,communication and social mobilization and impact on disease burden.

But on evaluation it was found that the vaccine coverage decreased from 68% during 1996-97 to to 38% in1999-2000.The Central Government started taking measures on the possible factors affecting the childhood services.There were gaps found in the Immunization system, Communication and information,Family characteristic and parenteral attitude and knowledge.

As per the report of Government of Orissa the coverages of routine immunizations (2001-02) were DPT 97.3%,Polio 97.27%,BCG 98.45% and Measles 88.40%. and Bhubaneswar Block reports, DPT 79.4%,Polio 79.4%,BCG 76.5 %and Measles 61%.during the same year.During the previous year 2000-01 also the immunization coverage of Bhubaneswar block was DPT 71%,Polio71%,BCG 70% and Measles 54%

One of the ways to reduce Infant Mortality, under the National Health Programme is to immunize children below one year of age for vaccine preventable killer diseases, such as Diphtheria, Pertusis, Tetanus, Polio,Tuberculosis and Measles. It is natural that the health administrator is interested to monitor and evaluate the National Immunization programme . This can be done by evaluating the following intermediate parameters namely Structure,Process and Outcome.Before evaluating the programme it is necessary to know whether the existing health infrastructure, supply of vaccine,training to the staff and imparting IEC programme in the selected block as part of the structure and process of the programme. The outcome can be measured through proportion immunized or immunization coverage. Since reliable information on immunization coverage is not readily available through routine sources information has to be obtained through special efforts such as sample surveys. Suppose a conventional sampling procedure is adopted it may arrive at figures with high precision. This procedure will however take a great deal of time, is more expensive, and needs numerous staff. Often this procedure might become a self-defeating exercise because by the time the results are ready the coverage might have changed considerably.

Health administrators may well be satisfied to know the coverage reasonably accurately but quickly, cheaply and with simplicity so that corrective action can be taken.For this purpose World Health Organisation (WHO) recommended the 30 cluster sample survey

methodology which is a rapid and operationally more convenient for the estimation of immunization coverage.

TheExpanded Programme of Immunization(EPI) in Orissa was initiated in 1979.Later it was modified as Universal Immunization Programme (UIP) in 1986.There is no report on the evaluation of the programme in Orissa..For convenience one block ;Bhubaneswar is chosen for the study.

Objectives :

1) To evaluate structure , process and outcome of National immunization programme in Mendhasal PHC (BhubaneswarBlock)area of Khurda district , Orissa

2) Elicit the reasons for any shortcomings in the programme..

3) Suggest suitable measures for strengthening.

The demographic data of district, Khurda :

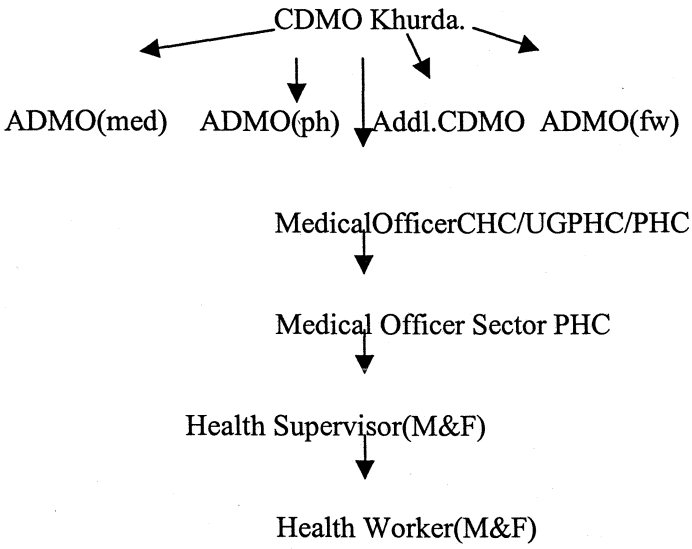
Table1

Total Population (2001 census) – 18,74,405		Total literacy rate- 80.19%
Total Male Population- 9,86,003		Male Literacy rate- 88.38%
Total Female Population- 8,88,402		Female Literacy rate- 71.
Total Rural Population- 10,69,630		Total No of Blocks- 10
(M= 5,43,066, F= 5,26,564)		Total No of ICDS Blocks- 10
Sex Ratio- 901 female per 1000 male.		Total No of Gram Panchayats- 168
Population Density- 666 per sq. km.		Total No of villages- 1562
Decadal Growth- 24.79(1991-2001		Couple protection rate- 39% (Orissa

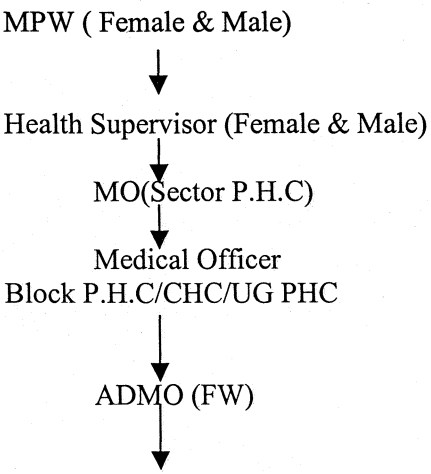
Available health infrastructures in Khurda:

There are two Upgraded Primary Health Centers (UGPHC),three Community Health Centers(CHC), five block level Primary Health Centers(PHC),53 Sector level Primary Health Centers and 193 Health Sub Centers(SC) in Khurda district

Organisational Chart of Health Services at Khurda District



Khurda district has ten Community Development Blocks including Bhubaneswar



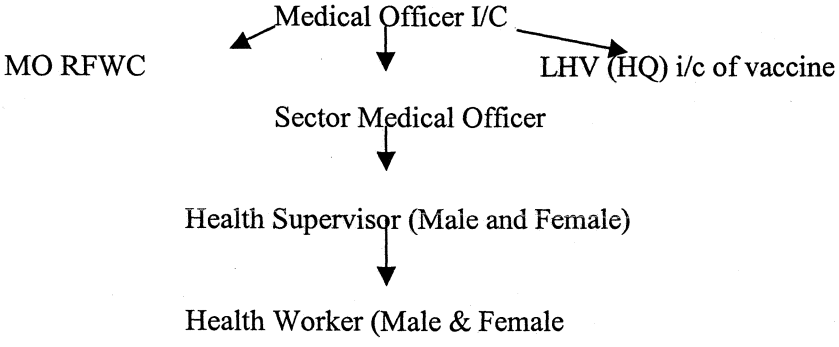
community Development. Under Bhubaneswar community Development block these are following Health institutions:

1)PHC, Mendhasal(Block Level PHC) Sub Centers – Nos. 21

Table2

1 PHC (New) Itipur(Sector level PHC).	4	Govt. Hospital Nuabanta.
2 PHC (New) Patia. (Sector level PHC)	5	Sectors Nos. 6
3 PHC (New) Chandaka. (Sector level PHC	6	Subcntres Nos. 21

Organisational Chart of PHC Mendhasal



Description of the programme:

The National Immunization programme is implemented in the district of Khurda under the leadership of the Chief District Medical officer, Khurda and Assistant District Medical Officer (Family Planning)ADMO(FW) as the nodal officer.

If we will start from the grass root level of programme implementations, MPW(Fem and Male) are the lowest grass root level worker and they along with the coordination of women and Child Development Department liason with the AWW worker and carry out the vaccination programme.

Additional CDMO

↓

CDMO

Though CDMO is the overall charge of the District.The nodal officer for immunization in the District in Orissa is ADMO (FW).She monitors the day to day activities of the National Immunization programme of the district.

Now target oriented approach has been withdrawn and the MPW (Female & Male) plan their own immunization programme in the beginning of the year. By a community survey known as Community Need Assessment Approach they assess the load of their own area& plan accordingly fixing a camp weekly on a fixed day of the week. They divide the villages in such a manner that all the villages under the jurisdiction of one MPW(Fem) will be covered twice a month but definitely be covered once a month. to carry out the prefixed once a week fixed day immunization session.

The vaccination achievement is discussed at the weekly sector meeting on Saturday at the sector headquarter and difficulties are sorted out there or seeing the load of the areas sector MO can modify or add another village if coverage is not up to the anticipated level of a particular area. The report of the sector meeting is handed ead over to the Block PHC MO in the sector supervisors' meeting on Monday, where the Block M.O himself if necessary can intervene in some of the programme.

At end of the month the detail achievement of the immunization programme is discussed in the monthly review meeting at the Block PHC in detail in presence of MPW,supervisor LHV in charge of Iceliner and freezer,BEE and other related staff.

Any difficulty regarding shortage of vaccine, non functioning of the cold chain equipment is brought to the notice of the CDMO at District level in the District level review Meetings by the BMO (Block Medical Officer) and apppriate steps are taken.

METHODOLOGY

Study area:

Study was conducted in Bhubaneswar block area

Study team:

The study team as follows: The FETP Scholar as the principal Investigator.

Other members in the team -Health supervisor (male) and one health worker (female)

Evaluation can be done with respect to structure ,process and outcome.

Structure Indicators-

The indicators included under structure evaluation are

relating to the organizational structure of the programme at the District,PHC and Sub Centre level in connection to:

Manpower

Building

Vehicle and fuel

Cold chain equipments

Supply of vaccine

Process Indicators-It relates to the functioning of the system-

Identifying the beneficiaries

Recording & reporting

Training & supervision

Maintenance of equipments

Regularity in supply

IEC

Pretesting the questionnaires:

The questionnaires were translated to Oriya and again back translated to English by another person to maintain consistency. The Oriya questionnaires were field tested before After training of the staff actual study. was carried out..

Training:

The team members were trained on different aspects of the study.

One week training was imparted to the staff.

During the training general instructions regarding how to conduct the interview were also given.Questions were made understandable.If there was any doubt, was clarified and some instances questions were also modified. The.questionnaires were finalized only after the training

Data collection

The MAE- FETP scholar approached the concerned PHC Medical Officer and appraised him about the study. Informations on the indicators related to Structure and Process were collected through the proforma. Both the primary and secondary data.were collected as per necessity.

Primary data: We collected the primary data through discussion and administering questionnaires by directly visiting the local health facilities.

Secondary data: We collected the secondary data by verifying the records and registers of the health facilities.

Reasons for partial or no immunization if any was elicited from the mother.

Materials and Methods for Outcome Evaluation.

Study Subjects-12 to 23 months children

The first step done was to identify 30 areas for study using a linear systematic sampling technique with probability proportional to the population size.Within each selected area, a household was selected at random,subsequent selection continued to the next nearest contiguous household until a total of 7 children aged 12to 23 months were identified. and their immunization status was assessed.by interviewing the child's mother or guardian.In this present study the two interviewers were trained health staff(trained in interviewing technique and about the 30 cluster survey methodology).Including me they were able to speak fluent oriya for eliciting information accurately.Data on immunization card where available were recorded and taken into account after corroborative interrogation only .The aim was to estimate the Immunization coverage within 10% points of the true coverage that is if the true coverage is 70%,the 95% confidence interval of the estimated coverage would be from 60% to 80%.The sample size required under simple random sampling would be 96.Assuming the design effect as 2 ,the required sample size was twice of 96 i.s 192.

For statistical reasons 30 clusters were required which meant that 7 samples per cluster to be examined. This methodology was examined by Murthy et al whether WHO recommended method is applicable in Indian condition and it was found that the WHO methodology would provide estimates within required degree of precision within Indian condition

Definition of Immunized child:

A child is defined as having been immunized if he/she satisfies the following conditions:

DPT/Polio-First dose is given at any time 6 weeks after birth. Subsequent two doses are to be given with intervals of at least 4 weeks between successive doses and all the three doses are administered before the child had completed one year.

BCG: The vaccination is given at any time before 12 months.

Measles: Immunization is administered after completion of 9 months but before the completion of 12 months.

National Immunization Schedule

Age	Vaccine	Route of Adminstration
Births	BCG,OPV	Intradermal/Oral
After 6 weeks	DPT,OPV	IM/Oral
10Weeks	DPT,OPV	Im/Oral

14Weeks	DPT,OPV	Im/Oral
9Months	Measles	SubCutaneous
16to24Months	DPT,OPV(Booster)	IM/Oral
5-6Years	DT	Intramucuslar
10 and 16 years	tetanus	Intramuscular
Pregnant(unimmunised) with 1 month interval	2doses of Tetanus	Intramuscular
Pregnant(Immunised)	One booster dose of Tetanus.	Intramuscular

Evaluation of National immunization programme in Bhubaneshware Block, Khurda District of Orissa

The objectivities of the programme were to evaluate the structure, process and out come of the programme.

Review of Structure Indicators

Reviewing the structure of the programme :

Manpower:

Table3

Vaccancy position of peripheral staff of Block PHC Bhubaneswar

Post	Sanctioned	Position	% vaccant
MPW(M)	21	15	29
MPW(F)	21	19	10
Health Supervisor(M)	5	2	40
Health Supervisor(F)	4	1	25
Medical Officer	6	6	0

In almost one-third of the sub centers MPW (Male) posts are vaccant.Two posts of Health Supervisor (male) and one post of Health supervisor (Fem) are vaccant.

Table4

Vaccancy Position of peripheral staff of Khurda district

Post	Sanctioned	Position	% vaccant
MPW(M)	186	123	34
MPW(F)	235	223	10
Health Supervisor(M)	59	37	37
Health Supervisor(F)	34	32	6
Medical Officer	102	94	8

In the district also the MPW (M) post 34% are vaccant and health supervisor(M) posts are 37% vaccant.

Buildings(Periphery)

Table 5-Availability of govt quarters for the peripheral staff of Block PHC Mendhasal

Post	Sanctioned	Quarters Available	% non availability of quarters
MPW(M)	21	0	100
MPW(F)	21	9	57
Health Supervisor(M)	5	1	80
Health Supervisor(F)	4	1	80
Medical Officer	6	4	33

No quarter for 21 MPW(male)-100% non availability of quarters

For MPW(Fem)-9 govt quarters are available. At 12 places(57%) of the sub centers are functioning in rented buildings out of which 4 rented houses are out side of the subcentre headquarter

Buildings:

The Block Headquarters-

The block headquarters buildings

of the family welfare section and the part of the immunization wing are in good condition and the annual maintenance is optimally good.

Sector Headquarter:-

Out of 4 sector Primary Health Centres, the buildings are in good condition at Itipur and Nuabanta but the buildings of chandaka and patia sector PHC are not in good condition and also not maintained properly.

Equipments-

In two sector PHCs like Nuabanta and Patia ice-liner and freezer are not there making the staff of those areas to travel a long distance to get the vaccines.The equipments for the camp purposes were given long back,.out of which the following percentage are defunct.

pressure Cooker-3 defunct-14.3%

Steriliser—13 defunct—62%

Stove—11 defunct—52.4

Availability.Cotton packs and spirit-Not found in 76% of the sub centers

Availability of Kerosene Oil—625 of the HW (F) reported non availability of kerosene oil even for the camp purposes.

Ice Packs—Adequate

Vaccine Carrier—Adequate

Syringes and needles—Adequate.

Vehicle:

The Block PHC is having a vehicle with driver. It is in an old vehicle of last 8 years. Battery is not functioning and the vehicle is not fuel efficient to take up the work load with the limited allotment of diesel. The vehicle needs repeated repairs there by causing handicapness to the programme. Thouhgh small maintenance are done at local level for major trouble it is to be sent to the district headquarters for repair.

Logistics and supplies:

Logistics and supplies are from the central govt., as this is a centrally sponsored programme. An action plan is formulated each year before the month of March to decide this modalities for procuring the logistics like needle, syringes IEC Maerials etc.But when the block PHC is concerned all the times Block medical officer has to rush to the District Head Quarter to get the materials and he gets it as per the availability there.The system of Materials management or planned Annual Indent and Issue system is yet to take a shape here.

The syringes and needles are plentily available and at any time the HW (F) was able to pick those up from PHC. The drug necessary in immunization is paracetamal syruprequired for the treatment of post vaccination fever in children is always a shortage item. Perhaps people use it other then the programme causes. Out of 19 HW(F) sixteen reported that they do not have reporting formats to report the weekly or monthly achievement to the Block PHC. The shortage of register, papers, and formats are perennial problems.

The RFWC Medical Officer post was vaccant for last 5 months is now filled up.

Cold Chain Equipments:

At the PHC:

The Block level PHC has got one iceliner and one deep freezer placed in the room of the Medical office I/C . Both this equipments were well maintained and connected to a stabilizer as current fluctuation is a usual characterstics of the area.

I checked both the equipments and found that both the equipment are having thermometres inside it. The temperature in the deep freezer was -5^0.C and in the iceliner having $+4^0$C But the temperature recording register was not maintained on that day.

The cold Box,,intact ice packs, vaccine carrier are plentily available.

Cold chain Equipments at the Sector PHC level:

Out of four sector PHC Level 2 are having ice liner and freezer at the sector level. Checked for the equipments and found that the equipments are well maintained and temperature reading is done in proper time

The availability of the cold box is found at all the places for ready transport of vaccines in case of power failure for a longer time.. The ice packs and the vaccine carriers vaccine carrierst are also found in place.

Supply of Vaccine:

While checking for the iceliner and freezer at the Block PHC and at the two sector PHCs Vaccine stock was optimal in all the three institutions,but the availability of the vaccine to the workers in the field is sometimes becoming a problem.

Out of the current 19 HW (F) interviewed regarding procurement of vaccine from the local depot. The finding is

2 Sub centers - Returned once in the whole year

9 Sub centers – Returned twice in the whole year

5 Sub center – Thrice in the whole year.

Review of Process Indicators:

It relates to the functioning of the system.

Identifying the beneficiaries:

At all the sub centres the HW(F) have Birth Register and also the Delivery Register.After identifying the beneficiaries in the area they make one annual action plan for the whole year

by assessing the need of the community served by them.By this community need assessment approach they finalise the Fixed Day weekly immunization camps for the total year.
Specific focus to be given:
From July – September – Flood andLow Lying areas
From March – May – Heat Stroke prone areas.

Recording and Reporting:

All the birth , all the death, weekly immunization,minor ailments,conduction of labour are to be recorded in the birth register, death register, immunization register,Surveillance register and to be report to higher quarter either in the the weekly sector meeting or in the monthly review meeting at the PHC

It was observed that all the formats are in shortage at the PHC inclusive of white paper.. Otherwise of the coluto paper. It is seen that staff are seen with small piece of paer to report the surveillance data.All the (HW(F) expressed the non availability of formats, registers,and white paper for recording and reporting.

Table 6

Category	Interview		Verification	
	yes	no	yes	no
supervision	12	7	2	0
Feedback	6	13	0	0

Out of 19 Respondents ragarding supervision by supervisors all 12 'yes' category were checked On verification it was found that only on two occasions the supervisor's have given comment and no other comment in written form was seen in any of th registers or they could not also produce any such comment .

Verifying the comments and adivse given by medical officers no such was found in written form.So neither by supervisors or by medical officers no important registers were checked within last two years.

Feed back :

Out of 19 Respondents

Received Feedback – 6

Not Received Feed back – 13 but in no case a written. Feed back is seen for the last one year.

The supervisory staff reported that they always give oral instructions and so no question of written feedback, even not in case of the worst performing worker.

In the field no impact was observed of the supervision of MO, or any of the supervisory staff.

Delivery of Vaccine:

As the primary health center is situated at one corner of the total block area it is not becoming feasible to receive the vaccine on the same day and conduct an immunization session on correct time.So 8 subcentres receive vaccine one day ahead of the fixed immunization day in order to start immunization session in due time. The transport facilities are very poor in the area and the Block PHC is just connected by a single bus per day.

Follow up of children:

25% of the HW(F) admitted they do not follow up the vaccinatedchildren of the last session. But 60% if the HW(F) administer vaccine and give post vaccination related counseling to the parents.

Regularity in supply :

The supply is almost regular ,only 3 times during the year there was some dislocation at the block PHC level due to lack of power supply twice and on the third occasion due to some dislocation at the levels beyond the block.

Maintenance of Equipments:

Maintenance of the cold chain equipment and other equipments relating immunization is a problem for the rural PHCs. All the equipments were supplied in the immediate post era of UIP and the supplied instruments were out of order in the following percentages.

Pressure cooker - 15%
Sterilizer – 65%
Stove-65%

Float Assembly: Now for the repair of cold chain equipments it is decided to operate a "Float Assembly" system where all the emergency parts of the cold chain system related equipments like the iceliner,freezer ,stabilizer,cold box will be kept. In case of exigencies a part can be taken from the float assembly and can be substituted later.One mechnic is there at the district and he on rotation basis covers the PHCs .vgftr5ft4r

Training:-

Out of 19 HW(F) – 16 were trained 3 were non trained .The 15 Male worker are also trained during CSSM programme.Non of the workers has undergone any reorientation training within last last 3 years . The have all undergone the training during early nineties.

But the medical Officers and Female supervisors are trained in RCH .42% of the MPW(M/F) could tell the National Immunization Schedule in correct form

IEC:

Around 78% of the HW(F) feel the necessity of IEC Material for the field to convince the rural folk in support of immunization., which is an urgent need of the hour. They should be trained in communication and motivational science.

Banner, Posters Booklets, Messages in Radio, T.V., Religious places, college guide etc., Integrated Multi displainary media message to be done. The develop Public Relation Officer Field Development Officer to be direction involved on the matter.

Review of Out come Indicators:

After survey of the area and through open ended questionnaires from the HW(Fem) ,villagers and the officials of the department the outcome indicators are as follows.

1)The over all status of Immunization coverage.
The immunization coverage of individual vaccines.
The drop out rate
Knowledge of the services of the programme and practices by the community.
Knowledge of the sub center and the diseases

The overall status of immunization coverage is as follows.

Fully Immunized - 96 (45.7%)
Partially immunized - 113 (53.8%)
Unimmunized - (0.5%)

Individual Vaccine coverage-The coverage of individual vaccines is shown in table7,the coverage being 98% in Polio1 and DPT1,75% inPolio2 and 77% in DPT II,69% in Polio III and DPT III.In case of Measles it is65%.

The drop out rate

Drop out rate in Polio vaccine: 207/146 = 61/146=41.8%

Drop out rate in DPT vaccine: 148/207 = 59/148 = 39.9%

Measles only 65.7

Out of Total 210 one has not taken any immunization at all.

TABLE7 Coverage of Individual vaccines of children12-23 months of age Bhubaneswar block Orissa,2003

vaccine	Achievement	percentage	95% confidence interval
POL 1	207	98.6	93.31,99.83
POL2	159	75.7	66.18,83.32
POL3	146	69.5	59.66,77.93
DPT1	207	98.6	93.31,99.83
DPT2	163	77.6	68.23,84.93
DPT3	148	70.4	60.65,78.77
BCG	203	96.6	90.61,99.02
MEASLES	138	65.7	55.73,74.52
FULLY VACC.	96	45.7	
VACC.CARD	192	91.4	

Knowledge of the services of the programme and practices by the community

Services available at the sub center:The community survey revealed 50% (105) persons could not report what are the health facilities available in their area. Even if people were not in a stage to tell what are the facilities available at the PHC(61.9%).

Only 27% (55) of the people could report in detail what are the services available at the HSC. 73% could not tell what are the health facilities available at the sub center..

Only 34% (72) could tell about the regularity of the visit. paid by the HW (Male & Female). They even do not know how many times a health worker will pay visit to their village.

Around 50%(105) of the people could respond and could name 2 names of the vaccine with names of the diseases they prevent..

83% (173) persons could report that vaccine in good for us and it saves from many diseases. So, vaccine should be taken in regular time.

Only 41% (86) said that the HW (F) is not coming to their houses to give vaccine. But she is sitting at one place. Only 12 (5.71%) said they have return once due to non-availability or vaccine. They also conformed that this is not the usual feature of the sub center staff.

About 68%(144) have required that they have never seen the LHV and they have no idea regarding her way of work or type it work.

Only 7.6% (16) replied they have read the card and known the matter. Other 92% replied they we have the card we have never read it.

Coverage of the immunization for last Two year.

2000– 2001

Polio	- 70.8,	DPT	- 70.8
BCG	- 69.9	Measles	- 54.3

2001 – 2002

Polio	- 79.4	DPT	- 79.4
BCG	76.5	Measles	- 61%

Out of the total 2-years. At no timeNon-the vaccine coverage is above 80%

Summary Finding:

Strength of the programme:The National Immunization Programme is implemented in the Bhubane swar block PHC. Under the leadership of the Medical Officer.

Strength:

a)Good infra structure:The infrastructure is well established..Staff are there and an established way of carrying out the programme from the level of HW(Fem) till the Medical Officer PHC.

b)Logistics and supplies:The syringes and the needles are in good supply.Vaccines are also available.Vaccines carriers,cold boxes,etc are alsowell in place.

c)Regularity of weekly, monthly reporting channels is well established.

d)Surveillance Mechanism is well established for children below 5 years of age.

e)Community involvement is seen People are sensitized to come to the session.

f)Programme has touched 99.5% of the children.

g)Immunization card is preserved by 96% of the families

h)Optimal maintenance of records.

Over all utilization of the services is good.

Weakness:

a)No intermittent coverage evaluation done.:In the knowledge of the investigator no such evaluation has been done in the block or the district to monitor the programme and take the priogramme in the correct line.

b)No definite establisheed reliable mechanism for reaching of the vaccine at the sub center.Convention is the MPW(Male) takes the vaccine on the day of the vaccination to the specified village.

c)Inadequate ice liner and freezer.For each sector PHC there must be one set of ice liner and freezer.Out of four sector PHC two are not having.It reduces the efiiciency of the programme.

d)Inadequate supply of kerosene, cotton and spirit.This day to day materials to be supplied regularly.

e)Inadequate supply of report formats. Registers and other formats and even if white papers.

f)Manpower :MPW (Male) posts should be filled up immediately. And also the HS(male)

g)Building:No adequate quarter provision for the staff.So they are staying outside the headquarter and programmes suffer.

h) Transport to be updated .The amount of HSD permissible is very less.It hampers the day to day monitoring and supervision.

i)At the level of Health Supervisor level the supervision is gitting very less and people are not knowing who is their LHV?

j)Repair and maintenance of equipments.No established system for repair and maintenance facility.for stabilizer, sterilizer, stove, Pressure cooker etc.,

k)Training component is not upto the mark.The human resource development is very poor.Reorientation training is almost a rare affair.

Discussions and suggestions

The Immunization Programme was started in the year 1940 in India..Only after the launching of EPI and UIP, the programme showed some result and Universal Child Immunization was achieved in 1990-91.The UCI status was sustained upto 1998.In a joint evaluation done by UNICEF and Government of India it was seen that the coverage is slipping down to the extent of below 50 %.Appropriate measures were taken by Govt of India So evaluation is a necessary tool to keep the immunization programme coverage sustainable and to monitor the programme intermittently.Extensive IEC.Newer Cold Chain Equipment, appropriate technology Integrated media approach may help to a large extent for more than 85% fully immunization.

But afterevaluating the programme it is suggested that:

a)To keep the programme going successfuliy the staff vaccancy to be filled up specifically the post of MPW(male).

b)Providing reorientation training to the staff intermittently and developing the human resource.

c)Provision of quarters for the staff in their headquarter village.

d)General equipments and cold chain equipments to be maintained regularly.

e)Making the effective utilization of the Supervisory staff and utilizing the Block Extesion Educator (fw) BEE for extesive IEC.

f)Strengthening the intra and inter departmental co-odination strong.

g) Involvement of Non Governmental organizations,Panchayatiraj institutions and community participations.

h)Involving the Women and Child Development for better implementation of the programme.

i)In the annual Action Plan while doing the Community need assessment survey special plan to be donre for thre unreached and under reached.

Conclusions:

Immunization is the best investment a country can make for the children.

The programme has reached 99.5 % of the children of Bhubaneswar block.but fully immunized is 45.7%.

Mothers have learnt to preserve Immunization cards.and should be motivated to vaccinate the child as per the national Immunization Schedule.

Community participation is to be encouraged to make this programme a people's movement. by not allowing a single case of drop out.

Staff should be well equipped with knowledge and logistics to carry out immunization.

Extensive IEC to sensitize the rural people

Special action plan at the local level to be drawn for the unreached and the under reached population

Time Line of Activities:-

Budget 5		
Sl.No	Activity headings	Expenditure (rupees)
1	Training of staff- Health supervisor andFe- male Healthworker for 5 days.Preparation of handouts for training & stationeries. Taking them to field for administration of dummy questionnairesthrough dummy interviews in field condition.	300.00 400-00
2	Prnting of formats and questionnaires per household15x210=3150pages	2205.00
3	Transportation of team(where public transport is possible by bus) –8 clusters-per staff to and fro-20x2x8 No public transport-22clusters-by auto for both staff,to and fro-100x22	320.00 2200-00
4	Conveyance for self	1000.00
5	Computer work for analysis and report writing	1000.00
6	Contingency (binding, postage, email, stationeries etc)	500.00
7	Total (Eight thousand and four hundred and twenty-five only)	7925.00

Check list of the articles at PHC level(To be marked in Yes or No)

1	Ice liner	Y/N	13	Annual immunization report.	Y/N
2	Freezer		14	Log book of Vehicle.	
3	Stabilizer		15	Reports Formats	
4	Thermometer		16	Syringes	
5	Cold box		17	Needles	
6	Ice pack		18	Cotton	
7	Vaccine Carrier		19	IEC materials-Banners,Posters etc.	
8	Temperature Recording Register		20	Staff Posts sanctioned	
9	Vaccine Stock Register		21	Staffs in position	
10	Vaccine Issue Register		22	Posts Lying vacant	
11	Weekly vaccination Abstract		23	Immunization register of the PHC	
12	Monthly Vaccination Abstract		24	Annual Report of the PHC	
13	Quarterly Vaccination Report.				

Questionnaire for M.O. P.H.C

Name: P.H.C.

Date

1) Since how many years you were the MO 1/c of this P.H.C.?

2) What is the population of the area served by yourPHC ?

3) Are all the subcentres of your P.H.C. functioning in Govt. buildings? ☐

4) Are the building maintained properly? ☐

5) How many S.C.s are functioning in rented buildings? ☐

6) Are the rented buildings taken in the headquarters villages? ☐

7) Do you get adequate vaccine supply as per your necessity? ☐

8) How many times you have returned from the district headquarters without getting vaccine? ☐

9) Do you get needles and syringes sufficiently? ☐

10) While transporting vaccines from district to the P.H.C. in a cold box, whether the ice packs are intact? ☐

11) Do you get cotton & spirit for injection purposes? ☐

12) Is any Post of HW(Male) lying vaccant? ☐

13) Is any Post of HW(Female) lying vaccant? ☐

14) Is any Post of HS(M) lying vaccant? ☐

15) Is any Post of HW(F) lying vaccant? ☐

16) Do you have ILR and fridger in the P.H.C. headquarters? ☐

17) Do you have a cold box for vaccine transportation? ☐

18) Have you got plenty of vaccine carriers? ☐

19) Have you got plenty of Ice Packs? ☐

20) Do you have thermometer & temp. recording register? ☐

21) Does the headquarter L.H.V. take the temperature of the ILR and fridger regularly twice a day? ☐

22) Have all the sub-centres supplied with pressure cooker, sterilizer and stove? ☐

23) Do you supply them with kerosene for using the store? ☐

24) Have you made an action plan of your P.H.C. for immunization as per the CNAA? ☐

25) Do you visit the area regularly? ☐

26) Do you visit & supervise the weekly imuunization camps? ☐

27) Are your works supervised by ADMO and CDMO AND HIGHER Officers from the state headquarters? ☐

28) After supervision by the district or the state officers,did they give you some feedback? ☐

29) Do you also give feedback to HW & HS to strenghthen the programme & to improve upon their performance? ☐

30) Do you get adequate help from your colleage Med officer and the sector medical officers? ☐

31) Have you ever checked the quality aspect of one immunization session? ☐

32) Have you ever checked the ice-packs and the VVVM of the stored polio vaccine? ☐

33) Do you conduct monthly review meetings regularly at your P.H.C. headquarter? ☐

34) Do you attend the District review meetings regularly? ☐

35) Do you send all the reports Monthly, Quarterly and Annual reports regularly in complete form? ☐

36) Do you get regular feedback from district or state on your reports? ☐

37) Are you trained in Immunization? ☐

38) How many of your staff have undergone training on Immunization? ☐

39) How many of the staff have undergone any training during last one year? ☐

40) Do you get adequate co-operation from BDO, CDPO, DSWO etc? ☐

41) Have you got sufficient IEC material (To explain people in rural areas) ☐

42) Please Suggest something to strengthen the programme for the District, P.H.C. & Sub centre? ☐

☐

QUESTIONNAIRE FOR HEALTH WORKER (FEMALE)

Name - Sub Centre -

P.H.C.- Date

1) Since how many years are you working in this sub centre?

2) Is your subcentre functioning in a Govt. Building? ☐

3) If yes, are you staying in that Govt. building? ☐

4) Is the building well maintained? ☐

5) Is your SC sunctioning in a rented building? ☐

6) If yes, is it functioning at the s/c headquarter? ☐

7) Do you get adequate vaccines usually indented by you? ☐

8) How many times you have returned without getting the vaccines during the last one year? ☐

9) When you get vaccines whether icepacks are intact? ☐

10) Do you get needles and syringes sufficiently? ☐

11) Do you get cotton and spirit adequately? ☐

12) Is any Post of HW(M) lying vaccant? ☐

13) Is any Post of HS(M) lying vaccant? ☐

14) Is any Post of HS(Fem) lying vaccant in your area? ☐

15) Are you having ILR and fridger in your subcentre? ☐

16) Do you know if your sector P.H.C. has got ILR and fridge? ☐

17) Do you have a cold box to carry large amount of vaccine if required? ☐

18) Have you got plenty of vaccine ? ☐

19) Have you got good number of Ice Packs? ☐

20) Have you got Pressure Cooker, Sterilizer and stove? ☐

21) Do You prepare an action plan for immunization at the beginning of the year as per the CNAA? ☐

22) Do you visit the villages regularly as per your fixed tour programme? ☐

23) Any of your works, Immunization camps, register are supervised/checked by HS(M)and HS(F)?

24) Have you made an action plan of your P.H.C. for immunization as per the CNAA? ☐

25) After supervision do you get feedbacks to strengthen the programme and to improve upon your performance? ☐

26) Do the HS(M) & HS(F) help you in your immunization sessions? ☐

27) After reaching the immunization site have you ever enquired about the condition of ice packs? ☐

28) Do you follow up the kids vaccinated last time ? ☐

29) Do you give vaccination counselling? ☐

30) Do you have a fixed imuunization day a week? ☐

31) Does the HW(M) get the vaccine for the weekly immunization session? ☐

32) Do you get the vaccine on the same day? ☐

33) If not why
i) Distant Village
ii)No nearby depo? ☐

34) Do you attend the weekly sector meetings regularly? ☐

35) Do you send reports & returns regularly and timely? ☐

36) Do you send weekly, monthly, quarterly & annual reports regularly and on time? ☐

37) Do you get regular feedback on your reports after due analysis at upper quarters? ☐

38) Do you attend the review meeting at the PHC headquarters? ☐

39) Are you trained in immunization? ☐

40) How many trainings you have undergone within last 3 years? ☐

41) Can you tell the National Immunization Schedule? ☐

42) Do you get adequate coordination from the staff of our own department?

43) Do you get cooperation from other dept.like woman and C.D, Panchayati Raj etc? ☐

44) Have you got IEC material on immunization to explain the village people? ☐

45) Please Suggest something which will strengthen the National Immunization Programme? ☐

QUESTIONNAIRE FOR THE ADMO(FW), DISTRICT KHURDA.

Name of the District : Name of the State:

No of Service years in the District?

What is the target population of children for vaccination in the District?

Are all the subcente provided with good building? ☐

If buildings are there do the HW(F) stay in the headquarters? ☐

Where there is no buildings and are they functioning in a rented house in the prescribed Headquarter village? ☐

Are all the buildings well maintained? ☐

Do you get adequate vaccine supply sufficient for the district? ☐

Have you faced any situation during last one year that Stock of vaccine was nil in the district? ☐

Have you faced any time that your vehicle has returned from the dregional depo without the vaccines? ☐

Do you have good number of ice packs? ☐

Do you have good number of syringes & needles? ☐

Do you get good supply of cotton & spirit for immunization seesion purposes? ☐

How many posts of HW(F) lying vacant? ☐

How Many posts of Health Worker(M) lying vacant? ☐

Is there any vacancy in the posting of HS(M)? ☐

Is there any vacancy in the posting of HS(F)? ☐

Do you store vaccines in the ILR and FRIDGER in the district? ☐

Who is in charge of the vaccines? LHV –1 PHN-2 others-3 ☐

Does she maintain the vaccine registers and the temp register properly? ☐

How many times during a week you check the vaccine issue and receive register? ☐

How many times during a week you check the temperature of the ILR and the freezer? ☐

As the nodal person for immunization how many days you travel in a week for immunization purposes? ☐

Do you feel that the fuel supplied for immunization purposes enough for field tours? ☐

Have you got pressure cooker,sterilizer,stoves etc to replace the old one? ☐

Do you prepare an immunization action plan for the district? ☐

Do you visit the PHCs to get direct experience of the functioning of the programme? ☐

Have you supervised any of the immunization sessions during last 3 months? ☐

If yes, how do you rate the session both qualitatively and quantitatively? ☐

After supervision do you give feedback to your sub-ordinate,upper officers and staffs? ☐

Do all the wing officers help you in supervising and training of the peripheral staff in immunization? ☐

Have you checked the temperature recording register of the ILR and Fridger maintained by the LHV/PHN? ☐

Do you go through the papers submitted by the sub ordinate staff and give them feedback? ☐

Have you advised the staff to give the parents I some counseling on immunization? ☐

Do you have a fixed immunization day in a week? ☐

In your district who carries the vaccine from the PHC to the sub center area on the day of the immunization session? ☐

Are the vaccines issued on the day of the immunization session or one day earlier? ☐

Do you send the reports and returns to the higher ups in time? ☐

Do you receive all the reports related to immunization in time? ☐

Do you get feedback from DHS and JDHS? ☐

Are you trained in immusization? ☐

How many staffs are trained in immunization within last one year? ☐

Do you get adequate cooperation from the staff of health department? ☐

Do you get adequate co-operation from other dept. like W& CD and Pancayatiraj Dept? ☐

Have you got substanTial IEC material on immunization for the general public? ☐

Will you please suggest something to strengthen the NIProgramme? ☐

QUESTIONNAIRES FOR A COMMON MAN OF THE VILLAGE.

NAME- VILLAGE-

DATE-

Do you know about the available health facilities in your area? ☐

PHC/CHC/HSC

2.Which of the above facilities you avail the most in case of need? ☐

3.Do you know where is your health sub center? ☐

4.Do you know what are the services provided by the health SC? ☐

5.Do you know who is your HW(F)? ☐

6.Do you know who administer the vaccine to you? ☐

7 .Do you know how many times they should come to you? ☐

8. Why do we take vaccines? ☐

9. Wnich diseases are prevented by taking vaccines? ☐

10. Have you got a vaccination card? ☐

11. What is the utility of a vaccination card? ☐

12. Do thr health workers come to your village once in a week or once in a month ot give you the vaccination? ☐

13. Does she give the vaccination sitting at one place? ☐

14. Do you reach the specified place and wait for her? ☐

15. Do all the lady folk of the village go to the immunization center along with the kids? ☐

16. Does she give counsel about vaccination and the after effect of vaccination? ☐

17. Do they follow ue kids when they come to the village for the second time? ☐

18. Do you go to show your baby to the HW(F) when she comes to the village for the second time? ☐

19. Do you know your LHV? ☐

20. Do yu know where is the headquarter of the LHV? ☐

21. Do you give any payment for the treatment? ☐

22. Do you know the name of the vaccine given yo your kid ithin one year of age? ☐

23. Do you know which vaccine prevent which disease? ☐

24. Do you know when thes evaccines are guven space between two doses? ☐

25. Do you think immunization is helpful to us? ☐

26. Have you ever returned from the vaccination centeer for nonarrival of the staff? ☐

27. Have you ever eturned back from the immunization center from nonarrival of the vaccine? ☐

28. If yes ,whether such happenings are usual affair. ☐

29. Have you ever read the vaccine card? ☐

30.Can you suggest to improve the programme? ☐

QUESTIONNAIRE FOR THE CDMO, DISTRICT KHURDA.

Name of the District : Name of the State

No of Service years in the District?

What is the target population of children in your district?

Are all the subcenters provided with Govt building? ☐

☐

If buildings are there does the HW(F) stay in the headquarters?

Where there is no buildings, are those functioning in a rented house in the prescribed Headquarter village? ☐

Are all the buildings well maintained and with electicity? ☐

Do you get adequate vaccine supply for the district? ☐

Have you faced any situation during last one year that Stock of vaccine was insufficient to carry on the routine work? ☐

Have you faced any time that your vehicle has returned from the regional depo without receiving the vaccine stock? ☐

☐

Do you have good number of ice packs?

Do you have good number of syringes & needles? ☐

Do you get good supply of cotton & spirit for immunization seesion purposes? ☐

How many posts of HW(F) lying vacant? ☐

How many posts of Health Worker(M) lying vacant? ☐

Is there any vacancy in the cadre of HS(M)? ☐

Is there any vacancy in the cadre of HS(F)? ☐

Do you store vaccines in the ILR and Freezer in the district? ☐

Do you feel any difficulty in maintaining the cold chain equipments? ☐

Does the LHV maintain the vaccine registers and the temp register properly? ☐

Have you got good no of pressure cooker,sterilizer,stoves etc to replace the old one? ☐

Do you prepare an immunization action plan for the district? ☐

How many times you and ADMO(FW) make joint visits for immunization supervision? ☐

As the head of the district how many days you travel in a month for supervision of immunization purposes? ☐

Do you feel that the fuel supplied for immunization purposes is enough for field tours? ☐

Have you supervised any of the immunization sessions during last 3 months alone? ☐

Do you visit the PHCs to get direct experience of the functioning of the Immunization programme? ☐

If yes how do you rate the session both qualitatively and quantitatively? ☐

After supervision do you give feedback to your sub-ordinates,wing officers and upper officers? ☐

30.Do all the wing officers help you in your supervision work? ☐

31.Do you check the IEC activities taken up by the district to make Immunization programme more popular? ☐

32.Do you visit the PHCs to get direct experience of the functioning of the Immunization programme? ☐

33. Do you submit reports and returns to your higher authorities timely. ☐

34. Is there any definite planning for transportation of vaccine from the PHC headquarter to vaccination site on the day of immunization? ☐

35.Have you advised the staff to give the parents some counseling on immunization? ☐

36.Do you have specific planning at local level for measles vaccination? ☐

37.Have you given due care to the training component on immunization ☐

38. Do you get good cooperation from other departments like W & CD Pachayatiraj etc for immunization purposes?? ☐

Evaluation of National Immunization Programme in Bhubaneswar block of Khurda District Orissa

Check list of the articles and registers at the sub centre at Sub Center level

(To be marked in yes/no)

1	Basic Information Register	Y/N	14	Annual immunization report.	Y/N
2	T.C. Register		15	Immunization register of the SC	
3	Birth Register		16	Reports Formats	
4	Pressure Cooker		17	Syringes	
5	Sterilizer		18	Needles	
6	Ice pack		19	Cotton	
7	Vaccine Carrier		20	IEC materials-Banners,Posters etc.	
8	Stove		21	Surveillance Formats	
9	Almirah		22	Vaccine Cards	
10	Annual CNA of Immunization		23	Vaccine Stock Register	
11	Weekly vaccination Abstract		24	Annual Vital Statistics report	
12	Monthly Vaccination Abstract		25	Annual Report of the SC	
13	Quarterly Vaccination Report.				

CNA-Community need assessment.SC-Sub Centre

Evaluation of National Immunization Programme in Bhubaneswar block of Khurda District Orissa

Check list of the articles and registers at the District Headquarters Level.

(The answer to given in yes and no.).

1	Ice liner	Y/N	14	Annual receipt& expenditure Abstract	Y/N.
2	Freezer		15	Vehicle.	
3	Stabilizer		16	Log book of Vehicle	
4	Thermometer		17	Syringes	
5	Cold box		18	Needles	
6	Ice pack		19	Cotton	
7	Vaccine Carrier		20	IEC materials-Banners,Posters etc.	
8	Temperature Recording Register		21	Staff Posts sanctioned	
9	Vaccine Stock Register		22	Staffs in position	
10	Vaccine Issue Register		23	Posts Lying vacant	
11	Register of Return Vaccines		24	Vaccines	
12	Monthly Vaccine issue Abstract		25	Annual Report of the district	
13	Quarterly Vaccine Abstract.		26	Report Formats	

SECTION :3

OUTBREAK

INVESTIGATIONS

3.1 INVESTIGATION REPORT OF AN OUTBREAK OF DIARRHOEALDISORDERS VILLAGE CHITRADA II, ORISSA

As desired by Director Health Services Orissa I had been to Baripada, District Headquarter of Mayurbhanj District,Orissa to train the Doctors on "Orissa multi disease surveillance system" (OMDSS). At Baripada CDMO(Chief District Medical Officer) Mayurbhanj requested me to investigate an outbreak of diarrhoeal disorders in the village Chitrada of Kishantandi Upgraded Primary Health Center Area.

Back Ground:

The village Chitrada II is situated in the community development Block of Morada and under theUGPHC(Upgraded Primary health Centre) Kishantandi and sector PHC(Primary Health Centre) at Chitrada. It is located in a plain area and its normal temperature is 16 to 40^0celsius. Its rainfall is due to south west monsoon from June last week to September.The Sub centre of Chitrada has got four villages named Chitrada –I, Chitrada-II, Chitrada-III and Chitrada-IV. Here the affected village is Chitrada-II having population 883. The distance of the village from the District Headquarter is 25 kilometers and 5 kilometers from the Block PHC. There is also one Sector PHC at Chitrada,1and1/2 kilometers away from the village. This village is bifurcated by the Baripada Rajghat Road. The part of the village west to this road is known as Upper Sahi (Mandir Sahi) and the part of the village east to this road is known as Lower Sahi (Tala Sahi). The population of the Upper Sahi (Mandir Sahi) is 388 and the population of the Lower Sahi is 495.

The medical Officer I/C of Kisantandi UGPHC informed the CDMO Mayurbhanj on 27.08.03 that a person named Chhotrai Mohanta,aged 65 years male of village Chitrada II has expired on 26.08.03 at about 3.30A.M. due to diarrhoea and dehydration which has created panicky amongst the people.On the very same day the sarapanch Chitrada and MLA Baripada also informed the CDMO regarding the outbreak of diarrhoeal diseases at village Chitrada and to take containment measures.The District RRT(Rapid Response Team) visited the village on the same day headed by Dr Shantanu Kumar Dash and investigated the death

of Chhotrai Mohanta who was under the treatment of a quack and expired on the way in the process of being transferred to the UGPHC at about 3.30 A,M. of 26.08.03.The team took steps for disinfecting all the water sources of the village and people were advised not to go to the quacks. But again more cases were found on 27.08.03.So CDMO,ADMO(PH)Assistant District Medical Officer(Public Health).MO I/C Kisantandi UGPHC along with District RRT visited the village on 28.08.03 and found around 48 cases including the death of Chhotrai Mohanta.They also observed in the field that the cases are increasing in number and the steps taken may not be sufficient to contain the outbreak..So after returning from the field to Baripada the same afternoon I was requested to investigate the outbreak.

How the Information came to the Health Department?

The sporadic cases were getting reflected through the OMDSS.The information from the Medical Officer UGPHC Kisantandi, health worker (Female) Chitrada , Local M.L.A. and sarapanch informed the CDMO about occurrence of more number of cases of acute diarrhoea and vomiting

.

Chronology of Important Events

On 23.08.03 three cases were reported after a spell of heavy rain.
On 25.08.03 at about 11.30P.M Chhotrai Mohanta of Lower Sahi developed severe diarrhoea and was treated by a village quack.
On 26.08.03 at about 3 A.M the family members of Chhotrai Mohanta tried to shift him to Kisantandi UGPHC but he died on the way at 3.30 A.M.
On 27.08.03 Dr Chandan Murmu. M.O.I/C,Kishantandi U.G.P.H.C. informed C.D.M.O. ,Mayurbhanj about the death and outbreak of diarrhoeal diseases in the village Chitrada II.
On the same day the local Sarpanch and M.L.A. Baripada informed C.D.M.O. over telephone and requested for immediate control measures .

On the same 27.08.03 the district Rapid Response team under the leadership of Dr.Shantanu Kumar Dash ,A.H.O. visited the village and investigated the death of Chhotrai Mohanta and also treated three cases of simple diarrhea.

On 28.08.03 Dr.U.R.Tripathy ,C.D.M.O Mayurbhanj ,Dr.Niranjan Rout,A.D.MO.(P.H.) and,M.O.I/C. Kishantandi U.G.P.H.C. visited the village and found 48 cases of diarrhoea , treated them and disinfected all the 35 wells of the affected village. The B.D.O(Block Development Officer) Moroda block also accompanied the health team.

On the same 28.08.03 evening C.D.M.O.,Mayurbhanj requested me to investigate the outbreak of diarrhoea in the village Chitrada II and to take up immediate containment measures .

On 29.08.03 in the morning I with Dr S.K. Swain proceeded to the village Chitrada II with the Rapid Response Team with requisite medicines and logistics. via Kisantandi UGPHC and collected stool samples in Cary Blair Media procured by me from RMRC team. Carried out the investigation ,door to door active search for new cases , survey of the total village population and disinfection of water sources with the help of Sanitary Inspectors and health workers of the local P.H.C. .

On the same day a Health Camp was arranged in the Chitrada school with the help of M.O.s of the total Moroda block area .It appeared from the preliminary investigation that the source of infection might be due to the infected RWSS(Rural Water Supply and Sanitation) pipe water.

The Morada Block B.D.O. and the Jr engineer were explained about the contaminated pipe water supply and on my advise the pipe water supply was discontinued with immediate effect.

On 30.08.03 I visited the affected village Chitrada II again to complete the remaining population survey, for further follow up action and found two new cases and collected the stool sample.

On 31.08.03 the water sample was collected from the well of Ramachandra Mohanta, son of the deceased Chotray Mohanta as five persons were affected from the same family

A stool sample(sample no-13) was collected from a patient of Talasahi admitted to the DHH(District Headquarters Hospital) Baripada during the night

On 2.9.03 the stool samples were carried by me personally and submitted with Director RMRC(Regional Medical Research Centre) Bhubaneswar and water samples were submitted with State Water analyst Bhubaneswar on 3.9.03.

10 09.03 received bacteriological investigation report of stool samples from R.M.R.C ,Bhubaneswar suggesting growth of Vibiro-Cholarae-01-Ogawa

Formation of a Team:-Immediately after getting directive from CDMO a team was formed consisting of Dr K.K.Das FETP as the Principal Investigator and other members of the team consists of Dr S.K.Swain(FETP),.A.H.O Dr S.Das,Mr Pireswar Giri and Pradyumna Moharana(both are supervisors)and Health Worker (Fem) Chitrada .

Objective :

To find out the etiological agent,source of infection and modes of transmission.

Active search for new cases and line listing them with relation to time,place and person.

To apply control measures and study its impact.

To suggest measures to prevent the occurrence in future.

Methodology :

Sites inspection for sanitary and water sources survey.

By house to house survey to identify all cases.

By collecting specimen for analysis.

By interviewing the local health personnel, Block personnel and PRI leaders

By forming a hypothesis and testing it subsequently.

Taking immediate control and prevention measures.

Suggesting long term prevention measures.

Confirmation of the Outbreak

Even though sporadic cases occurred from 8th August in the village Chitrada –II actual outbreak began on 25th August . At varying times more than 50 people developed symptoms

requiring treatment. We confirmed the outbreak by verifying the indoor of Kishantandi UGPHC , the register of HW(Female) and also in the community itself.In the past there was no such outbreak in that village.

Site Inspection

Geographical Situation: -

We inspected the entire village. The Mandir Sahi is situated at least 4ft. above the ground level of Lower Sahi. The village road of Tala sahi starts from the Baripada Rajaghat main road,traverses the village ina U shape and again joins the the same road. The mouth of the drain draining the total Mandir Sahi, block office and market place enter the Tala Sahi village road at the north eastern point of the village and the canal draining the local reservoir enters the same village road of Tala sahi at the northern most end point. There was below knee deep water through out the road of the village Tala Sahi The open ends of the pipe are lying naked inside the dirty water of the village road with no tap attached at the end.

Pattern of Houses

The houses of the village are situated on both the sides of the village road,the eastern side and the western side.Another line of houses are there near the market by the side of the Baripada Rajaghat main road.

Basic Amenities

The village is provided with basic infrastructure like electricity, School, Transport and Communication facility The village is not provided with sanitary facility like latrine, sweeping and proper disposal of solid and liquid waste and also there is no drain at all in the

village. The people are habituated of defaecating by the side of the village road and during heavy rain the road itself is acting as a big drain with floating of the human excreta hither and tither.

Drinking Water Supply

The village has a water supply system from a deep bore tubewell by RWSS(Rural Water Supply and Sanitation Scheme) of Government of Orissa functioning from 27.12.1997 with pilot hole depth 250 metres and four tap points provided at Tala Sahi out of 52 tap points of the total system.. The main pipe laid down by RWSS in Lower Sahi is punctured by the village people at their sweet will at different places and taken one one pipe connection to their respective houses with no tap attached at the end of the pipe making the water system highly prone for outward contamination both at the punctured site and at the naked open end.. Apart from this, 35 wells and 4 tubewells are there in the village.Excluding the pipe water supply in Tala Sahi there is a single tubewell and four active wells used by the people regularly. Well No-I of Tarai Family situated in the middle of the village, Well No-II towards the northern end of the village road, Well No III of Rengu Family situated at the northeastern end of the village near main road and Well No-IV near the market place.

Drainage Facility

At the time of average rainfall even, the only road of Lower Sahi village gets flooded with drain water from Mandir Sahi,Market place,Block Colony and from the local water reservoir submerging even the platforms of the wells and tubewells.Generally the village road turns into a big drain and a current of water exists from June last week to September.There was heavy rain intermittently in the area during August 2003 and very heavy rain on 19thth and 23rd August.

Most of the people of the village are farmers, agricultural workers or daily labourers.

Training

After inspection we selected a case definition and prepared a questionnaire as per symptoms to identify the existing cases. Then we trained the staff regarding the case definition and the questionnaire for house to house survey and to identify the cases.
Case Definition:-Anybody in the village Chitrada II suffering from loose motion with or without vomiting or dehydration from 1st August 2003 is taken as a case.

Survey

On 29th morning we under took a rapid survey to find new cases and also house to house population survey and completed it by 30th evening and found 53 cases.(The detail line listing is attached in Annexure no I)

Collection of samples.

Thirteen Stool samples were collected from the patients admitted to Kisantandi PHC ,District Headquarters Hospital,Baripada and from the community.The samples were handed over to RMRC Bhubaneswar for examination and isolation of the aetiological agent (The list of samples are attached in Annexure II)

Four Water samples were collected from different wells, from the pipe water of RWSS and from the village drain water and submitted to the State water analyst Bhubaneswar for examination (annxure no-III).

Control and Preventive Measures

We took control measures by treating cases with ORS, Doxy,Tetracycline and referring serious cases to the UGPHC. Before I reach all the wells were disinfected. One camp was arranged to treat the cases immediately.

1. Road side defecation was stopped

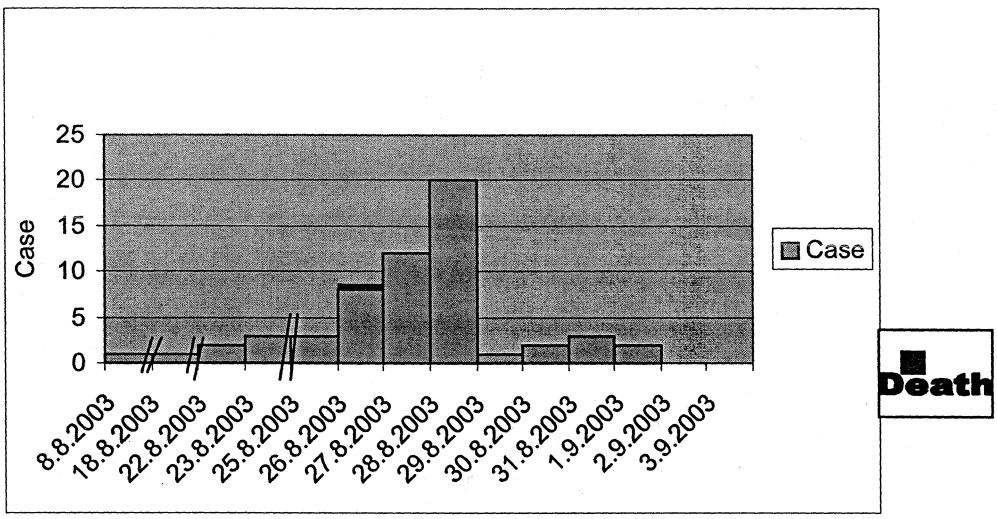
2. Covering the night soils with earth.

Stopping the water supply to the village in the afternoon of 29th August by giving due instruction to the BDO and Junior Engineer.

Result

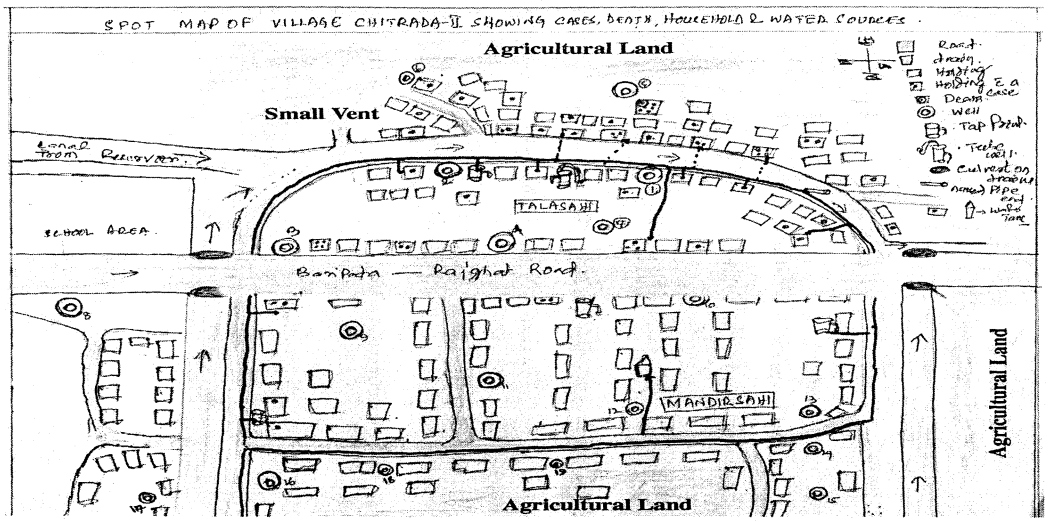
Distribution of cases by date of Onset.

Date	8.8.	18.8.	19.8	20.8	21.8	22.8.	23.8.	24.8.	25.8.	26.8.	27.8.	28.8.	29.8.	30.8	31.8	1.9	2.9
Case	1	1	0	0	0	2	3	0	3	8	12	20	1	2	3	2	0



The epicurve shows the first case on 8th August.Then the second case is on 18thAugust.Then 2cases on 22nd and 3 cases on 23rd.From 25th cases started coming up till it reached the pick on 28th August.From the Epicurve it appears that, its one common source epidemic. The highest number of cases being on 28th August with one death on26th August.From 29th cases have started coming down.

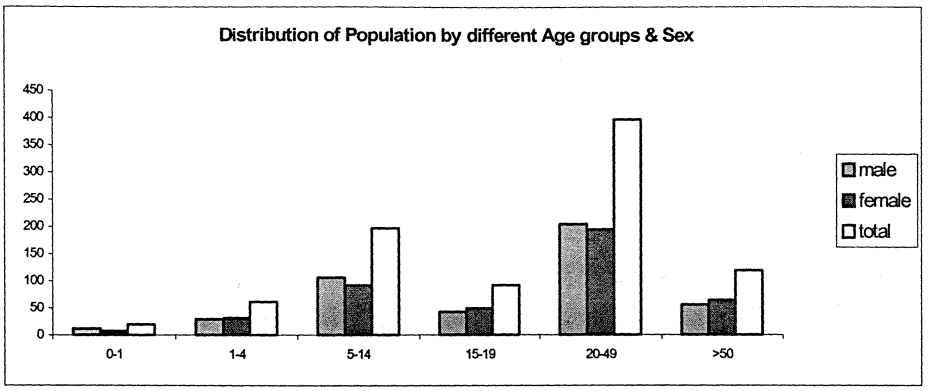
Spot Map showing cases and death of Village Chitrada II



Population Distribution by age group and sex..

Population

Age		male	female	total
0-1	12	8	20	
1-4	29	32	61	
5-14	105	91	196	
15-19	42	49	91	
20-49	203	193	396	
>50	55	64	119	
	446	437	883	

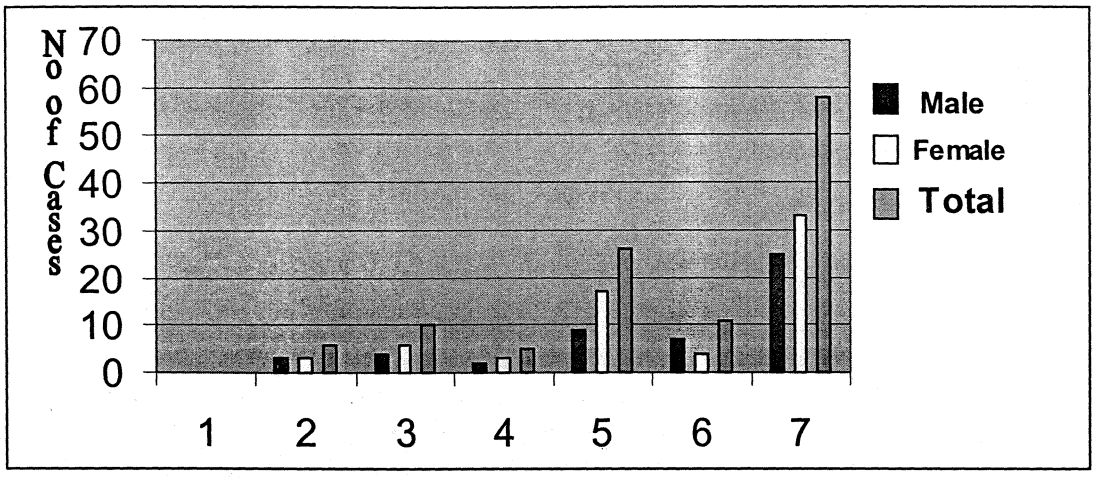


The male to female population almost same in all the age groups with a little deviation this side or that side. In total also male and female population is almost same.

Distribution of cases by age group and Sex.

Age		Male	Female	Total
0-1	0	0	0	
1-4	3	3	6	
5-14	4	6	10	
15-19	2	3	5	
20-49	9	17	26	
>50	7	4	11	
	25	33	58	

Distribution of cases by age group and Sex.

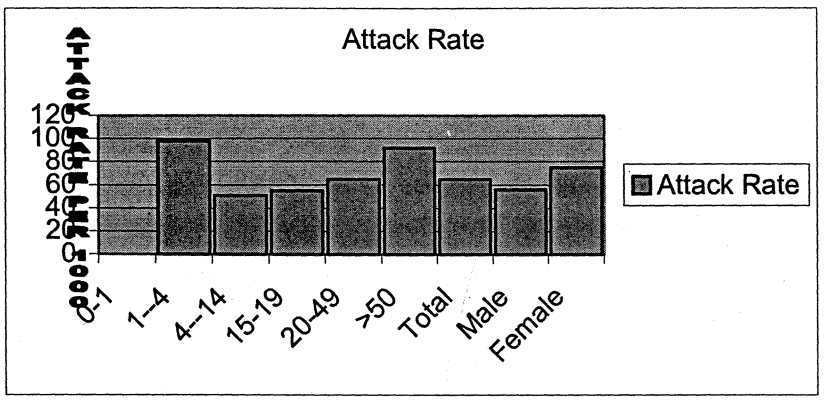


The number of male and female cases in 1-4 years age group is same and in the age group of 5-14yrs,15-19yr,, 20-49yrs and also in total the female cases are more than the male cases excluding group-VI where male cases are more than the female cases. Maximum number of cases are seen in the age group of 20-49 years and then >50 years and in total female cases are more than the male cases.

Attack rates per 1000 by Demographic Characteristics.

Age Groups	No of Cases	No of Non cases	Total	Attack rate
0-1	0	20	20	0
1-4	6	55	61	98
5-14	10	186	196	51
15-19	5	86	91	55
20-49	26	370	396	65
>50	11	108	119	92
Total	58	825	883	65
Male	25	421	446	56
Female	33	404	437	75

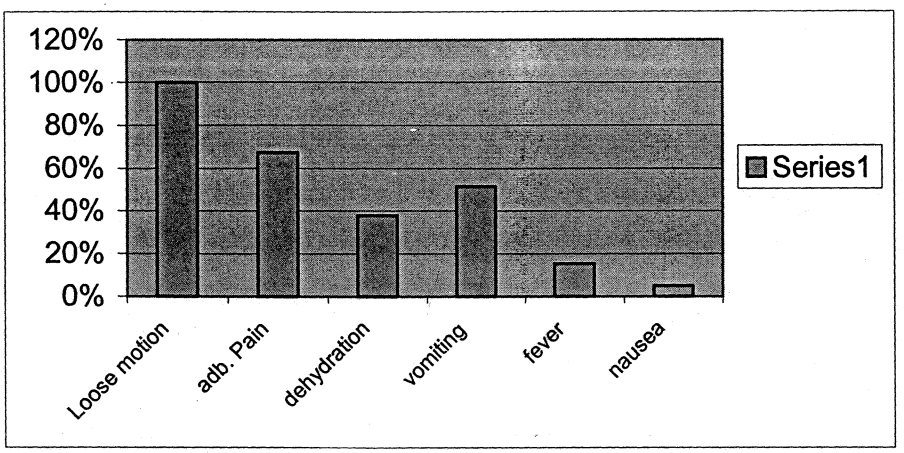
Attack rates per 1000 by Demographic Characteristics



Age Group & Total of Male & Female

The Attack Rate is highest in cases1-4 years age group and the age group above 50 years and more. Attack Rate is also more amongst females.

Frequency distribution of symptoms of cases of Diarrhoeal disorders in Chitrada-II (n=58), Mayurbhanj



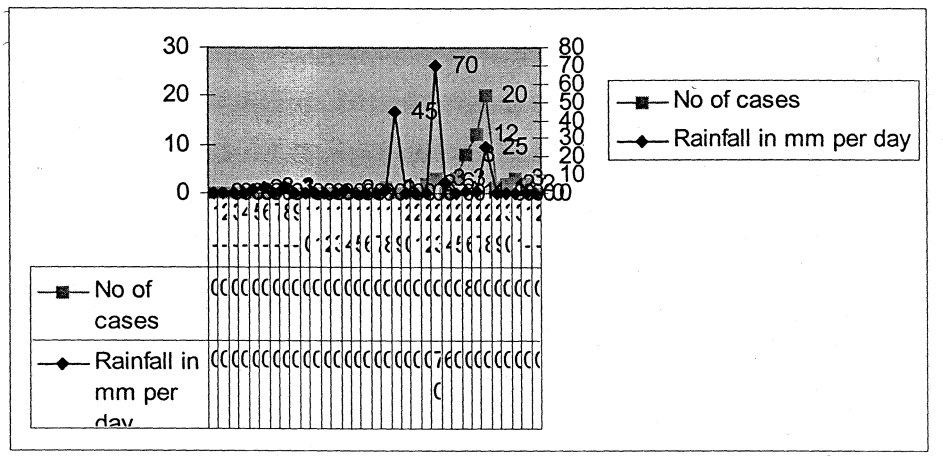
Discussion :

There were sporadic cases in the village of Chitrada-II from 8th August 2003.The case of 8th and 18th August belong to the same family(Rengu family) and the case of 22nd August Amara Sethy is the neighbour of rengu family.. The house of the affected Rengu family is situated in the extreme northeastern corner of the village with a well, by the side of which the total drain water of the Mandir sahi, market place and the block get an entry to the village road and subsequently traverses through the whole village till it is discharged to the paddy field in the extreme southern most point of the village.Due to open air defecation by these families and washing of the contaminated clothes near the well might have contaminated the water passing through this area and traversing the whole village at the time of heavy rain..There was heavy rain from 18th to 20th August ,22nd to 25th and 27th to29th

August. It is seen that the number of cases are more following a heavy rainfall in the area. After the rain fall of 24th August the real outbreak started having an abrupt rise of cases. There was a death on the morning of 26th August which drew the attention of all concerned and CDMO went the spot and subsequently I was told to investigate the outbreak.The outbreak took a real turn by discontinuing the pipe water ,making camp arrangement in the village, imparting health education, and rapid referral system..

The number of female cases are more than the male cases and the attack rate is highest in the age group 1-4 years and then amongst the persons of 50 years and above 50 years age which indicates the females, the kids and the older generation those are exposed to the village environment for longer period of the day have got affected more. The active males those who go out side for work or students those who go to school and remain absent from the village for a longer time had been less
affected.

Laboratory Finding:-Out of 13 samples of stool, 10 are positive for Vibrio Cholerae01(Sample no1,2, and 12 showed no growth and all other 10 showed growth) videDir/RMRC/NF/159/2003/dt9.9.03
The result of water samples is still awaited.After the water analysis report it will become more clear regarding the source of infection and the association factors responsible for the outbreak



Hypothesis:

After considering the village environment,individual hygienic practice of the village people,drinking water sources and the risk factors concerned, a strong association is observed exists between the cases and consumption of contaminated pipe water. The contaminated pipe water might be the vehicle for transmission of the infectious agent.

Case Control Study:

A Case Control Study was carried out to know the relative risk of the exposure to contaminated water source.For the study a set of questionnaires(Annexure no-IV) was prepared and used and here are the findings.

Selection of control

Inclusion Criteria-

The person should have stayed for the whole month of August in the village and must not have gone any outside area during that period.

The family members and neighbours to have stayed in the same environmental condition and have equal chance of exposure to the same risk factors.

They have not developed the disease yet and not kept the incidence of the disease undisclosed.

Exclusion Criteria.

The person has not stayed through the month of August in the village or has gone and stayed outside during the outbreak period.

The person has suffered from the disease or has not been exposed to the same risk factors as the cases.

Does not belong to the same family or neighbourhood or lane where the cases belongs.

As per the above criteria 64 numbers of controls were taken from the village and the history of exposure was also taken. The summary was :

Out of 58 cases –

Pipeline water – 53 Others - (Tube well water – 1 +Well water – 4)

Out of 64 controls –

Pipeline water - 7 Others - (Tube well water – 12 + Well water – 45)

Forming a Two by Two Table :

	Diarrhoea	No Diarrhoea	Total
Pipe line (+)	53	7	60
Pipe line (-)	5	57	62
Total	58	64	122

R.R = Rate of Exposed / Rate of Unexposed

= (53/60) / (5 / 62) = 0.8833 / 0.0806

=10.95

This suggests that the pipeline water supplied by RWSS carries grearter risk of causing the disease than other sources and is responsible for transmitting the disease agent..

Before testing the statistical significance a Null Hypothesis is to be framed .

Null Hypothesis is *" The exposure to RWSS supplied water is not associated with causation of the disease. The observed association might be due to chance only"*

So to prove that the association of RWSS pipe water supply in causation of the disease is not due to a chance factor but is the real vehicle, a Chi Square test is done. So after putting the values in a two-by two table :

	Diseased	Well	Total
Exposed	(a) 53	(b) 7	H1 60
Unexposed	(c) 5	(d) 57	H2 62
Total	V1 58	V2 64	T 122

Chi-Square = $T[(ad-bc) - T/2]^2 / (V1xV2xH1xH2)$

$= 122[\{(53x57) - (7x5)\} - 122/2]^2 / (58x64x60x62)$

$= 76.107$

With 1 degree of freedom and with P value less than 0.05 the calculated Chi square value is 76.107 which is greater than the table value 3.841. Hence the Null hypothesis is rejected and the exposure to contaminated pipeline water supply is the causation of diarrhoea, which is not merely due to a chance factor.

Refining the Hypothesis and further action

After detecting the unauthorized pipe connections to most of the houses of the village by making holes in the main pipe,the hygienic practices of the villagers,the naked pipe ends inside the dirty water and the turning of the village road into a big drain,the outbreak of diarrhoeal diseases are not impossible,but the detection of V.Cholerae-o1 is a matter of concerned.Though in many a place in Orissa it has been detected earlier,it has never been found in Morada block of Mayurbhanj district as the environment of the village is like this since so many years.So epidemiologically we are not able to establish a linkage with another cholera endemic area from where the infection has been brought to Chitrada II as during that period nobody has travelled to such area or nobody has come to the village from such an area..

Containment Measures

-Treatment of cases at the doorstep of the patient and also in a temporary camp at thevillage.

-Referral services were strengthened.

-The pipe water supply by RWSS was stopped with immediate effect.

-Villagers were advised to take boiled and cooled water or after treating the water with halogen tablets.

-All the water sources were disinfected.

-Chemoprophylaxis to the contacts given.

-All the villagers were advised not to go for open defaecation

-The villagers were taught themethod of sanitary disposal of human excreta .

-Creating awareness to demand for disinfected good quality water supply

-Education for carrying boiled and cooled water from home.

-Regular chlorination of water sources .

-Disease surveillance system and response to be strengthened more

-Health education regarding personal hygiene,Oral rehydration solution,healthy village environment ,avoiding quacks and seeking early medical advise from local PHC doctors.

..

Long term Preventive measures

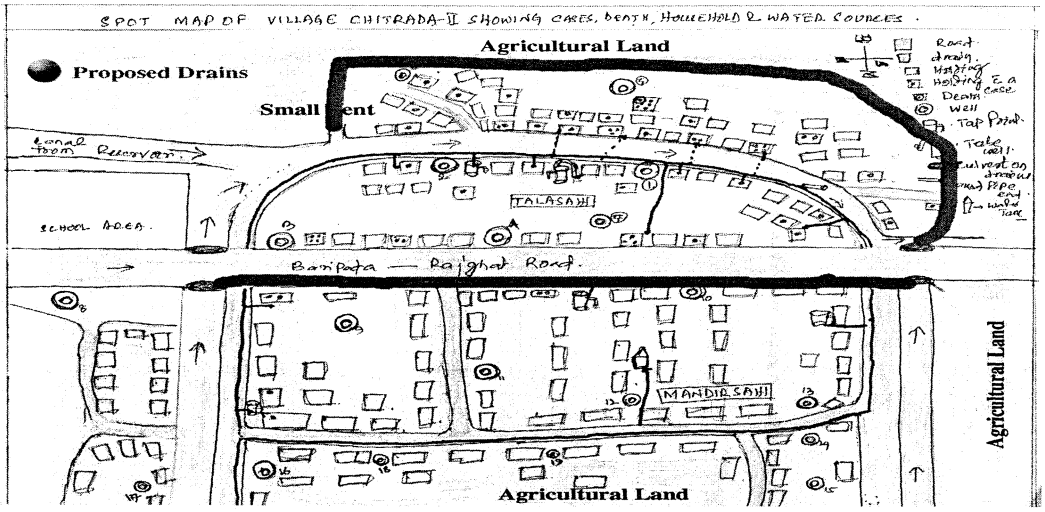
-The people may be financed through some system to have individual latrines at their own home.

-Repair of platforms of tube wells and wells.

-Sealing of all the punctured sites in the main pipeline of the RWSS water supply system.

-Provide taps to regulate the out flow and check outside contamination

-Divert the canal water or drain water through some other way so that the village road will be saved as shown in the map.


SPOT MAP OF VILLAGE CHITRADA-II SHOWING CASES, DEATH, HOUSEHOLD & WATER SOURCES.
Proposed Drains
Agricultural Land
Small
ent
Tunnel Room Reservoir
SCHOOL AREA.
TALASAHI
Baripada — Rajghat Road.
MANDIRSAHI
Agricultural Land
Agricultural Land
Road
drain
Well
Tap Point
Tube well
Water Tank

SECTION : 4

CRITIQUING AND REVIEW OF

SCIENTIFIC LITERATURE

Critical Review Of Scientific Paper
Objective

To review the scientific literature on a community based study on New Born Care in Nepal

Title of the Paper

4.1 Cross sectional community based study on care of New Born Infants in Nepal.
Authors David Orsin and Team.
Review

Methods

Critically studying the paper

Study of related research papers and literatures

Collecting relevant demographic, health and health related informations of rural Nepal.

The description of this review has been made as per the sequence of the design of the paper.

Title

Title of the paper

Cross sectional community based study of care of New Born Infants in Nepal.

The title is good and comprehensive. It is short and reflects the topic of the paper duly. The respective relationships of the items in the title appear to be clear but the utilization of the word infant seems to be inappropriate. The title could have been "Cross sectional, community based study of New Born Care in Nepal".

Abstract

General Comments :

The abstract summarizes the key informations in the paper like objective, design setting, participants, main outcome measures result and conclusions. It has just not described the contents of the paper.

Objective of the study has clearly stated i.e. determining the practice of home based New Born Care of rural Nepal with an aim to recommend and to improve the strategy of Neonatal Care in rural Nepal.

A cross sectional retrospective study was done and the results were found about attendance at delivery by skilled workers, hygiene practices, maintenance of thermal conditions and immediate breast feeding.

The conclusions were more health staff or skilled workers are essential to attend deliveries, information to families about basic perinatal care, clean delivery practices, early cord cutting, wrapping of baby and avoidance of early bathing.

Where appropriate the abstract has used numbers like so many number of women gave birth at home in Nepal, 4893 (90%). Traditional Birth Attendants attended during delivery were 334(6%) in different situations and in different setting New Borns have been given different types of care and in each and every place number is duly used like New Borns wrapped with a cloth within half an hour 3482(64%), no of New Born that had been given bath within half an hour of birth 4992(92%), the number of New Born given bath within first six hours of birth is 99% and 91% of the New Borns were breast feed with first six hours.

Reader's Interest

As the language is simple and without any obvious jargons it can be understood without referring the total context or the body of the report. More or less all the aspects are in the body of the report which drags the reader to go into the details of the topic.

Length of the Abstract

There are 251 words including the title and name of the authors which is self-explanatory that it is within the standard limit.

The accessibility and acceptability of the rural institutions to the rural masses of Nepal has not been made clear whether they are sound enough financially to go there take the help of the health centers, purchase medicine and utilize it till they get cured.

Introduction

For one hypothetical reader the introduction starts at the correct level. It is not too specific or not unnecessarily generalized. The introduction appears to have not used any developed country or developing countries such a big work done in the past. But it shows some trend depicting that the Infant Mortality Rate is declining very slowly though the major reason being the Neonatal mortality. The major reasons being want of proper health care services by health staff or trained personnel during birth and postnatal period. 90% of the deliveries are conducted at home settings mostly by mother in law, other family members or by neighbours even. So a justification becomes imperative to know the background, style of home delivery, the knowledge, culture and practices. A detail study of all this things might have been chalking out an appropriate strategy and appropriate intervention to check Neonatal mortality there by reducing the Infant Mortality.

So in abstract the stress was more on study of care of New Born but in introduction there is little variation and the stress was more on appropriate strategy to reduce Neonatal Mortality. So now we are in constraint to go beyond anything other than describing New Born care practices in the rural Nepal amongst the cohort of women engaged for the trial.

Materials and Methods

Peculiarly it started with a heading Participants and Methods and sub-headings Setting and Study design.

Setting

The author has described the demographic profile, ethnicity i.e. more than (60 ethnic groups) geographical location and features, socio-economic status, communication, grassroot infrastructure, GNP, life expectancy, literacy, total fertility rate, early marriage and adolescent pregnancy. Though govt. of Nepal has started integrated primary health care in 1970 the system suffers from unfield post absenteeism short fall in equipments, drugs and human resource development.

Study Design

It is a cross sectional descriptive study. Informations were collected from women of recent delivery. Ethical aspect of the study has been taken due care and cleared from Nepal Health Research Council and from Institute of Child Health and Great Ormond Street Hospital, London. Much time and attention were given developing the questionnaire and getting written consent from the village head and oral consent from the individual participants.

For data analysis a standard software package is used.

Comment

The study design is apparently clear with clear description of materials population under study and the respective denominator. The description of the method is also optimal. The flow of events is also adequately described. Excluding the two sub heading setting and study design more sub heading could have been used to create easy reading and easy understanding for a reader. With presentation of facts in figures it impresses the reader regarding the quality and authenticity of the study.

Results :

This section almost answers the research questions in logical manner. It also tells satisfactorily queries regarding selection of population their denominator taken due care for recall bias etc. the sub headings dealt in the section are skilled attendance at delivery, cleanness and hygiene practices at child birth, thermal control, breast feeding and ethnic group comparison. To describe this section four tables have been utilized. The first table for place of birth and birth attendant. Second table for a hygiene practices at delivery like instrument used for cutting umbilical cord, dressing applied to umbilical stump and cloth for wrapping the baby. Third table for practices related to maintenance of worm chain for New Born like heating of birthplace, time to wrapping of baby and time to bathing of the baby. The fourth table is for type and timing of the first feed like New Born's first feed and time to first breast feed.

In table no. one the important feature is home delivery is 90%(80% inside home + 10% yard of homes and 2% of the deliveries are conducted by doctors, 4% by nurses and 1% by ANMs. In table no. two the instrument used in 36% of the deliveries to cut umbilical cord is sickle or wood knife. Coming to dressing of umbilical stump nothing is used in 73% of deliveries and for wrapping of the baby old washed clothes are used in 70% deliveries. In table no. three wrapping of the New Born within half an hour constitute 64% and bathing of the baby within half an hour constitute 72%. In table no. four mother breast milk is given in 85% of New Borns and only 63% of the New Borns are given mothers milk within one hours.

Discussion

In this section the important research questions and the unimportant research questions are also dealt with a logical manner. The most important aspect of study results are discussed prior to the less important results. Two things are taken into consideration. One is what is already known on this topic and the other is what this paper will add more to the topic. Most birth in the rural South Asia occur at home. Neonatal mortality has remained fairly constant though IMR has gone down.

In rural Nepal doctors conduct 2%, nurses 4%, ANMs 1%, health assistants 1% making the total 8% of the total delivery which tells 92% of the total delivery conducted by the help of unskilled or partial skilled personnels. Hygiene is often compromised and traditional practices of giving a bath to the New Born makes the New Born more risky of Hypothermia. Cord cutting implements were often uncleaned and drying and wrapping of New Born was usually delayed. 99% of the babies were breast feed 92% of them within 6 hours of birth and colostrums was generally given. Intervention need to focused on educating women about hygiene, encouraging an early wrapping and delaying bathing of New Borns.

The interpretation and generalisability of the findings may be with some recall biasness which was avoided by confining the analysis to the pregnancies occurring during the last one year. So the discussion is made here as per the following subheadings.

Assistance with child birth

Hygiene and warmth

Infant feeding

Summary

In short the section tells in rural Nepal use of skilled birth attendant and government primary healthcare services for child birth is uncommon.

Hygiene is often compromised clean delivery practice is lacking but the use of razor blades to cut cord is positive sign.

The traditional practices ensures that both mother and child are kept in an environment of warmth during peuripurium and so also the habit of breast feeding. Almost all the mothers in Nepal breast feed their baby and the concept of powder milk is minimal. In many a place colostrums is discarded partially. Washed old cloth are used for wrapping the New Born is a very good practice.

Out of the harmful traditional practices exposure to situation of Hypothermia (waiting for the placenta to deliver before umbilical cord is cut) and then the New Born is wrapped. Tendency to bathe the New Born soon after birth.

The paper admits of recall biasness and prevention has been taken by including the pregnancy of the past one year only.

Conclusion

The study was able to identify important information about New Born care practices in rural Nepal that will assist in planning health interventions to change the behavior of the rural people. The important recommendations are delivery by skilled persons, conduction of delivery in hygiene condition, avoiding delay in wrapping the New Born, delaying in giving bath to the baby.

Observations by the Reviewer

This is a cross sectional community based study done in rural Nepal full of hilly terrains and inaccessible areas. So the team deserves commendation for their work. A Similar study has been done by the Britain Nepal Medical Trust in Khotang District in 2000 coroborates this study. The study population is women of reproductive age group in 278 households and the results are like this; 60 % mothers had pregnancy before 20 years, 72 % had no antenatal checkup. 70 %

Of deliveries are conducted by untrained persons, 23 % of deliversies had no supports, 71 % of

deliveries are conducted in unclean settings.

Nepal at a glance

Population, mid-2001	23.5 million
Average age at first marriage, all women	16 years
Birth attended by skilled personnel	11 %
Total fertility rate (average number of children born to a woman during her lifetime)	4.8
Females giving birth by age 20	52 %
Children who are exclusively brestfed at ages less than 6 months	74 %
Contraceptive use among married women, ages 15 – 49 modern methods	26 %
Abortion policy, 2000	Prohibited, or permitted only to save a woman,s life

Sources : Population reference a Bureau – 2002 woman of our world; 2001

World population data sheet; The world youth, 2000; and 1999 Brestfeeding patterns in the Development world (see http://www.worldpop.org/datafinder.htm)

After going through the related scientific papers, this paper and the information gathered from other sources about Nepal, the following recvomendations are made to develop newborn care in rural Nepal.

Good political will for efficient and effective health delivery in rural situations.

The existing culture of rural Nepal like brest feeding, use of colostrums, should be Highlighted.

The minimum age of marriage should be increased to 18 years instead of 16 years (present average age atirst marriage)

IEC activities should be geared-up for room-warming and raping with washed dried old cloths.

When Institutional deliveries are not feasible home birth not to be discouraged but to be conducted with appropriate perinatal care and by skilled attendants.

The mother-in-laws takes a very pivotal role in decision making and acting as a birthattendant also. So they should be trained or at community level efforts should be made to upgrade their skills.

Out of different ethenic groups it is seen that amongst the richer ethenic groups the institutional deliveries are more. So it is likely that finance plays a major role. So women empowerment is to be thought over and to be implemented if possible.

Female health volunteer concept is working well in Nepal and they should be utilised imparting health education in the community for the core issues like raping of new born, breastfeeding, clean delivery practice etc.

4.2 Randomised controlled trial of aminosidine (Paromomycin) Sodium stibogluconate for

treating visceral leishmaniasis in North Bihar, India.

Authors:- T.K.Jha, Polliaro, C.P.N.Thakar, T.P.Kanyok, B.L.Singhania, I.J.Singh, S.Akhourg, S.Jha.

Title: The title is very clear and self explanatory. It expresses many things at a time.

Type of study

Name of the drugs to be Compared.

Name of the disease.

Name of the Place with region

Abstract:-

The abstract is a structured one and with different sub- headings.

There are around 234 words which is within normal timits.

Objective:-

Very clear that is to assess the efficacy and tolerability of aminosidine compared with sodium stibogluconate for treating visceral leishmaniasis.

Study Design:-

Clearly expressed all the components of the study design:-

Randomised Controlled trial.

Unblinded

Follow up Period of 180 days.

Setting:-

The Minutes of the setting is spelt out. Some important points duly described in the text are touched in the abstract like setting subjects, interventions and main outcome measures.

Result Section:-

This section of the abstract deals with numbers and percentage wherever necessary.

Some important points duly described in the text are touched in the abstract like setting subjects, interventions and main outcome measures.

Conclusion:-

The Conclusion section of the abstract is consistent with the conclusion and gives a clear message.

The abstract is nicely written with required number of words representing the zist of the whole study. It leads the reader to go deep into the article.

The Text:-

The whole text is written with 5 major headings like Introduction, Methods, Results, discussion and conclusion with different sub – headings.

Introduction:-

In Introduction section the first paragraph speaks the disease Scenario in Bihar and the Preventing treatment with the drug Pentavalent Antimony Compound, not responding well and in 25% Cases it is showing failure. So there is increase in morbidity and mortality and waste of money even in higher doses and for longer duration also. So the need for an alternative drug has become essential for the state.

Now- a - days Injectable aminosidine has been tried in African countries like Kenya Sudan, and Bihar in India. It became very effective when combined with Antimony Compounds especially in cases of visceral Leishmaniasis. The Combination drug is well tolerated and with no major side effects. But no satisfactory data is available on Aminosidine alone.

This Induced the Authors to have this clinical trial with the Following objective.

1. To determine the eficacy and safety of Aminodinosine if given alone.
2. To determine the optimum dose for a fixed duration of 21 days in comparison with a standard treatment.

Methods The study was undertaken in the center of a hyperendemic zone of Leishmaniasis. Patients were randomly assigned to one of the four arms of the treatment trial. Patients were hospitalized for treatment and even after discharged followed up at

30,90 and 180 days.After completion at each fallow up were tested for parasite burden and lab investigations were done for Blood chemistry, hematology, Prothrombin and Bleeding time and urine analysis.

Inclusion Criteria:- Patients with age group – 6 –50 years with signs and symptoms suggestive of visceral Leishmaniasis.

Aspiration of spleen or bone Marrow + ve for amastigote of Leishmania.

Eligible to be in the study if they give signed informed consent.

Exclusion criteria

Known allergy to Aminoglycoside.

Treatement with a drug in the previous 12 months with recognised or presumed antiLeishmanial action

Serious concomitant disease.

Pregnancy or Lactation (pregnancy test at initial assessment)

Critically ill from Leihmaniasis.

Failure to agree to return for a follow up evaluations.

Ethical Issue:

The study got all formal ethical clearance from concerned Authorities and the study was conducted in accordance with the declaration of Helsinki.

Efficacy Variables:

Primary parameter of Efficacy is CURE.

clinical Improvement

parasitological improvement persisting for 180 days after completion of treatement.

Clinical Improvement:- It is defined as improvement in one or more clinical signs.

Increase in Body wt. – 2Kg

Hemoglobin concentration by 20g/L

Increase in white Blood cell count by 1X10/L

Albumin concentration – 5gm/L

Reduction in spleen size – 40%

Parasitological definitions of Efficacy cure:- Negative aspirate for Leishmania amastigotes after treatment is completed.

Improvement:- Reduction of parasite ---- > =2grades after treatment is completed.

Failure:- Reduction of parasitic load by < 2 grades.

Relapse:- Positive aspirates after initial conversion to negative aspirates.

Statistical Method:- Totally 120 patients were enrolled and to each arm 30 patients were allotted. All the 120 patients were also included in the analysis with intention to treat.

Analysis:- Following statistical tests were used for analysis:- Chisquare Test –

Paired "t" test, Tukeys honest significance difference. All results were assessed at a significance level of P = 0.05.

Data quality assurance

Sources were verified, Values were keyed in using Data Base – III and doubly checked at the chinical site.

Checks were made with SPSS for windows were made after transferring the data to Geneva for Analysis.

Assignment: Treatment was unblinded. Patient eligibility was evaluated before randomization to treatment with a computer generated randomised list.. The doctors assessing clinical efficacy were unaware about the dose of aminosidine and laboratory technician, assessing laboratory measures of ethicaly were unaware of the treatment administered.

Results: In this section authors have elaborated.

Subjects: Patients disposition and baseline characteristics.

Efficacy evaluation: Overall assessment and parasitological outcome.

Changes from baseline : Comparison within the group and comparison between the groups.

Safety Evaluation:

All the findings were presented in five tables as follows:

Table1	Selected Baseline characteristics of patients visceral leishmaniasis by treatement.
Table 2	Overall efficacy of treatement for visceral leishmaniasis

Table 3	Parasitological measures of efficacy of treatment for visceral leishmaniasis
Table 4	Changes in baseline values in measures of efficacy of treatement for visceral leishmaniasis on day 21(end of aminosidine treatment) and 30 (end of stibogluconate)
Table 5	Changes from Baseline values in measures of safety of treatment for visceral leishmaniasis on day 21(end of aminosidine treatement) after start of the treatment.

Discussion: in this section authors have mentioned about the reference of the study.
strength of the study with comprison to other studies.
Weakness of the study.

Taking the strength into consideration, they have recommended to adopt the treatement of visceral leishmaniasis with aminosidine 16mg/kg/day/1m for 21 days.
Critical Review: Basing on the findings – The study has shed a new hope in the endemicity of visceral leishmaniasis in Bihar.

Findings that led the authors to strongly recommend the drug:
Aminosidine 16mg or 20mg/kg/day X 21 days were significantly more efficient for final case than Aminosidine 14-16 mg/kg/day for 14-19 days above or with stibogluconate 20 mg/kg/day X 30 days.
Aminosidine has a low rate of adverse reaction like ototoxicity, renal toxicity and was well tolerated.
Aminosidine 16 mg/kg/day for 21 days. 1M to be taken as a First Line Treatment in the treatment of visceral leishmaniasis leading to Final care.
Coming to some other critical observations in the paper.
Objective: In Abstract: To assess the efficacy and tolerability of aminosidine compared to sod. Stibogluconate.
In introduction of text: Efficacy safety of aminosidine to establish optimum dose for fixed duration.

Ethical Issue:-

Ethical acceptability of randomisation. Any randomised trial to be accepted-ethically. If at a time different arms of treatment are administered and one is apparantly superior category in comparison to the other then one group should not be deprived of a better treatment option. Standard Protocol of Treatment- was Antimony compound (Sod. Stibogluconates). At the start of the study clinicians were not sure which arm of Treatment is superior as the African studies has not shown any specific message, so ethical devotion may not be a valid point.

Informed Consent:-

Here signed informed consent has been taken.The usual practice being informed consent, where the study subject is explained the pros and cons of the trial in his own understandable simple language. Then if someone agrees to participate in the study is said to have given informed consent and that the patient freely chooses to be in the trial.

In this study it is becoming ambiguous how written consent was obtained from a child of 6 to 18 years, whether parents were involved in the process of giving consent for their kids.

Blinding:-

Blinding gives strength to a study and helps to avoid biases. The study was not blinded. Both the nurses and patients were knowing what drugs they are taking respectively. The eligibility of the patients to be included in the study were evaluated before randomization to the treatment with a computer generated randomisation list.

The authors have admitted that though it was unblinded the doctors judging clinical efficacy and the Laboratory assistants assessing the laboratory measure of eficacy were unaware about the doses and the drugs.

Treatment Regimon:-

It was very clearly elaborated. Each group were treated by drug (no placebo) and there was no untreated group. The control group was with the available standard drug-Antimony compound (sod. stilbogluconate)

The treatment regimens of the four arms:

Aminosidine 1 M at a dose of 12 mg/kg/day for 21 days.

Aminosidine 1 M at a dose of 16 mg/kg/day for 21 days.

Aminosidine 1 M at a dose of 20 mg/kg/day for 21 days.

Sodium stibogluconate 20 mg/kg/day to a maximum of 8.5 ml/day for 30 days.

Results:-

To find out Potential patients from the general population, 2007 suspected patients were screened between June as Visceral Leishmaniasis. Only 120 patients fulfilled the inclusion criteria (Table No –1).

The key messages and adverse reactions recorded are duly represented in separate boxes.

Out of 120 patients one had defaulted giving no impact to the study result.

During analysis patients were kept in their original assigned group (intention to treat)

The presented data is sufficient to reach a conclusion.

Confidence interval has not been reported only significance level is assessed in all occasions. P=.005.

Laboratory findings inferred that results are biologically possible.

Though some studies were taken in Sudan and Kenya, similar study findings are lacking.

Authors have recognized the efforts put forward by contributions and references also given duly.

Conclusion and recommendations:-

50% of Kalazar (visceral leishmaniasis) cases of the globe are seen in India, that is to 90% of these are seen in Bihar. Within few years this pentavalent antimony compound is not responding in 25% of cases – giving rise morbidity and mortality and loss of man days. So there was a bare need for a suitable drug.

At this juncture authors have gone for a justified study to determine the efficacy and tolerability of aminosidine in "Visceral Leishmaniasis" is a valid maneuver from both clinical, Public Health and for the economic aspect of the state also.

Though it was tried in Africa, alone, or with Antimony, valid data were not available to prove the efficacy of Aminosidine. So it came to the mind of authors if Aminosidine alone can be helpful.

Aminosidine alone was tried for 16 mg/kg/day intramuscularly for 21 days. The effect was marvellous and additional advantages of Aminosidine over Antimony are:-

Lower overall burden to health system.

Low cost of the drug.

Shorter period of treatment and hospitalisation.

Recommendations:-

Public Health Scientist should view the findings seriously to have more study on the efficacy and tolerability and optimum dosing of aminosidine to give the state of Bihar and the Medical Community a new ray of light.

4.3 Zinc Supplementation in young children with Acute Diarrhoea in India.

Abstract :

Objective:- To evaluate the effects of daily supplementation with 20mg of elemental zinc on the duration and severity of acute diarrhoea in young children.

Design : Double blinded randomised control trial.

Setting : Kalkaji Neighbourhood of New Delhi, India.

Partcipants : 937 children 6-35 months of age with episodes of diarrhoeal disorders.

Results :1.There was 23% reduction (95% confidence interval, 12-32%) in the risk of continued diarrhoea amongst the children who received 20mg of elemental zinc.

2. There was reduction in the risk of continued diarrhoea

First 1-3 days - 7% (95% CI, - 9 to 22%)

after 3days - 38% (95%CI, 25-48%)

3. It is also seen that if zinc supplementation is initiated 3 days of the onset of diarrhoea, there was 39% reduction (95% CI, 7-61%) in the proportion of episodes lasting for more than 7 days.

4) In the supplementation group, a decrease of 39% (95 CI, 6-70%) in the mean number of watery stools per day(P=0.02) and a decrease of 21%(95% CI,10-31%) in the number of days with watery diarrhoea.

5. The severity and duration of diarrhoea is less in children with stunted growth than children with normal growth.

Conclusion :The duration and severity of diarrhoea decreases in infants and young children with supplementation of zinc.

Critical Review :

The title of the paper is not complete. It has stated that the trial is only for young children but the infants are also included in the trial so the title could have been "evaluation of zinc supplementation in infants and young children with diarrhoea in India - A double blinded randomised control trial" instead of "zinc supplementation in young children with acute diarrhoea in India." The abstract section is interesting and makes the reader to go

further into the article as diarrhoeal disorders are constant features in developing countries like India where malnutrition and low immunity status may be associated with zinc deficiency. Some ambiguity is existing regarding the study subjects.

Introduction :

-Critical review of relevant literatures have been made.

-Present study has been done by supplementing elementary zinc to infants and young children with diarrhoea in addition to oral rehydration and usual diet.

The hypothesis is "Evaluation of effect of zinc supplementation on the duration and severity of diarrhoea in infants and young children.

Methodology : Double blinded randomised control trial

Study Area--Kalkaji Area , New Delhi.

Subjects selected - children of 6-35 months age group residing at Kalkaji area New Delhi who were reported to have passed unformed stool 4 times within last 24 hours or who were having diarrhoea for last seven days.

Exclusion criteria :

* Adjudged by physicians to be admitted to the hospital as suffering from Malnutrition.
* Children coming to the clinic for a second time
* Parents denied consent.

Zinc Supplementation :

Zinc supplementation was given to children who had >7% dehydration as clinically assesed and later referred to AIIMS for rehydration.Supplementation to cases at home with mild dehydration or no dehydration has not been spelt out clearly. Ethical committee clearance was taken from AIIMS, John Hopkins school of Public Health and WHO.

Written consent was obtained from the parents after reading and understanding the consent form. A base line assessment was done with detailed physical examination, height, weight, length for children less than 24 months old, for hydrated children examination was repeated after due hydration, venous blood sample for estimation of zinc levels.

Randomisation and Blinding :

Randomisation was done with permuted blocks of 10 and the children were categorised into 4 categories.

* Those with a z score of -2 or greater for weight for length who were partially or exclusively breast fed (stratum A1)
* Those with z scores below -2 who were breast fed (stratum A2)
* Those z scores below -2 or greater who were not breast fed (A3)
* Those with z scores below -2 who were not breast fed (A4)

Within each stratum, children enrolled were assigned sequential numbers indicating whether they would receive zinc or placebo.

The solutions were indentical in appearance and taste. The code which was kept by WHO personnel was not available to the investigators until the end of the study.

Intervention :

Both types of liquid preparation were made by sandoz India (Bombay) Each daily 10ml doses contained.

Vita A - 1600 units.
B1 - 1.2mg.
B2 - 1.0 mg.
B6 - 1.0 mg.
D2 - 200 I.U
E - 6 mg.

Niacinamide - 200gm.

The zinc preparation contained zinc gluconate (20mg of elemental zinc) .The dosing pattern from 6m to 35 months is not clear. The compliance was almost equal in both the groups.

75% - Supplementary Group.
79% - Control Group.

Method of Data Collection :

By giving follow up home visits .

On every 5th day a health worker visits the house and gets information regarding the no & consistency of stools for each of the previous 5 days.

Period of DATA Collection :

September 1992 to Nov. 1994.

Subjects : 960children. 13 did not give consent making the group 947 out of which 462 were assigned to the supplementary and 985 were to the control group.

Definition :

A day of diarrhoea - Defined as the passage of four or more unformed stools in 24 hours.

Episode of diarrhoea - considered termination on the last day of diarrhoea, that wasfollowed by a 72 hours diarrhoea free period.

A day with watery stools was defined as the passage of 3 or more watery stools in 24 hours.

Analysis :

Statistical analysis was done using SPSSPC + (Version 6.0) Epi info (Version 6.0) and SAS (Version 6.08) software.Relative risk and 95% CI were estimated by Taylor series method.

The total duration of episodes were modelled with cox survival regression with a time dependant co-variate. (PHREG in SAS 6.07 on a VMS main frame.)

The number of children in each stratum is given but the break up of supplementation group and control group is not given .937 children were included for survival analysis and 931 for analysis of total duration of diarrhoea.

Result :

The baseline characteristics of the children in both groups are similar and o.4% of each group were breast fed . The social economic status of both groups are similar.

* Out of 931 episodes of diarrhoea 44.4% resolved within 3 days after enrolment and 83.5% resovled by day 7.

* Supplementation with zinc was associated with a 23% reduction in the risk of continued diarrhoea on any given day.

* There was 25% reduction in children with stunted growth and 27% for those who had low plasma zinc concentration.

* Using kaplan - Meier curves the estimated RR of continued diarrhoea in the supplementation group as compared to the control group was 0.93 (95% CI 0.78 to 1.09)during 1st 2nd and 3rd day of supplementation and 0.62 (95% CI, 0.52 to 0.73) after day –3.

* Using logistic reqression model, the OR for diarrhoea lasting >7 days are 0.79 with zinc supplementation (95% CI, 0.64 to 0.96)

* When the children were enrolled on day 3 of the episode of diarrhoea the OR was 0.74 (95CI, 0.57 to 0.95)

* There was a 39% reduction (95% CI, 6-70%) in the mean number of watery stools per day in the supplementation group (p=0.02),significant and a 21% reduction (95% CI, 10-31%) in the no days with watering stools.

* The effect of zinc on the number of days with watery stools was greater in children with staunted growth than with normal growth, RR 0.59 (95% CI, 0.48 to 0.73) and RR 0.95 (95% CI, 0.79 - 1.15) respectively. The analysis is able to focus the importance of zinc supplementation in children with diarrhoea.

Discussion : Zn supplementation was associated with important clinical & statistically significant over all reduction of 23% in the risk of continued diarrhoea and a 39% reduction in frequency of episodes persisting more than 7 days after treatment began. It also resulted in a 21% reduction in the number of days with watery stools and a 39% reduction in the mean number of watery sools perday.

So the importance of zinc supplementation in normal children, staunted growth children with diarrhoea and the children with low plasma zinc concentration is optimally adequate.

In some previous trials the findings were not clinically or statistically significant about the role of zinc in diarrhoea.

Studies form different developing countries have shown that dietairy zinc defficiency is highly prevelant amongst pre school children and so also in India - by consumption of low meat and diary products the easily available source of zinc and more consumption of phytates that blocks the bioavailability of zinc.

The authors have also admitted the weakness of the study,the effect of zinc supplementation could not be measured on dehydration because oral rehydration was given from the day of enrollment.

Few visits were made to assess the morbidity.

Some advantages were also achieved by allowing the children to be in their own home environment & with their usual diet. But this pratice might have limited the precision of the information on daily basis.

Zn helps in improved absorption of water and electrolytes by the intestines, regenerating gut epithelium or restoration of its function. increase levels of enterocytic brush border enzymes, enhancing immunogenic mechanism for clearance of infection, including cellular immunity & higher level of secretory antibody. Supplementation of zinc with vitamin A play a greater role in preventing or treating highly susceptible population, thereby reducing morbidity and mortality due to diarrhoea in children. But more studies are to be done to focus on the role of zinc on hydration, the means of providing zinc in diarrhoea, the source of zinc and how to increase the zinc intake amongst the rural foolks.

4.4 Literature review

Factors Affecting Utilization Of Childhood Immunization Services In A Block, Khurda District, Orissa.

INTRODUCTION

Immunization plays a major role in offering protection against the infectious diseases and helps in assuring healthy human living and development. Childhood immunization is one of the outstanding public health achievements of a developing country like India. The first immunization programme in India was launched in 1940s for vaccination against small pox. In 1962-63 Government of India launched BCG[5] vaccination for 0-20 years of age as a preventive component to National Tuberculosis Control Programme. After achieving the expertise on indigenous production of BCG vaccine in 1967-68 Government of India went ahead with launching of EPI, UIP, introduction of Measles vaccine in the schedule in 1985 and introduction of '0' dose polio in 1989-90. During 1990-91 Universal child immunization [5] was achieved and introduction of National Immunization Day for Pulse Polio was launched during 1995-96.

4.2 Epidemiology of the Vaccine preventable diseases

4.2.1Global Morbidity due to vaccine preventable diseases: High vaccination levels in the population are necessary to decrease disease transmission and prevent the occurrence of childhood diseases. But at different country level it is not becoming feasible to cover the whole target population there by giving rise to a huge burden of VPDs through out the world[13]. World Health Organization (WHO)/United Nations Children Emergency Fund (UNICEF) estimate for 2002 report the prevalence of polio to be minimum (1918) and highest for measles (5,85955) globally.

Vaccine preventable diseases are major killers through out the globe. Globally measles is the major killer[3] (7,45,000) followed by Pertusis, Tetanus, Diphtheria and Polio. Globally 132 million infants need to be fully immunized each year but almost 34 million children (26%) do not have access to immunization services. Among all the WHO both Sub Saharan Africa and South Asia are the major contributors for the not–

fully immunized children in the globe, the least contributor being the Central/East Europe. However, around the globe the immunization status against the six vaccine preventable diseases was about 74% in 1998 as compared to 5% in 1974.[12]

4.2.2 South East Asia Region (SEAR) scenario

SEAR contributes a major share to the VPDs load of the globe[13] due to low socio-economic status, low literacy rates, low per capita income and lack of sustainability of immunization coverage of the member countries. WHO/UNICEF estimate for 2002 were highest for measles being 78,333 and the lowest for polio (1600).

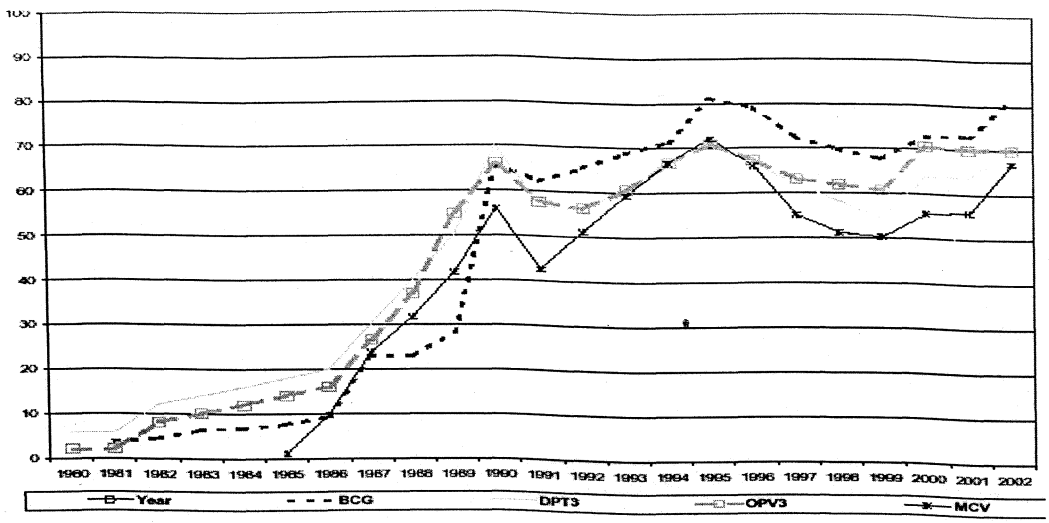
4.2.3 Indian scenario:

Ministry of Health and Family welfare, Government of India, New Delhi and Unicef[14] Conducted an evaluation of immunization in the year 2001-2002 and estimated an decrease in immunization coverage from 68% 1996-1997 to 38% in 1999-2000. The evaluation showed that the coverage level for fully vaccinated were over 80% in Tamil Nadu, Kerala, Maharashtra and Karnataka. It was in the range of 60-80% in West Bengal, Madhya Pradesh, Punjab, Delhi and Andhra Pradesh. In Uttar Pradesh, Jharkhand Rajasthan and Bihar < 30% of infants were fully vaccinated.

In India the progress made under the UIP was impressive and in 1990 India achieved Universal Child Immunization (Minimum 80% coverage of infants). Nearly 22 million infants[4] are reported to be receiving full courses of immunization annually since then. But the evaluated coverage for the fully immunized children revealed a complete different picture. The coverage decreased from 68% in 1996-97 to 38% in1999-2000[4]

The Indian scenario of vaccine preventable diseases has improved much after the launching of UIP. Due to multiple factors the vaccination programme coverage is not becoming sustainable there by giving rise to more number of cases. In India immunization showed steady increase coverage from 1980-1989 (Fig:1). (WHO/UNICEF review of national immunization coverage, June – 2003) [15]. But from 1996-99 the coverage declined even to 50% in case of Measles, 60% in case of DPT3, 60% for Polio and 70% for BCG. Diseases reappear when immunization coverage drops[16]. Hence the VPDs are remaining as a big Public Health problem in India.

Fig: 1 Immunization coverage status of Polio, DPT, BCG and Measles in India from 1980 to 2002



4.2.4 National Immunization Programme in Orissa:

The programme runs in the state as per the directives from Government of India .It is implemented in all the 30 districts of the state through 314 Block level Primary Health Centers (PHC), 79 Urban family welfare centers, 157 Community Health Centers and5927 health sub centers .Now immunization sessions are taken up in every village once a month on a fixed day. The vaccination coverage[9] for the state is shown in Table 1.

Table 1. Immunization coverage in (%) children of 0-1 year of age, Orissa 1998-2002

VPD	1998-99	1999-00	2000-01	2001-02
Measles	89.8	84.5	93.4	88.4
BCG	96.8	104.3	107.5	98.5
Polio	101.0	92.8	105.0	97.3
DPT	101.0	92.6	98.0	97.8

The vaccine coverage shown is up to the mark and the coverage of measles is maintained above 84% always. There is decline in the immunization coverage is marked from 2001-02. After so much effort it is observed that 34 million children are not fully immunized globally[11] and 2.3 million children still die each year from vaccine preventable diseases[11]

Despite enriched with recent advances in vaccine delivery, the goal for Universal Immunization set in 1977 has not been reached in U.S. In 2001,only 77.2% of U.S. toddlers had received their basic immunization .[17] A Measles outbreak in United States in 1989 led to123 deaths-ninety percent of those who died had not been immunized.[18]

Evaluation of factors influencing vaccine uptake in Mozambique

F.T. Cutts and colleagues[19] (1989) presents the result of a study in Southern and Central Mozambique. The objective of the study was to evaluate the vaccine coverage and to find out the factors responsible for percentage of low coverage of immunization in the rural and urban areas.

Thirty clusters of seven children aged 12-23 months were selected using the expanded programme of immunization (EPI) sampling method. At the start of the work in each cluster, the area representative was interviewed about his knowledge regarding immunization .He then accompanied the interviewers to visit the seven children in the cluster. For each child, information regarding immunization was abstracted from the home based 'Road to health" card if available .If the "Road to Health" card was not available, then mother was interviewed regarding immunization status of the child. . Following this, an interview was conducted with the guardian of the child in the local language unless the respondent was fluent in local Portuguese. They also gathered information on length of residence in the area, literacy in Portuguese, membership of grass root orgnisations, knowledge about vaccination, target diseases and attitude to vaccinate an ill child.

It was found that vaccine coverage based on the "Road to health" card was 53% in urban areas ,60% in Rural areas and could be12% higher if a verbal history at vaccination was considered. A further 17% of children would have received effective vaccination if the correct schedule had been followed for all vaccinations given. Factors relating to the individual mother, child and factors relating to the clusters were investigated for their association with the vaccine uptake

Here they have defined the "Fully Vaccinated' child as having taken all the doses irrespective of timing (as the authors categorically spelt out that they were concerned with mother's compliance with the vaccine programme and not the effectiveness of the programme). The unvaccinated group included incompletely vaccinated and never vaccinated.

The personal and the local variables were considered for association with vaccine uptake individually. Out of the local variables only one became significantly associated with vaccine uptake in urban areas was the number of days per week the vaccination was available at the nearest health center .Of all the local variables in rural sample only one factor was significantly associated with vaccination is the speaking power of the local representative in Portuguese.

Those showed a strong nagative association included vaccination on offer at the nearest health post but remains open for a few number of days, cancellation of immunization sessions, knowing a child with post vaccination abscess, child born at home,. at least five children in a family and mother's inability to speak Portuguese.

They have recommended improvement in supervision of health services, and immunization and making the vaccine center open at least 3 days a week.

An epidemiological assessment of immunization programme participation in the Philippines. Andrew M. Friede, Christine waternaux et al[20] present an epidemiological assessment of Immunization programme participation in the Philippines.

The objective of the study was to1)Characterize the children at high risk of not being immunized.2)Generating specific suggestion for a programme and for immunization programme managers in similar third world settings.

In 1980 the authors studied a free DPT Vaccination camp at Cavite a rural agricultural areas of phillipines.Astonishingly the attendance was very much low even if it was a free vaccination camp, which made the authors to investigate the causes how the attendance could be so much low even in a free camp which tallies with our situation of free vaccination camps. Five of the 7 villages of Cavite were introduced into the study having 100 families with 159 children. 14 were excluded as they were ineligible for immunization, 10 had been excluded for medical reasons and 4 were already been immunized earlier. So

lastly 94 families with 145 eligible children,with 50 families with one child, 37 families with 2 children and 7 families with 3 children were included.
The Background characteristics like age, sex, village of residence, mothers' education, no of pregnancies, order of birth and Parents knowledge about vaccination were asked.

They defined fully immunized if a child has taken two doses and partially immunized if taken 1 dose or '0' dose. It was seen that 37% were immunized and 63% non-immunized.
They opined choosing a day for vaccination is very much important and the time of the day, the season (harvesting season etc?) and the distance of the booth from the villages.. Taken individually the distance above .5Km and inappropriate time of the day significantly associated them with non-immunization.
Factors affecting immunization coverage levels in a district of India
Vinohar Balraj and colleagues[21]et al present factors affecting immunization coverage levels in a district of India.
The study was conducted in 1988 amongst 12-23 months of old children in North Arcot district of Southern India. In all the 12 towns of the district 30 cluster sample survey was conducted and in rural blocks out of 1590 panchayats 159 were selected systematically and all children were surveyed. (Panchayat is a rural local body of 2000 to 5000 population)
The immunization history was collected from the immunization card ,otherwise the information was obtained from the mother or a responsible adult female member of the family through an interview using a pretested questionnaire The respondent was asked who has given the individual vaccine doses and children were examined for BCG scars also.
Here the authors have not taken into consideration the immunization card, hence mother's recall or an adult female member's recall was the only source of information. Only 24% of the urban families were having immunization card and it was also found that the health workers information was highly unreliable. The authors have admitted another omission of not crosschecking the cards and parents recall in urban areas. But to this question earlier in a nearby district an evaluation has showed 85% concordance between mothers recall and the immunization register.
Actually when this coverage evaluation was done, the rural sector was well equipped with health staff due to the impact of EPI. But in towns no such facilities were there, but the

coverage was high in towns may be due to high income,better education and better awareness regarding immunization . They have better access to private immunization centers open all days a week. They had access to all vaccines much before EPI was launched.

So in rural area private clinics of immunization were non-existant., lower level of awareness, low access to health facility in terms of time and distance. But one thing has become very clear that total immunization in the villages tells that the infrastructure of immunization has touched the villages completely., no matter how difficult or isolated the terrain may be.But both the demand and supply are less in the rural areas which is a fact to be admitted in case of measles. Wide disparity was marked amongst panchyats. It was observed that the variations are due to population size, the proximity and access to the urban area.

In a system analysis of immunization programme, all activities of achieving the target coverage levels including establishment of infrastructure training of staff, supply of vaccine, syringe, needle, logistical support, cold chain, health education etc., These inputs' evaluation will show the efficiency of the programme ..

In reduction of morbidity, mortality, elimination of disease, eradication of infection, demand creation etc are the elements of output evaluation which will show the effectiveness of the programme..

Cluster Survey Evaluation of coverage and risk factors for failure to be immunized during the 1995 National Immunization Days in Egypt.

Mary.R.Reichler[22] et al present cluster survey evaluation of coverage and risk factors for failure to be immunized during the 1995 Natural immunization days(NID) in Egypt.

In 1995 Egypt continued to experience endemic wild polio virus transmission despite achieving high routine immunization coverage with at least 3 doses of oral polio vaccine (OPV) and implementing National immunization days annually for several years. They started the study with the objective:

To Estimate the coverage achieved during the 1995 NID,To evaluate risk factors for failure to be immunized ,To determine the effectiveness of mass media in promoting community awareness of the NIDs

As it was expected that the coverage could vary differently for distinct geographical areas it was designed earlier to divide the total Egypt to 6 sectors and to carryout a 30 cluster survey.

A standard questionnaire was used to collect information from a parent in each selected household for each child of 0-47 months of age. Information was collected on NID, OPV receipt,. NID center location, sources of information for the NIDs and routine OPV coverage. Vaccination data were ascertained by card and /or history.

A total of 4188 children residing in 3216 households were surveyed over all.

OPV3 coverage among the children in the survey population was high nation wide that is 93% with (CI-91.5, 94.6.)

Although greater than 80% of the target population nationwide was estimated to have received the vaccine, OPV during NID was estimated to be 84% in NID1 and 83% in NID2.

Coverage by stratum ranged from 78-86% for NID-1 and from 73-86% for NID-2.

Fewer than $3/4^{th}$ received both NID1 and NID2 –74% (95% CI:71.4,77.3),

17% -(95% CI: 14.6,19.7) received only one NID dose.

9% - (95% CI:7.1,.9.9) received neither of the NID doses.

It was also seen that previously partially immunized or non-immunized children were less likely to be immunized than the children those who have received 3 does of OPV in routine immunization programmes. prior to NID.

The risk factors identified for failure to be immunized during the NIDs are

More than lo minutes walk to theimmunization site 2)To be informed at least one day earlier3) Have a radio or television in the household to get due information.

About 53% of the parents told (53% of each round) that they were nor informed.

Small portion of the parents reported problems with vaccine delivery like absence of vaccinator,lack of vaccine, failure of NID staff to administer a sick child, long waiting time at the NID are very minimal that is 5% for NID –1 and 6% for NID-2.Other reasons are Too busy –10%, Sick child –11%,Fully immunized –4%, inconvenient time –5%, Vaccination site too far – 1%,NID Vaccination not important and being afraid – 0.5%.

The study concluded that the failure of NID to vaccinate the partially immunized and non-immunized children of the routine immunization programme (8% of NID Nation wide to

17% of certain strata) might have contributed substantially for the transmission of wild virus and these children were the real ones to be covered during NIDs.

As most parents told that they were not informed , a comprehensive multimedia operation was taken up and implemented by involving a number of changes to the original message. T.V., Radio, News Paper, Vans, Megaphones announcement on school, Mosques and churches.

Special Banners of National Immunization Sites with increasing visibility

One month prior improved short robost Soco(Single overriding communication Objective)

Steps to administer the doses to previously non-immunized or partially immunized children

Few studies are done in India to assess the immunization status of the children of India.They have studied the association of some factors responsible for non-compliance of childhood immunization services.

Padam Singh and R.J.Yadav [23](2000) conducted a Cluster Survey in 90 districts of India giving due representation to all the states and union territories.They found that 63% of the children are fully immunized,27% are partially immunized and 10% are non-immunized..They recommended further improvements are possible by targeting illiterate mothers,inaccessible and tribal areas and low performing states .

. B.J Selwyn[24] (1978) found out that amongst all the adverse factors, there is some evidence that. when economic and belief barriers are overcome the distance and the like factors become less important.

Rosenstock I.M[25] after studying the Poliomyelitis campaign in the United States for 27 years recorded that it is easier to make an extra visit than to change the beliefs of the people.

4. 3 SUMMARY

The prevalence of childhood VPDs is very high in India and other developing countries.The prime cause for increased prevalence of the VPDs are for non-compliance in availing the childhood immunization services.The proportion of fully non-immunized children are high in India and also in the globe..Out of the 34 million fully non-immunized children South East Asia contributes a major share.The Risk factors for non compliance in availing the childhood immunization services in Indian scenario can be summarized as :

1)Lack of Awareness that leads to non attendance at the immunization camp

2)Lack of Education amongst parents.

3)Low socio-economic status. Unable to go to the health facility headquarter if they fail in attending the immunization session once at their village..

4)Lack of motivation by peer group and health staff to play a better advocacy role.

SECTION: 5

PAPER PRESENTATION

5.1 Outbreak investigation of febrile illness in Badazode village, Mayurbhanj district, Orissa, 2002

Kamala Kanta Das [1] and Venkatarao T [2]

[1]Field Epidemiology Training Programme (FETP) scholar, [2] Assistant Director,
National Institute of Epidemiology (ICMR), Chennai - 31

Introduction

Between the last week of June and first week of July 2002, 58 cases of fever with or without vomiting and jaundice were reported from Badazode village in Mayurganj District, Orissa. The Joint Director of Health Services of Orissa requested the FETP Scholar to investigate probable fever outbreak and assist in containment measures.

Methods

The investigating team included the medical officers and other local health officials. Epidemiological investigation was conducted in the village using a standard questionnaire. Blood samples were collected from available inpatients for serological investigations. Based on clinical findings and case histories, it was hypothesized that the outbreak may be due to one of the following: acute Viral Hepatitis, Leptospirosis, or *Plasmodium falciparum* malaria.

Results

Index case was reported on 23rd June, cases started coming down from 5th July onwards, and the outbreak ended on 11th July 2002. Totally 61 cases were identified. Case fatality ratio was almost 15%. The epidemic curve indicated that it was a point source outbreak. There was clustering of cases around leakage points in the water supply system. Of the 403 blood smears collected by the local health staff, 8.4% was positive for malaria. One case was positive (out of 3 blood samples collected from inpatients) for leptospirosis by IgM ELISA method.

Discussion

The investigation brought out the following issues:

a) Problems associated with delays in reporting of outbreak
b) Multiple agencies involved in the outbreak investigation
c) Need for including leptospirosis and viral hepatitis in the surveillance system in Orissa
d) Need for strengthening of malaria surveillance

5.2 Secondary Data Analysis of Khurda District Orissa

Abstract:

Secondary Data Analysis of Khurda District Orissa

Background: In the context of better planning and implementation of health care delivery system in the district,analysis of secondary data of the diseases is needed.

Orissa is situated in the eastern region of India having thirty districts.The district Khurda takes a special position in the state for having the Capital city in its geographical territory having population of 1874405(2001 census) and 666 persons per square kilometre.

Methods:

A retrospective study of the secondary data available from all the government institutions that is 5 Block level PHCs ,3 CHCs and 3 UGPHC and a district headquarters hospital.

Results:

Morbidity due to infectious diseases are high in the district.The water borne diseases show more incidence during monsoon period.Generally the incidence goes up from 2nd week of June ,attends a peak by August last week or September 1st week and declines to reach the base line by October 2nd week.The over all incidence of Simple diaqrrhoea for the district is 3.2 %, highest in Jatani block,Severe diarrrhoea over all incidence for the district is 5.9 the highest being the Banapur block,Blooody diarrhoea it is 5.7% ,the highest being Banapur Block.,and 2.7% in malaria the highest again in that Banapur block also,Excl uding these diseases the incidence of diseases like ARI,Acute Jaundice Syndrome are also high in the district.

Conclusion:

Efective advance planning for the district to be done for the monsoon months specialy for the Banapur block and Jatani block.Through out the year Banapur block area to be monitored for better health programmes implementation.The surveillance data to be analysed weekly and necessary steps are to be taken accordingly.

6. References:

1. World Health Organization, The World Health Report 1999,Making a Difference, The Unfinished Agenda,Page number-20

2. WHO/V& B/99,17 WHO Vaccine Preventable Disease Monitoring System 1999 (Global Monitoring Summary)

3. Global Mortality from Vaccine Preventable Diseases. WHO Report. 2001

4. Document of the Technology Mission on immunization, surveillance,vaccine preventable diseases,1989

5. K Suresh,Immunization in India:Achievements,changing determinants and challenges,The National Medical Journal of India.,vol.16,supplement 2,2003,pp5-10

6. Report of the steering committee on Family Welfare for The Tenth Five Year Plan(2002-2007),Government of India,Planning Commission ,September 2002,Immunization,p68-70

7. NFHS I 1992-93

8. NFHS II 1998-99

9. Bulletin of Government of Orissa released on the state CDMOs conferenceon 8th and. 9th August 2002

10. Annual Report of Block level Primary Health Centre,Bhubaneswar

11. SRS Bulletin,Volume 36.No.1 April 2002.page1

12. Regional Immunization Profile,(Globe)Percentage of Tareget Population Vaccinated by antigen,WHO-UNICEF 2,Reported coverage estimation 2002,WHO/Vand B/03.20.

13. . Regional Immunization Profile,(SEAR)Percentage of Target Population Vaccinated by antigen,WHO-UNICEF 2,Reported coverage estimation 2002,WHO/V & B/03.20

14. Evaluation of Immunization 2001-02,Ministry of Health and Family Welfare,Gogernment of India,New Delhi,and Unicef.

15. WHO/UNICEF review of National Immunization Coverage.JUNE 2003

16. Nature reviews immunology 1:160-165(1st November 2001)

17. Increasing Immunization coverage PediatricsVol.112 No.4 October 2003,pp993-996

18. The case for Childhood Immunization, ,Mark Kane, Director Heidi Lasher,Advocacy,Communications and atraining Specialist, Children's Vaccine Programme at PATH,Occasional Paper#5,March 2002

19. F.T. Cutts ,L.C.Rodrigues,S.Colombo,and S.Bennet. Evaluation of factors influencing vaccine uptake in Mozambique. Int.J. Epidemiol 1989,Vol 18,No.2,pp427-433 Public Health Report. 1959;74:98-103

20. Andrew M. Friede, Christine Waternaux et al. An epidemiological assessment of immunization programme participation in the PhillipinesInt J Epidemiol 1985;14:135-41.

21. Vinohar Balraj ,Satish Mukundan.Samuel.R and T Jacob John. Factors affecting immunization coverage levels in a district of India. . Int.J. Epidemiol 1993; 22: No. 6 p1146-1153

22. Mary R. Reichler,Ahmed Darwish,George Stroh,John Stevention,MahomuoAbu Al Nasr ,Said Ali Oun et al Cluster Survey Evaluation of coverage and risk factors for failure to be immunized during the 1995 National Immunization Days in Egypt Int J Epidemiol 1998;27:1083-1089

23. Padam Singh, R.J. Yadav. Immunisation status of children in India.Indian Paediatrics 2000;37:1194-1199

24. B.J Selwyn. An epidemiological approach to the study of users and non-users of child health services. Am J Public Health.1978;73:384-88.

25. Rosenstock.I.M,Derryberry M,Carriger B.K..Why people fail to seek poliomyelitis vaccination.Public Health report1959;74:98-103

26. William G.Cochran,Sampling techniques,(Second Edition),Third Wiley Eastern, Reprint p 71-86

27.R.H.Henderson and T.Sundaresan," Cluster Sampling to assess immunization coverage: a review of experience with a simplified sampling method.,Bulletin of the World Health Organization,60(2):253-260(1982)

28.B.N.Murthy,S.Radhakrishna,N.G.K.Nair,R.Ezhil& S.Venkatsubramanian.,Estimation of immunization coverages in children by WHO 30 cluster survey.Indian J Med Res[A] 97,November 1993,pp 234-238

29. Training for Mid level managers,Evaluate vaccination coverage(World health Organization,Geneva)1979

30. Rohini P. Pande Social demographer International Center for Research And Women and yabdos Yazbeck, Senior Health Economist South Asian Region. "The World Bank" Beyond National Averages for immunization in India. Income, Gender, and Regional inequalities".

31. Davidson R Gwatkin and Garima Daveswar-Bahl September 2001 An overview of Socio–economic and gender differentials in developing countries.

32. Padam Singh P,Yadav R.J.Immunization status of children of BIMARU states.Indian Jun of Paediatr.2001 Jun; 68(6):495-500

33. Rees H,Buch E, Ferrinho P Del, G.M.Groenewald H.T.,Neethling A, S ,Immunization coverage and reasons associated with non immunization in Alexandra. S Afr Med J 1991;80:378-81---M

34. Alemu W,Woldeab M,Meche H,Factors influencing non attendance in the immunization of children in three selected regions ,Ethiopia,,July 1988,Ethiop Med J 1991;3:509-11

35. Twene-kodua A,Obeng-Quaidoo I,Abu K,Ghana social mobilization analysis,Health Educ Q 1991; 18:125-31

36. Ahluwalia I.B.Helgerson S.D.,Bia F.J.,Immunization coverage of children in a semi urban village pachayat in Nepal.1985 Soc Sci Med 1988;26:265-68

37. R.F. Brugha,J.P.Kivani and A.V.Swan.,International jounal of Epidemiology 1996,Vol 25; 4:840-45

38. Reaching universal child immunization by 1990. UNICEF,September 1989(parents education)