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Original Research Paper

Public Health

EVALUATION OF MALARIA CONTROL PROGRAM IN KOLKATA MUNICIPAL CORPORATION

Dr. Diptaman Nandy PGT, MPH SESSION-2012-14

KEYWORDS :

INTRODUCTION:

- Malaria is a potentially life threatening parasitic disease caused by parasites known as Plasmodium vivax (P.vivax), Plasmodium falciparum (P.falciparum), Plasmodium malariae (P.malariae) and Plasmodium ovale (P.ovale)
- It is transmitted by the infective bite of Anopheles mosquito.
- There are two types of parasites of human malaria, Plasmodium vivax, P. falciparum, which are commonly reported from India. Infection with P.falciparum is the most deadly form of malaria
- Malaria is one of the major public health problem in India.
- Around 2 million lab. confirmed cases & 1000 death due to malaria are reported in the country annually.
- Out of total malaria cases, 40-50 % is Pf.
- In the recent past there is considerable increase in the Pf% due to resistance to drug CHLOROQUIN which is used as the first line of treatment in malaria.
- EVOLUTION OF ANTIMALARIA PROGRAMME IN INDIA.
- 1953- The N.M.C.P. was launched with the strategy of
- I.R.S., Survey and treatment of malaria.
- 1958 - N.M.E.P. Was launched to eradicate malaria in 7 – 9 years.
- 1965- Malaria incidence in India came down from 75 million cases to 0.1 million and no deaths.
- 1968- Re-Emergence of malaria in India.
- 1977- M.P.O. was launched to control morbidity & mortality.
- 1995- Malaria Action Plan was launched, strategies are
- EDPT, Vector Control, IEC, capacity building multisectoral involvement and personal protection.
- National Anti-Malaria Programme
- 1999- Malaria Control Programme was renamed as National Anti-Malaria Programme
- Roll Back Malaria was launched by WHO with six strategies.

1) Enhanced diagnosis by new tests and treatment with combination drugs.
2) IT B N & Selective. vector control
3) Enhanced surveillance & responses.
4) Health sector development.
5) Community Mobilization.
6) Advocacy, New Drugs.

2003- N.A.M.P. was integrated with NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME (NVBDCP)

Malaria situation In Kolkata

The number of cases of malaria has fallen down sharply in the city in 2012. In the year 2010, a total of 96,693 malaria cases were reported from the city, while the figure dropped to 41,642 in the year 2011. In the year 2012, the malaria cases further has fallen down to 350147. No cases of death from malaria were reported in 2011 and 2012.

Objectives-

- To document and Measure the programme effectiveness through the different stages of implementation(input-process-output-outcome) of Anti Malaria Programme component Of NVBDCP and it's success in achieving the intended outcome.
- To Recommend and ensure use of the informations coming out of the evaluation process to bring positive changes and rectification in Anti malaria activities in Kolkata under NVBDCP to control Malaria there effectively and successfully.
- METHODOLOGY-
- STUDY DESIGN- Record based & interview based observational study.
- STUDY AREA- KOLKATA MUNICIPAL CORPORATION Area.
- STUDY POPULATION- Population of KMC Area (BR I to XV).
- STUDY PERIOD- MAY - JUNE '2013.
- SAMPLING DESIGN- Simple Random Sampling for population survey.
- DATA SOURCE- Records, Registers and Reports of MSOoffice, BOROUGH Officesand Ward health units. Data also collected from different websites of NVBDCP, MOH&FW, www.wbhealth.gov.in, population survey and survey of different tier's Health workers based on interview.

KMC Malaria Clinics

- BR I
- Municipal Dispensary, Chitpur
- BR II
- Hatibagan Dispensary
  Allen Market Dispensary, Malaria Detection Centre: WHU - 19, W.H.U. - 15, W.H.U. - 16
  M.D.C. At Nilmoni Mitra St
  WHU. - 20, W.H.U. - 12
- BR III
- Ultadanga Dispensary
  Rajabazar Dispensary
  Narkeldanga Dispensary
- BR IV
- Jorabagan Park
  WHU, Raja U Street
  Girish Park Clinic
  Sukia Street VAC, Centre: WHU - 26, WHU - 23
  WHU - 24, W.H.U. - 39
  WHU - 25, W.H.U. - 22
- BR V
- Bathakkhana Dispensary, Shraddhananda Park
  Nafar Kolay Dispensar, Bagola Clinic
  HQ - Br V, Surya Sen Street, WHU - WD - 36
  W.H.U. - 41, WHU WD 45
  WHU - 44, WHU - 50
- BR VI
- Taltala Dispensary
  WHU 60 + 61
  Haji Md. M.SQ Dispensary
  WHU - 46 + 47
- BR VII
- Gobra Dispensary, Tiljala Dispensary
  S. Roy Road Clinic, New Tangra Dispensary
  Palm Avenue Dispensary, Sundari Mohan Avenue Dispensary, Topsia Clinic HQ - BR - VII
- BR VIII
- Ballygunge Phari Clinic, Bhowanipur Clinic
  Vivekananda Park ward Office, Southern Avenue WHU, Ward No 85, W.H.U. - 68
  W.H.U. - 84, W.H.U. - 72
- BR IX
- Kalighat Dispensary, Khidder
- pore Dispensary

Chetla Dispensary, WHU - 84
- BR X
- Tollygunge Clinic, Cachtala Clinic
- BR XI
- Atabagan Clinic
- BR XII
- Ramlal Bazar Clinic
- BR XIII
- Barisha Matrisadan, Buroshibtala M.D.C.
- BR XIV
- Panchanantala (S.S.M.L. & Disp)
- BR XV
- Garden Reach Clinic, W.H.U.-141, VCD
- Evaluation definitions
- Evaluation
- Systematic investigation of the merit, worth or significance of an object.
- Framework for public health programme evaluation
- Systematic way to improve and account for public health actions by involving procedures that are useful, feasible, ethical and accurate.

From input to impact in a public health programme

Input: The human, material and financial resources invested in the programme

Process: The mechanisms by which the programme uses inputs to deliver

Otput : The product that the programme immediately delivers

Outcome: The immediate results obtained with the output of the programme (easier to measure)

Impact: The longer term consequences of the output of the programme (more difficult to measure)

LOGICAL FRAME FOR INPUT
- % Of medical officer, lab. Technician, health assistant in position.
- % of health facility able to utilise nvbdcp fund.
- % of health facility having adequate stock of insecticide.
- % of spray gang alloted.
- % of health facility having iec material for malaria.
- Input indicators
- Executive health officer in position – 100%.(15/15)
- Medical officer in position – 136/141 (96.45%)
- Laboratory technician in position – 140/141.(99.3%)
- Lab. Technician trainned in malaria – 80%.(33/41)
- Health sarkar in position – 76/136.(56%)
- Field worker in position – 517/544.(95%)
- Mha in position – 115/na
- **Logical frame for process**
- Interval between blood smear collection & examination.
- Discrepancy rate in laboratory.
- % of patient hospitalized with severe malaria & received correct anti-malarial drug.
- % of health facility regularly supervised.
- % of household using bed-net.
- % of household covered with residual spray.
- % of health facility conduct community meeting.

Process indicators

[A] EARLY DETECTION AND PROMPT TREATMENT:
- The K.M.C. has so far established 59 malaria detection-cum-treatment centers in different parts of the city for this purpose. Blood test and treatment is free of cost. Since the prime objective of EDPT is to prevent deaths from malaria all febrile patients visiting the clinics are given full course of presumptive treatment with chloroquine and primaquine following the NAMP guidelines.Those whose blood samples are positive are given radical treatment.

[B] INTRODUCTION OF MOBILE CLINIC:
- The K.M.C. authorities have introduced several mobile malaria clinics to help slum-dwellers enjoy easy access to speedy diagnosis and treatment.

[C] VECTOR CONTROL

(1) Involvement of medical personnel for supervision:
- Sprawling over an area of 187.33 sq.km.,the KMC area is divided into 141 wards grouped under 15 Boroughs.Vector Control activities here are run by the KMC Health Department. Since 1997,4 Dy.CMHOs,15 Ex. H.Os have been looking after the programme.The OSD(Health) is at present the Controlling Officer.
- At ward level,one M.O. now directly monitors the Vector Control activities besides other health programmes.
- A specialist qualified Entomologist is in overall charge of vector control and also research on behaviour of vectors and efficacy of chemicals.

(2) Antilarval spraying:
- This is being done by 3-4 Field Workers in every KMC ward under the supervision of Health Sarkar.Permanent mosquito breeding sites are treated with Bacticide(an ecofriendly bacterial toxin) and Fenthion (organophosphorous larvicide) at an interval of 7 to 10 days.

- For AEDES and CULEX , TEMIPHOS spraying done .2.5 to 10ml in 10 llitres of water for 500 sqm area spray. For Anopheles Bactcide is used . 250 gm in 10 litres of water for 500sqm area. Vectobac is used (i) in clear water breeding , 50 ml in 10 litre of water

(ii) in dirty water breeding , 100 ml in 10 litres of water for 500 sqm

(3) Legal measures:
- The KMC besides issuing notices under section 496 of the KMC Act,1980 has been filing cases against those violating the KMC's guidelines inspite of notices against vector procreation within their premises. Over the past 5 years, more than 8000 notices were served on such offenders and 50 cases were filed in this regard in the Municipal Court. Those convicted have/had to pay a fine between Rs. 200/- & Rs. 2000/- each. This step will be intensified this year and in the following year for the benefit of the city dwellers.

(4) House to House Visit :
- The Field Workers & Health Sarkars mainly perform this job besides spraying activities.About 400 Bailiffs along with the Filed Workers have been deputed to check domestic stagnant water, the chief source of mosquito breeding (Anopheles stephensi),the vector of malaria.Since April 2002,they have been deputed especially to the malaria prone Boroughs of the KMC such as no.2 (9 wards) (10 to 12 and 15 and 20), no. 4 (10 wards) (21 - 28, 38 & 39), no. 5 (11 wards) (36,37,40 & 45 and 48 and 50) no. 6 (10 wards) (46,47,51 & 55 and 60 & 62) no. 7 (9 wards) (56 & 59,63,64,66,68 & 85) no. 8 (11 wards) (65,67,69,70 & 73,84,86,87,90) no. 9 (10 wards) (74 to 80,82,83,88) besides 120 Field workers & 30 Supervisors have been detailed through a KMC recognized agency to intensify anti-larval activities in different malaria prone wards of the city.

(5) Indoor Fogging:
- P. falcifaram malaria positive household and surrounding residences are subject to indoor fogging to block the transmission of falciparum malaria as per NAMP guidelines.

(6) Indoor Residual Spraying:
- In Kolkata slum dewellers suffer more from malaria than those better off because by and large the former do not use mosquito net for reason of lack of space and money. To prevent transmission of malaria among such people, KMC has resorted to spraying of an insecticide called Cyfluthrin (Solfac) indoors.

(7) Area Fogging:
- Contrary to the perception of many people area fogging by

vehicle mounted LECO-120 fog generating machine is useless, as has also been opined by renowned entomologists as well as NAMP. Fogging operations,mosquito-repelling coils, mats etc are all pseudoprotective.Besides,they pollute environment and are harmful to public health.KMC authorities,therefore, now rarely resort to such measures except where unavoidable.

(8) Source reduction with the help of Guppy fish released in permanent breeding sites.

(9) Publicity Campaign :

- To increase people's awareness, IEC(Information, Education and Communication) activities - sometime by distributing leaflets, sometimes by installing hoarding, sometimes by establishing temporary kiosks in different busy intersections of the city, sometimes by sending out anti malarial messages through print and electronic media and sometimes by big or small seminars with residents of different locality, opinion builders, people's representative and KMC health personnel. The financial support for such campaign has been jointly given by NAMP and KMC authorities..
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LOGICAL FRAME FOR OUTCOME

- % Of health facility able to collect blood smear as per target of national policy.
- % of patient cured.
- % of health facilities reporting no disruption of stock of anti-malarial drug for 1 wk.
- % of household having atleast one bed net.
- % of community people able to recognize symptoms of malaria.
- Outcome indicators
- Complicated malaria patient cured – 94%
- Household owned a bed net – 75%
- Household use a bed net during sleep – 65%.
- Knowledge of malaria transmitted by mosquito bite – 65%
- Recognise the symptom of malaria – 45%.

Outcome

1. Malaria has for centuries been wreaking havoc in the world. As many as 90 countries including India are endemic for this disease, where officially 300 million people now suffer and 1 million people die every year.
2. Against this background,what the KMC has achieved in recent years is most impressive.Going by the report by the State Health Department, number of malaria cases in the city has been brought down from an appalling 1,50,000 in 1999 to a noteworthy 48,000 in 2003. The slide positivity rate has been brought down from 32.8% to 20.8%.There has been a definite downward trend in the number of unfortunate death through malaria from 68 in 1999 to 13 in 2003.

CONCLUSION AND RECOMMENDATION

K.M.C., Health Department is essentially guided by the measures the directorate of NAMP,Government of India, has propounded to curb malaria in high-risk areas.The NAMP (National Anti Malaria Programme) directorate considers Early Diagnosis and Prompt Treatment (EDPT),the mainstay of its plank to fight malaria especially in high risks metropolises such as this city. As per policy arrived at, one clinic per 50,000 population is to be set up, preferably adjoining a slum area,which must be manned by a trained microscopist for rapid examination of blood slides.

- As regards treatment, they have very clearly suggested to give presumptive treatment to all fever cases with appropriate antimalarial drugs.The second part of the programme is the abatement of malaria transmitting species of mosquitoes, which has to be achieved by a sustainable indoor residual spraying with appropriate insecticides and larvicides with emphasis on echo friendly approaches including bio-environmental measures like use of bio larvicides,larvivorous fish,source reduction, environmental management and the enactment of civic by-laws etc. Last but not the least,health education and community participation.

- But even with all these measures it can be said that few more steps should be under taken by KMC like supply of insecticide treated bed nets , more house hold visits by KMC teams , increased IEC activities , more intensified spraying operations along canal banks and more sophisticated microscopy units will further enhance effectiveness of this program.
- Lastly,for translating the WHO's policy into a reality, the general people too need to join the fight by keeping all water containers properly covered,or clean these at weekly intervals.Larvivorous fish such as Lata and Tilapia may be released in wells and other such large water storage areas. It must also be ensured that rain water does not collect in and around human dwellers

"WE SHALL OVERCOME SOMEDAY"

LET'S NOT FORGET THAT "MALARIA CONTROL---EVERYONE'S CONCERN" REMAINS THE PRIME SLOGAN OF N.A.M.P. AS WELL AS W.H.O.

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