# Title: A STUDY ON THE OPERATIONAL ASPECTS OF ANTIRABIES TREATMENT IN THE DISTRICT OF CUTTACK, ODISHA

**Author**: **Dr Durga Madhab Satapathy1, Dr. Mohua Biswas2, Dr.Devasish Panda3**

1. Prof & HOD.
2. Asst. Professor.
3. PG Student.

Department of Community Medicine, S.C.B Medical College, Cuttack, Odisha

**Keywords** Vaccine Vial, PEP, Health Institution, Utilization

**Abstract** It is estimated that in India 1.7 crore animal bite exposures leads to 20,000 deaths. 95% of the 50.000 global rabies deaths are because of dog bites. Post Exposure prophylaxis is effective in preventing the disease. The present study aims to assess the operational aspects of PEP in the district excluding the ARC of SCB, MCH

Original Article

# A STUDY ON THE OPERATIONAL ASPECTS OF ANTI-RABIES TREATMENT IN THE DISTRICT OF CUTTACK, ODISHA

Dr Durga Madhab Satapathy*, Dr. Mohua Biswas**, Dr.Devasish Panda***.


## ABSTRACT

**Introduction :** It is estimated that in India 1.7 crore animal bite exposures leads to 20,000 deaths. 95% of the 50.000 global rabies deaths are because of dog bites. Post Exposure prophylaxis is effective in preventing the disease. The present study aims to assess the operational aspects of PEP in the district excluding the ARC of SCB, MCH.

**Objectives :** i) To access the burden of cases of post exposure prophylaxis and utilization of ARV in the district of Cuttack.

ii) To suggest recommendation for appropriate anti-rabies treatment in the district of Cuttack.

**Methodology:** A record based retrospective study was conducted during the period April 2014 to May 2014 in the district of Cuttack in Odisha. The data regarding animal bite cases reported to all govt. health institutions was collected from the weekly IDSP reports and the data of vaccine utilization was collected from the stock entry and utilization ledgers from the CDMO's office.

**Observations:** There are 81 Health Care Centers in the district of Cuttack out of which only 6(7.4 %) are providing PEP. The year wise report shows that there is a gradual rise in reporting of the number of animal bite cases from the year 2011 to 2013. The number of vials used shows an increase in trend during the three consecutive years. RIG was not supplied in any of the health institutions. The highest number of vials were used in the month of January. The vaccine wastage is more in vials containing 1ml of diluents than the vials containing 0.5 ml of diluents.

**Recommendations:** RIG should be supplied at least to all sub-divisional hospitals for immediate administration. Regular CMEs to be conducted to update the knowledge of the health care providers.


**Key Words:** Vaccine Vial, PEP, Health Institution, Utilization

## Introduction

Rabies continues to claim an estimated 20,000 lives annually in India. 95% of the 50,000 global rabies deaths are because of dog bites[2,3]. In India a person is bitten by an animal in every 2 seconds & someone dies from rabies every 30 minutes[4]. Post Exposure prophylaxis is effective in preventing the disease. IDRV has been implemented in Odisha since April, 2007. The district of Cuttack has five designated Anti Rabies clinics. The present study aims to assess the operational aspects of PEP in the district excluding the ARC of SCB, MCH.

## Objectives

i) To access the burden of cases for post exposure prophylaxis and utilization of ARV in the district of Cuttack.

ii) To suggest recommendation for appropriate anti-rabies treatment in the district of Cuttack.

## Methodology

A record based retrospective study was conducted during the period April2014 to May 2014 in the district of Cuttack in Odisha. The District of Cuttack is having a population of 26, 18,708 and a population density of 666 per sq. Km, 3 Subdivisions &13 Blocks. There are 81 govt. health care institutions in the district, all of which were included in the study except the tertiary medical college and Hospital. The data regarding animal bite cases was collected from the weekly IDSP reports and the data of vaccine utilization was collected from the stock entry and utilization ledgers from the CDMO's office during 3 years period i.e. 2011, 2012 & 2013 .The data collected were analyzed in the Department of Community Medicine using Microsoft Excel 2007.

*Prof & HOD, ** Asst. Professor, *** PG Student, Department of Community Medicine, S.C.B Medical College, Cuttack, Odisha.

**Table : I**
**List of health Institution in Cuttack District**

| Sl. No. | Institution | Number | Anti-Rabies Vaccine Available (Y/N) | Anti-Rabies Immunoglobulin Available (Y/N) |
|---|---|---|---|---|
| 1. | Medical Colleg Hospital | 1 | Y | Y |
| 2. | District Head-Quarter Hospital | 1 | N | N |
| 3. | Sub-Division Hospital | 2 | Y (All) | N |
| 4. | Area Hospital | 10 | N | N |
| 5. | Community health Centre | 9 | Y (only 3) | N |
| 6. | Primary Health Centre | 5 | N | N |
| 7. | Primary Health Centre (New) | 51 | N | N |
| 8. | Other Govt. Hospital | 2 | N | N |
| | Total | 81 | 6 Institution including MCH (7.4) | 1 only MCH (1.2) |

## Observations & Discussion

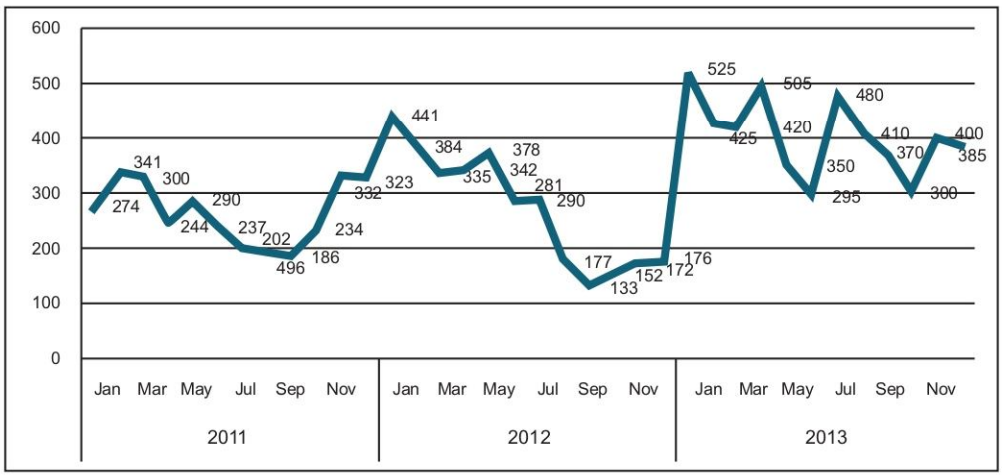
There are 81 Health Care Centers in the district of Cuttack, out of which only 6(7.4 %) is providing PEP. On an average one Institution provides PEP services to 4,36,451 Population. From among the 6 health care centers the tertiary Health care Centre of SCB Medical College, Cuttack was excluded from the study. In a report published by Thomas Mathew stated that there were 43 Institutes providing IDRV in the state of Kerela[5].

The year wise report shows that there is a gradual rise in reporting of the number of animal bite cases from the year 2011 to 2013.The total number of animal bite cases reported in the year 2011 were 4793 followed by 6035 in 2012 and 11817 in the year 2013.The month wise analysis of data shows there is gradual increase in average number of reported cases from the month of November to February, 543, 736, 800.3, 857 respectively followed by decrease in reported cases in the month of March 728,followed by 636 in April, rise in May (748), then there is steady decline in cases from the month of August (486), September (433), and October (487) respectively. In a study conducted by M. Mohanty et.al the highest number of animal bite cases were reported during month of Jan (10.6%) & Feb (10.9 %) out of the total animal bite cases[3].

The number of vials used shows an increase in trend during the three consecutive years. The Number of vials used in the year 2011 were 3189, in 2012 were 3261 & in 2013 were 4865.the highest number vials were used in the month of January.

**The wastage multiplication factor is 1.33:* **Ref:** *Guidelines for reporting & management of adverse events following immunization: India, New Delhi, Government of India, 2005.*

Although the number of vials needed for both 0.5 ml diluents and 1 ml diluents is almost equal (8) as per the




**Graph 1 :** Month and Year wise distribution of Total Numbers of Anti Rabies Vaccine Vials Utilized in Cuttack District.

Table : II

Comparison between Average Numbers of vaccine vials actually used and calculated Vaccine vials expected to be used

| Sl No. | Amount of Diluent used | Average daily Number of patient treated | Amount of vaccine needed in ML | Amount of Vial Needed | Total vial needed after calculating wastage factor | Number of vial Actually used | Wastage in Vial | Wastage in % |
|---|---|---|---|---|---|---|---|---|
| a | b | c | d= c X 0.2 | e= d/b | f = e X 1.33 | g | h= g -f | i= (h/g) X 100 |
| 1 | 0.5 | 14.7 | 2.94 | 5.88 | 7.8 (8) | 9.6 (10) | 1.8 | 18.5 |
| 2 | 1 | 28.2 | 5.64 | 5.6 | 7.4 (8) | 11.3(12) | 3.9 | 34.1 |

required vial calculation but the number of vials actually in used is more (12) in 1 ml diluents vial as more compared to 0.5 ml diluents vial i.e (10). Although I ml vaccine vial is more cost effective than 0.5 ml vaccine vial but in peripheral health centre where the animal bite cases are less than 10 cases per day the vaccine wastage is more in 1ml vial (34.1%) as compared to wastage in 0.5ml vial i.e (18.5%).

## Conclusion

The district is catering a population of 2618708 is having PEP supply in only 6 institution and immunoglobulin supply is present in only in the tertiary medical college hospital. There is gradual increase in number of reported animal bite cases from 2011 to 2013.This could be due to better awareness and free supply of ARV in the Govt. health care institutions. The reported number of animal bite cases is highest in the month of January. The vaccine wastage is more in vials containing 1ml of diluents than the vials containing 0.5 ml of diluents. The wastage in vaccine with 1ml. diluents in the rural health institutions could be due to less number of cases reporting for PEP.

## Recommendations

RIG should be supplied at least to all sub-divisional hospitals for immediate administration. It is also recommended that 1 ml vial to be supplied to those health institution where reporting of animal bite cases is more than 10 cases per day and 0.5 ml where it is less than 10 animal bites cases per day. Updated Standard treatment guideline should be available at all ARC particularly when there is a change in volume of diluents. Regular CMEs to be conducted to update the knowledge of the health care providers.

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