

IMMUNIZATION COVERAGE OF INFANTS—RURAL-URBAN DIFFERENCE IN KERALA

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ABSTRACT

A study on the Immunization Coverage relating to the six vaccine preventable diseases was carried out in an urban, semi urban and rural area in Kerala and the results from the three areas were compared and discussed. The percentage of fully immunized children was similar in all the three areas and it was quite high. Coverage of measles vaccine was high in the Health Unit, Pangappara where health education activities were carried out by the interns. The awareness about vaccine preventable diseases was more in the urban and semiurban areas. The drop out rate for DPT and OPV was also less in urban and semiurban than in the rural areas.

More than 50% of the households in urban, semiurban and rural areas were unaware of the diseases prevented by DPT vaccine. Intense Health Education Campaign can definitely improve the immunization coverage further in a state which has already attained total literacy.

Key words: *Immunization, Evaluation, Urban, Rural.*

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Universal Immunization Programme now referred to as National Immunization Mission was started in November 1985. Trivandrum was one of the 10 districts selected for the programme. Over the years, the programme has been extended to larger areas in the country. The success of the programme primarily depends on the administration of a full course of the potent vaccines at the right age(1). Coverage evaluation surveys of the UIP were carried out in Trivandrum city and in the two training health centres attached to the Medical College, Trivandrum namely, Medical College Health Unit, Pangappara, Trivandrum and MCH Unit, Neendakara, Quilon by the Department of Community Medicine. In this manuscript, an attempt is made to compare the overall immunization coverage and coverage of individual vaccines, drop out rate of DPT and OPV, and awareness of vaccine preventable diseases in the three areas which are classified as urban, semi urban and rural for the purpose of the present study.

Material and Methods

The study was carried out in Trivandrum Corporation, Medical College Health Unit Pangappara and MCH Unit, Neendakara. The city of Trivandrum is the capital of Kerala state and consists of 50 wards with a population of 8 lakhs (1990). The land area is 75 sq km. In addition to forty urban family welfare/MCH centres, there are 14 Government and 19 private institutions providing the immunization service. The overall literacy rate of this urban area is more than 90%.

No interns are posted to the urban area and the immunization is carried out mainly by the municipal health staff. In semiurban and rural areas interns are actively involved

in immunization and health education programmes.

MCH Unit, Pangappara is a semi-urban area with a population of 86,900 (1990) in Trivandrum district. The land area of 32.5 km in two panchayats, lies adjacent to Trivandrum city. MCH Unit, Pangappara is a training health centre carrying out all the functions and programmes of a typical Primary Health Centre in Kerala. The overall literacy rate of the area is again more than 90%.

Neendakara is a coastal village in Quilon district, 85 km away from Trivandrum. Medical College Health Unit, Neendakara consists of a land area of 15 sq km with a population of 60,000 (1990) mainly consisting of fisher folk. The area is typically rural in nature and has a literacy rate of almost 90%. MCH Unit, Neendakara is also a field practice area for the interns in Community Medicine from the Medical College, Trivandrum.

The immunization status of children between the age groups of 12-23 months was recorded according to the standard cluster sampling technique recommended by the WHO(1). In each study area 30 clusters were selected based on the population taking Corporation/Panchayat wards as the clustering units(2). The proforma designed by UNICEF(1) for coverage evaluation of Universal Immunization Programme were used for the surveys. The surveys were carried

out separately for each study area by the interns of Community Medicine Department under our¹ supervision. Children having BCG scar and those who had received three doses of DPT and OPV, and measles immunization as revealed by their immunization cards were classified as fully immunized. Those who missed at least one of the doses of any vaccine were termed as partially immunized and others as unimmunized. The reasons for the immunization failure were ascertained from the parents or from any other responsible member of the family.

It was felt that a comparison of the results of the three surveys would be meaningful because they related to three different areas with distinct characteristics namely urban, semi-urban and rural.

Results

In each of the three areas, 210 children in the 12-23 month age group were identified, their immunization status assessed and the results were analysed separately. The immunization status of children is shown in *Table I*.

The percentage of children (12-23) who were fully immunized was above 75% in all the three areas. The percentage of unimmunized children was 4.2% in urban, 1.9% in semi-urban and less than 1% in the rural area. However, the percentage of partially immunized children was 18.3% in urban, 21.4% in semi-urban and 21.8 in rural areas.

TABLE I-Immunization Coverage (%) of Infants Rural-Urban Differences in Kerala

	Trivandrum (Urban)	Pangappara (Semi-urban)	Neendakara (Rural)
Fully immunized	77.5	76.7	77.3
Partially immunized	18.3	21.4	21.8
Unimmunized	04.2	01.9	0.9

Table II shows the coverage of individual vaccines. BCG coverage in the rural area was 96.2% as against 94.4% in urban and 93.4% in the semi-urban area. In the case of the first dose of DPT and OPV, 98.5% of rural children were immunized. But the second and third doses were admini-

stered only in about 90% of children in all the areas. Measles immunization coverage was 90.6% in semi-urban area, 79% in rural area and 77.9% in urban area. The drop out rate for DPT and OPV in rural, semi-urban, and urban areas were 8.6%, 3.1%, 5.1% and 8.7%, 2.8%, 4.0% respectively.

TABLE II-Percentage Coverage of Various Vaccines

	Trivandrum	Pangappara	Neendakara
OCG	94.4	93.5	96.2
DPT1	93.0	90.7	98.6
DPT2	91.6	88.4	91.9
DPT3	88.3	87.4	86.7
OPV1	93.0	90.2	98.5
OPV2	91.6	89.8	92.4
OPV3	89.2	88.4	88.0
Measles	77.9	90.6	79.0

Regarding the awareness about the vaccine preventable diseases (Table III), in the urban area, 93.6% of households were aware of at least few of the vaccine preventable diseases. Half of the rural and urban households could not mention all the three diseases prevented by DPT vaccine.

The main reason for immunization failure

(Table IV) mentioned was 'Child ill, not brought for immunization' in all the three areas. In the semi-urban area, 20% of the children had measles before the immunizing age. In the urban area, 14% of households mentioned 'fear of side reactions' as a reason for immunization failure.

TABLE III-Awareness (%) of Vaccine Preventable Diseases in the Households

Awareness	Trivandrum	Pangappara	Neendakara
None known	6.5	9.8	20.8
Diphtheria	48.4	31.6	15.2
Pertusis	47.9	40.5	28.9
Tetanus	47.9	33.0	18.9
Polio	68	70.2	60.6
Measles	59	76.3	60.2
Tuberculosis	56.3	61.4	30.8

TABLE IV-Reasons for Immunization Failure

Reason	Urban (n=57)	Semi-urban (n=50)	Rural (n=48)
Unaware of need for immunization	4	3	2
Unaware of need to return for subsequent doses	3	3	1
Fear of side reactions	8	1	0
Wrong ideas about contraindication	1	2	2
Postponed till another date	5	3	4
No faith in immunization	1	2	1
Rumours	6	1	0
Family problems	4	2	3
Child ill not brought	9	12	13
Child ill brought not given	5	5	14
Child already had measles	5	10	-
Mother too busy	5	1	2
Others	3	5	8

Discussion

The percentage of children who were fully immunized was almost similar in all the three areas and it was above 75%. In a similar study in Calcutta(3) only 30-40% of urban children and 11-18% of rural children were fully protected by immunization.

In the present study, the percentage of partially immunized children was lower in the urban area when compared to semi-urban and rural areas. This indicates that those children who received immunizations in urban area were more regular in completing the doses than the children of semi-urban and rural areas.

Podder(4) in a comparative study on the immunization status of children in rural and urban areas, reported that the mother's knowledge as well as their children's full immunization coverage with individual vaccines was more in the semi-urban and

rural areas than in the urban areas. In the semi-urban area, the coverage of measles vaccine was more than 90% in contrast to the low coverage (18%) reported(3). This remarkably high coverage of measles vaccine as compared to other parts of the country(3,5,6) might be the outcome of the intense health education activities undertaken by the interns and the periodic immunization camps arranged in different areas as part of the interns training programme. The drop out rate of DPT and OPV was also more in the urban and rural areas as compared to the semi-urban areas. This is also in contrast to the results reported earlier(3).

An attempt was also made to assess the awareness about the vaccine preventable diseases in the households. There was adequate awareness about measles and poliomyelitis, even though half of the households could not mention the diseases prevented by DPT vaccine.

The reasons for immunization failure in the present study was mainly due to obstacles like child ill not brought and child brought not immunized. Strengthening of health education activities can definitely improve the awareness and thereby improve the immunization coverage.

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