Impact of Intensified Campaign on Immunization of under 16 Children During Outbreak of Diphtheria in Manjeri Municipality from June 2016 - October 2016

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Abstract

Objectives
- To assess the impact of intensified campaign during June – October 2016 on immunization coverage of under 16 children of Manjeri Municipality
- To assess the changes in immunization status of Unimmunized and Partially Immunized under 5 children of different age groups, sex and religion

Methods

Study Design: Cross sectional
Study Setting: Manjeri Municipal Area
Study Period: June 2016 - October 2016
Participants: UI & PI under 16 Children of the area
Sample size: 27690 Children
Data Collection: Survey by Trained Health staff of PP unit of GMC Manjeri
Large majority of UI/PI children remain unchanged as parents are reluctant to
Statistical Analysis: Using Excel Sheet

Intensified Campaign

Workshop -1,
Seminars -2:
Awareness camps – 3
PTA Meetings- 46
House visits of UI/PI children by ward councilors, doctors politicians & religious leaders
IMMUNIZATION SESSIONS
Outreach - 140
Institution- 52, School -3 using Td vaccine.
Results

I. Immunization coverage as on 30-06-2016
   • Under 5 children (8341): 80.02% [0.19%UI & 18.89%PI]
   • Under 16 children (27690): 76.05% [2.77%UI & 21.8%PI]

II. After the intensified immunization campaign changes observed are
   • PI Children: 0-5 years: 9% became fully immunized
     0-16 years: 18.07% became FI
   • UI Children: 0-5 years: 3.77% became PI
     0-16 years: 19% became PI

III. Older children (7 – 16) are getting benefitted
   With school immunizations schedules with 3 sessions 32.8% UI got Td vaccination.

IV. On comparing the immunization status of
   0-5 children at two different points of time on 30-06-2016 to and 31-10-2016 results are as follows:

Keywords: diphtheria; immunization; outbreak.

Background

Diphtheria, an acute infectious disease caused by Coryne bacterium diphtheria remain a matter of considerable concern in Malappuram district of Kerala especially after the resurgence of microbiologically confirmed diphtheria, clustering of cases and two deaths occurred during the month of June–July of 2016. Health authorities had constituted outbreak control teams and intensified the immunization campaign. Despite a similar episode in 2015 Sept–October 2015 with two deaths due to diphtheria, intensified campaigns during the last months of 2015, the resurgence of diphtheria is quite threatening.

In Manjeri municipality with over one lakh population two cases, a 12 yr old girl and 39 yr old male were diagnosed to have Pharyngeal diphtheria, in the month of July 2016 and September 2016 respectively. The earlier documented case was in 2013 in 14 yr old girl, with zero percentage mortality.

With the onset of the current epidemic (Cases were reported from our district) introspection was done to improve the immunization coverage of our area, following which an intensified campaign to strengthen the immunization status of under five children sand a qualitative study was initiated by interviewing people across the municipality to understand the variables.

In the pre vaccination era diphtheria was a leading cause of childhood mortality. After the introduction of universal immunization programme and widespread campaigns the incidence and mortality of diphtheria had reduced considerably to almost nil in our state.

But during the last decade we had come across a few cases in the district, and documented cases had shown more occurrences in adolescent age group compared to the younger population, in which our National programme concentrate. Earlier studies had shown that, following primary vaccination ant diphtheria antibodies wane in the absence of boosting either by natural exposure or through administration of booster vaccination.

With this current data of reported cases and more detailed study is needed to judiciously interpret the available data about immunization coverage and formulate newer strategies in our current immunization policy. Availability of age specific and region specific data about immunization coverage is of paramount importance in the implementation of newer strategies.

Aim of the Study

To assess the immunization coverage of under 5 /under 16 children in Manjeri municipality and to assess, whether interventions of intensified campaigning during the epidemic of diphtheria, have altered immunization coverage and practices of parents / children of Manjeri municipality.

Study type

Retrospective descriptive study

Study period June 2016 to October 2016

Definition

The following definitions were used
Infant

Fully immunized
An infant who has received BCG, 3 doses of Pentavalent, 3 doses of OPV and measles vaccines before 1 yr of age.*1

Under 7 yr

Fully immunized
BCG, 3 primary and 2 booster doses of DPT, OPV, 2 measles before 7 yrs.

7-16 yr

Fully immunized
BCG, 3 primary and 2 booster doses of DPT, OPV, 2 measles before 7 yrs and 1 dose of TT/Td at 10 and 16 yrs.

Partially immunized
If some dose given but immunization not complete

Unimmunized
Not received any of the above vaccines.

Age was confirmed by birth certificate or immunization card or when it was not available by asking the mother. The child was considered as immunized or not, based on the immunization card. For those without an immunization card, information from the mother or a family member stating that the child has been immunized was considered.

Materials and Methods

Immunization coverage evaluation was done using the earlier collected data from the PP unit of General Hospital, Manjeri and survey carried out by trained health care personals of PP unit during the month of June 2016.

An intensified campaigns for reaching out the Unimmunized / Partially immunized children was carried out with different programmes like workshops, seminars, awareness camps, mass media awareness programmes through Television, FM radio, newspaper, publication of brochures, Posters, awareness generation campaigns through PTA meetings held exclusively for this purpose, House visits by elected ward counselors, politicians, religious leaders, school teachers ASHA, Anganwadi workers, social workers, doctors and trained health staff.

Mass media immunization drive was combined with community counseling to enhance the utilization of immunization services. Communities were targeted to remove the fear of vaccines in the decision makers like fathers, mother in-laws in addition to mothers and anti-vaccine propaganda were countered well. Healthcare workers were trained to counsel the caretaker and persuaded to avail immunization services.

Report of activities organized

A. Sensitization meetings

1. LSGD: For Majeri municipal counselors at Municipal office conference hall. Pediatrician from GMCH and Asst. Prof. from community medicine department attended the meeting, explained about the current epidemic of diphtheria, vaccine preventable diseases covered under UIP, vaccination coverage status of children of Manjeri municipality, discussed about the malicious propaganda against vaccines. Municipal chairperson, vice chairman and all counselors (about 50), field health staff of municipality attended. (Date June ……..’16)

2. JPHNs, ASHA, JHI, Field Supervisors (OP Hall GMC Hospital date ………. June ’16) Training given to health staff regarding data collection, to update the line list of UI/PI children sensitized about diphtheria and its symptoms, so that cases can be referred early. Deputy Supdt, Pediatrician, MO in charge of immunization handled the sessions.

3. Anganwadi workers: at Urban bank Auditorium : Pediatrician, JHI from PP unit attended the meeting conducted awareness lass on diphtheria, VPDs, discussed strategies to reach and fully immunize the UI/PI children Manjeri municipality. More than 100 AWTs, ICDS supervisors and CDPO s were attended……. (Date: July ………’16).
B. Mass Media Campaigns
1. Published an article in Malayalam daily’s (written by HOD Pediatrics) highlighted about the current epidemic of diphtheria. And the necessity of urgent and serious community interventions to fill the gap in the immunization coverage and given an call to ignore the irrational, unscientific arguments against vaccines. (Date Suprabhatham 27/06/2016, Chandrika 27 /06/2016, Malayala Manorama July 2016, Tejas July 2016.)
3. IEC Materials Published: 10000 copies of brochures, 500 copies of collash posters on diphtheria, national immunization schedule and catch up immunization distributed in the municipality.
C. Street Plays: Street play of 25 minutes duration played by professional artists played in 9 different pockets of municipality. Message was vaccination and its importance to create VPD free world. 50 to 200 people viewed in each pockets.
D. Workshops/Seminar: To influence the targeted population the role of community leaders were recognized, to utilize their services organized one day workshop (25 July 16) 50 municipal ward counselors, social workers, one teacher each from 51 schools in the municipality, political, cultural organization leaders,, IAP, IMA, KGMOA representatives, doctors from other systems of medicine Homeo, Ayurveda ICDS, Kudumbashree workers, attended the workshop. HOD Pediatrics, HOD community medicine; senior pediatricians from the GMCH handled different topics regarding vaccination. Topics discussed: VPD’s covered under UIP, national Immunization schedule, Catch up immunization criticism /Facts on vaccines, Safety and efficacy of vaccines, action plan for Manjeri municipality were discussed.) Video shows and power point presentations used. Registration more than 250 EVENING SEMINAR: In PTA meetings and House visits, Majority of the audients were parent participation conducted an evening seminar a community hall, Cholakkal, Supdt. of GMCH, Pediatricians, handled topics and discussions, different religious group leaders, political party workers, cultural organization leaders participated. Registration 100. Video shows arranged.
E. PTA Meetings: Manjeri Municipality has 51 schools. (in June July) with the support of Education Dept, PTA meetings were held exclusively for conducting awareness programme on immunization in 46 schools. In each school 45-60 minutes sessions were held. Sessions were handled by pediatricians, lecturer, Asst. prof from community medicine dept. topics VPD’s and vaccination, NIS, catch up immunization, safety, efficacy Parents doubts on safety, efficacy AEFI issues were discussed and cleared. 50 to 500 parents were attended the sessions. Video shows, Power point presentation used wherever facility available.
Awareness class for focused groups: conducted an awareness class on UIP and VPD’s for 1 hour for Auto rickshaw drivers of Manjeri municipality. Attendance above 350.
Formed Manjeri people health forum (Manjeri Janakeeayarogyasamithy) this is a collectiveness of municipal level leaders of religious cultural, political organizations.
House visits of UI/PI children: A term of ward counsellors, Pediatrician, Medical officers, JPHN, AWT, ASHA, Social workers visited all the houses of UI/PI children in July/ August/Sept/ October. During the visits doctors /health staff communicated / counseled the parents of target children. On an average 25-30 mts spent in each house. Tried to improve their knowledge on vaccination, clear misconceptions about vaccines, and fear of AEFI s.
Immunization sessions: on an average 35 outreach sessions in different pockets of the municipal area, 13 institution sessions were held monthly (July, August, September, October). School level immunization in 3 schools are also conducted. House visits by doctors were done on the day/previous day of immunization.

Total immunization sessions.
- Outreach - 140
- Institution- 52
- School -3
- Since this intensified immunization campaign was intended to contain the present diphtheria outbreak we used Td vaccine instead of TT for older children (7-16 years).

Results
Immunization status before and after intensive campaigning

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Unimmunized</th>
<th>Partially Immunized</th>
<th>Total No. of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Converted</td>
<td>Change %</td>
</tr>
<tr>
<td>0-5</td>
<td>159</td>
<td>6</td>
<td>3.77</td>
</tr>
<tr>
<td>5-7</td>
<td>103</td>
<td>2</td>
<td>1.94</td>
</tr>
<tr>
<td>7-16</td>
<td>506</td>
<td>166</td>
<td>32.8</td>
</tr>
<tr>
<td>Total</td>
<td>768</td>
<td>184</td>
<td>23.9</td>
</tr>
</tbody>
</table>

I. Immunization coverage as on 30-06-2016

Under 5 children (8341):
- 80.02% [0.19%Unimmunized (UI)]
- 18.89%Partially Immunized (PI)

Under 16 children (27690) 76.05% [2.77%
Unimmunized & 21.8%Partially Immunized

After the intensified immunization campaign changes observed are

Unimmunized children
Immunization status of unimmunized children below 5 years

<table>
<thead>
<tr>
<th>Age UI</th>
<th>On 30-06-2016</th>
<th>On 31-10-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>1-2 year</td>
<td>41</td>
<td>38</td>
</tr>
<tr>
<td>2-3 year</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>3-5 years</td>
<td>66</td>
<td>67</td>
</tr>
</tbody>
</table>

There was no change in the immunization status of unimmunized children with intensive campaign

Comparing the immunization status in unimmunized males and female children less than 5 years

<table>
<thead>
<tr>
<th>UI female</th>
<th>On 30-06-2016</th>
<th>On 31-10-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>1-2 year</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>2-3 year</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>3-5 years</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

Partially immunized

<table>
<thead>
<tr>
<th>Age PI</th>
<th>On 30-06-2016</th>
<th>On 31-10-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td>161</td>
<td>152</td>
</tr>
<tr>
<td>1-2 year</td>
<td>392</td>
<td>364</td>
</tr>
<tr>
<td>2-3 year</td>
<td>340</td>
<td>328</td>
</tr>
<tr>
<td>3-5 years</td>
<td>615</td>
<td>560</td>
</tr>
</tbody>
</table>

Immunization status of PI based on Gender

No of partially immunized female children before and after the campaign

<table>
<thead>
<tr>
<th>Age PI</th>
<th>No of Partially Immunized</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td></td>
</tr>
<tr>
<td>1-2 year</td>
<td></td>
</tr>
<tr>
<td>2-3 year</td>
<td></td>
</tr>
<tr>
<td>3-5 years</td>
<td></td>
</tr>
</tbody>
</table>
Immunization status based on religion

partially immunized male children before and after campaign

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-5 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

partially immunized Muslim children before and after the campaign

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mo-1year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 year</td>
<td></td>
<td></td>
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<tr>
<td>2-3 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-5 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion
Vaccination is a proven and one of the most cost effective child survival interventions*2
Immunization averts an estimated 2 to 3 million deaths every year from diphtheria, tetanus, pertussis and measles; however, an additional 1.5 million deaths could be avoided if global vaccination coverage improves. Global vaccination coverage- the proportion of the world’s children who received recommended vaccines-has stalled over the past few years. Global vaccination coverage has stalled at 86% with no significant changes during the past year.*3
In the present analysis we found that the immunization coverage of under five children before the campaign (n=8341) is 80.02%. (UI 0.19%, PI 18.89%). Under 16 children (n=27690) immunization coverage 76.05% (UI 2.77% and PI 21.8%) After the intensified immunization campaign 0-5, 9% became fully immunized, 7-16yrs 18.07% became fully immunized. Unimmunized children- 0-5yrs 3.77 % became partially immunized, 7-16 yrs 19% became partially immunized. Older children (7-16) are getting benefitted with school immunization schedules with 3 sessions 32.8% of unimmunized got Td vaccination.

Conclusion
Large majority of Unimmunized /partially immunized children remain unchanged as parents are reluctant to accept vaccines even after the intensified campaigns. Older children are getting benefitted with school immunization using Td vaccine. Type of Community played a significant role in resistance to immunization .Studies on factors causing resistance to immunization need to be done in detail, and newer strategies based on deeper understanding is needed to address this phenomenon of immunization resistance.

References
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