

# Immunization Practices in Children Presenting to Outpatient Department of a Tertiary Care Hospital

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## ABSTRACT

**Background:** Immunization has tremendously reduced the incidence of childhood illnesses.

**Aim:** To identify the causes of failure of immunization in our setups and help strengthen the EPI by solving those causes.

**Study design:** Descriptive cross-sectional study.

**Place and duration of study:** Department of Paediatrics, CMH Quetta from July 2022 to December 2022.

**Methodology:** Two hundred and seven children (0-24 months) of both genders with acute diarrhoea passing three or more loose stools per day for no longer than two weeks were chosen. Using EPI cards, all parents of these patients were asked about their children's vaccination status. The demographic information like name, age and gender were noted.

**Results:** There were 104 (51%) females and 103 (49%) males with a mean age of 18±1.5 months. 91.8% received BCG and OPV0, about 82% received Penta +OPV1+Hib at 6 weeks and 157 children were vaccinated at 10 weeks. Complete vaccination was received by 137 children at the age of 14 weeks, 52% of the children received measles vaccine, however, only 32% of the children had received their second dose of the measles vaccine by the time they were 15 months old.

**Conclusion:** The immunization practices in children were decreased with advancing age of the children. The vaccination rate was highest at birth, 6 weeks and 10 weeks but significantly reduced at 9 months and 15 months. A robust awareness campaign is needed in order to sensitize the parents regarding the immunization of their children particularly at 9 months and 15 months of age.

**Keywords:** Immunization, EPI, Polio, Measles, Tuberculosis, Diphtheria

## INTRODUCTION

Immunization is the most cost effective health intervention which has a positive impact on health of the people. The most economical public health measure that has made the biggest difference in people's health is immunization. According to estimates, vaccinations against diphtheria, tetanus, pertussis and measles prevent between two and three million child deaths each year and a great number of additional deaths in older groups. Still 25% of under five deaths are caused by vaccine preventable diseases<sup>1</sup>.

Expanded Programme on Immunization (EPI) in Pakistan was started World Health Organization (WHO) in 1974<sup>2</sup>.

With the ultimate goal of reducing morbidity and death brought on by six diseases that can be prevented by vaccination, Pakistan's Expanded Programme of Immunization was launched in 1978. Moreover, in July 2001, Hepatitis B immunisation was added to EPI<sup>3</sup>.

The results of my study will contribute to strengthening EPI by suggesting the need to start immunisation programmes for all children who are not immunised or are only partially immunised and present to the hospital with various diseases.

## MATERIALS AND METHODS

This descriptive cross-sectional study was carried out in the paediatrics department of CMH Quetta from July 2022 to December 2022. For the study, 207 children (0-24 months) with acute diarrhoea for less than 14 days were chosen. Children without EPI cards, children who have not completed the full course of vaccinations due to contraindications, and children who have had diarrhoea for longer than 14 days were excluded from the study. Data on all patients who visited the hospital OPD or emergency department with acute diarrhoea was gathered once the study's ethical review board gave its clearance. The patients' parents or other family members provided written approval after being fully informed. Using EPI cards, parents of these children

were asked about their children's vaccination status, including whether they were fully immunised or not, if they were partially immunised, and what the reasons were for their lack of immunisation or partial immunisation. All the data was entered on a proforma along with other demographic information like name, age, and gender. The data was entered and analyzed through SPSS-25.

## RESULTS

One hundred and four of them (51%) were female, with a mean age of 18±1.5 months. Between 6 and 12 months of age made up over two thirds of the patients. Mothers of 59 children had no idea of birth weight of their kids Table 1 reveals that more than half of the mothers (52.7%) who accompanied kids were illiterate. Table 2 shows that among 207 children 91.8% received BCG and OPV0, 82.1% received Penta +OPV1+Hib at 6 weeks, at 10 weeks 157 children were vaccinated. Only 15 patients (7.2%) had non-EPI vaccinations, such as MMR, Hepatitis A and Chicken pox shots.

Table 1 Demographic data of the study population (N=207)

Characteristics	No.	%
<b>Age (months)</b>		
< 6	36	17.4
6-12	127	61.4
13-24	44	21.2
<b>Sex</b>		
Males	102	49.0
Females	105	51.0
<b>Birth weight</b>		
< 2.5 kg	41	19.8
2.5 – 2.9 kg	97	46.9
3 kg or more	10	4.8
Birth weight not know	99	28.5
<b>Education of mother</b>		
Illiterate	109	52.7
Primary	44	21.6
Secondary & Intermediate	52	25.1
Graduate	2	0.6

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Table 2 the participants' age-specific vaccination status (N=207)

Age of child	Vaccination	Received	Not Received
At birth	BCG +OPV0	190 (91.8%)	17 (8.2%)
6 weeks	Penta1+OPV1+Hib	170 (82.1%)	37 (17.9%)
10 weeks	Penta2+OPV2+Hib	157 (75.8%)	50 (24.2%)
14 weeks	Penta3+OPV3+Hib	137 (66.2%)	70 (33.8%)
9 months	Measles	109 (52.7%)	98 (47.3%)
15 months	Measles	68 (32.9%)	139 (67.1%)
Non-EPI vaccines	Typhoid, Chicken pox, rotavirus	15 (7.25%)	(92.85)

## DISCUSSION

This study found that among children under the age of two, the total vaccination was satisfactory in first few days of life and decreased throughout time until 9 and 15 months. Also, the children inability to reach the vaccination centre was the main deterrent to vaccination. In our study, we found that less than one half of kids had received all of the immunisations recommended by the EPI. The vaccination rate was equivalent to the earlier trial conducted in Karachi<sup>4</sup>. Contrarily, a hospital survey in the USA revealed that preschool-aged children had 93% of their immunisations up to date.<sup>5</sup> Furthermore, this glaring gap in vaccination coverage may be the result of several factors, including the government's ineffective policy incentives, a lack of funding, and improper use of health services, which all contribute to the EPI's dysfunction. We found that vaccination against polio and tuberculosis at birth was much higher, whereas relatively fewer children kept receiving subsequent vaccinations at the conclusion of the two-year period as they grew older. These results are in line with those of a hospital-based study conducted in a different hospital in the same city, which found a significant decline in immunisation coverage from DPT1 to DPT312. Similar findings were obtained from a community-based study that included participants from 34 of India's states.<sup>6</sup> However, when compared to the outcomes of the current investigation, the studies from Europe<sup>7</sup> and Nigeria<sup>8</sup> produced inconsistent findings. This significant drop in vaccination rates from birth to the end of the first two years may be attributed to challenges in obtaining immunisation services, a lack of knowledge about the value of immunisation, a fall in vaccination motivation, or a combination of these factors. In this study, we also discovered that access problems to vaccination centres were the main cause of insufficient vaccination coverage, followed by side effect anxiety and parental ignorance. These results are in line with earlier studies from Pakistan<sup>9</sup> and India.<sup>10</sup> Despite significant international support for the EPI, there are a number of factors that have been found in earlier studies of Punjab<sup>11</sup>, Peshawar<sup>12</sup>, and Karachi<sup>13</sup> that may result in stability in the vaccination programme. It is crucial to emphasise that accessibility is the main obstacle to using healthcare services.<sup>14</sup> Our findings underline the need for proactive interventional measures and related policies and, in addition to other social variables, could be partially explained by the absence of a broad network of primary health centres, sub-centres, and healthcare practitioners.

According to a United States study, vaccination will shield children born between 1994 and 2013 from 322 million illnesses, 21 million hospital stays, and 732,000 deaths over the course of their lives, saving the nation a net \$295 billion in direct expenses and \$1.38 trillion in total societal costs.<sup>15</sup> According to a study done in China, the immunization rate for children between the ages of 2-3 years ranged from 95.9% for the fourth dosage of the diphtheria, tetanus, and pertussis vaccine to 99.5% for the first dose of the vaccine for Japanese encephalitis, and was 93.1% for complete immunization<sup>16</sup>.

Findings of a study conducted at Kohat revealed that out of the sample frame's 402 families, 185 families (85.9%) have fully immunised their children. 10.5% of families did not provide their children with immunisations (49 cases). 3.6% of parents choose to

vaccinate their kids only partially, which is a very tiny amount.<sup>17</sup> Information regarding the immunisation status of 50 children was acquired from parents in order to evaluate the immunisation status of children between the ages of 1-2 who were visiting the Children Hospital, a tertiary care hospital in Lahore. According to the findings, government hospitals performed the majority of immunisations (47%). At birth, almost 40% of the youngsters received their first vaccine.<sup>3</sup>

## CONCLUSION

Immunization in children decreases with advancing age of kids. How the immunization at earlier months of life are adequate. With an awareness campaign for the EPI vaccine, mothers should be encouraged to fully immunise their infants under the age of two.

**Conflict of interest:** Nil

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