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Immunisation and Infant Mortality in Pakistan*

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Our children are our future and if we want them to grow up healthy and strong, we have to protect them from the six dreadful diseases through immunisation which attack them in early childhood. This can be achieved by giving the children one dose of BCG vaccine against tuberculosis and zero dose of Polio at birth [Government of Pakistan (1989)], three doses of DPT vaccine for prevention of diphtheria, whooping cough and tetanus. Three doses of polio vaccine and one dose of measles vaccine should be given before their first birthday. Since the mother is the agent through which a child can receive the vaccinations, it is important that mothers are made aware of the different kinds of immunisation for the children and the times in the child's age at which it should be given.

This can only be done successfully, if the ministry of health launches a full-scale publicity programme. For this purpose, the services of local influential persons, for example the *Imams* of mosques and school teachers should be sought. Social workers and volunteers should also be included in the publicity programme. An extensive advertising campaign through display of posters about the six preventable diseases shown at all prominent public places, at the hospitals and the health centres should be done. Pamphlets should be handed out in the public, and even supplied on every door step. Public awareness can be increased through radio and television.

In Pakistan health facilities are available to about 55 percent of the population. Most of these health and Maternal and Child Health (MCH) services are concentrated in urban areas, while the rural population has access to Rural Health Centres, Basic Health Units and Family Welfare Centres in addition to Traditional Birth Attendants (TBA) and Hakims [Grant (1992)]. Subsidiary health centres and subcentres of Primary Health Centres are Health Institutes meant for the most vital functions of health schemes in the rural areas of the country. There is a considerable unmet felt need for curative, preventive and promotive health services among the rural population of Pakistan. Some of the main reasons why the health-care delivery system in our villages has not been able to reach those in need are the inaccessibility of services to the majority, especially women and children, who cannot avail them due to transport problems. There is also nonavailability of certain health services, including an inadequate supply of medicines. Also there is a dearth of social acceptability and non-participation of the community in the health

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delivery system. The indifferent attitude of doctors and paramedical staff has further discouraged the villagers from optimally utilising the health-care services provided by the health centres. The location of the health centres is another important factor for its under-utilisation, as villages located away from Primary Health Centres cannot receive the services.

Much of the high child mortality among poorly educated mothers reflect their inadequate hygiene practices and their lack of connections with modern medical care systems. Approximately 60 percent of infant deaths occurred during the neonatal period each year, and over 45 percent of neonatal mortality occurred within the 1st three days after birth [Government of Pakistan (1992)]. One of the priorities of the Government is to provide medical care during pregnancy and at the time of delivery, both of which are essential for infant and child survival and safe motherhood. They were also requested to receive an injection tetanus toxoid (TT) during pregnancy to prevent infant deaths. Over 75 percent of all deaths in the neonatal period occurred mostly due to prematurity, complications of child birth, tetanus and respiratory track infection [Government of Pakistan (1986)].

The major causes of sickness and death of children in Pakistan are infectious diseases, many of which are preventable by immunisation. Poliomyelities is the single major cause of lameness in children under 5 years of age. A large number of cases of diphtheria, tetanus, measles, typhoid fever, poliomyelitis are reported annually. It should be aimed to achieve 100 percent coverage of pregnant women with two doses of TT and at least 85 percent of infants in the whole of Pakistan with the six preventable diseases under this programme [Government of Pakistan (1990-91)].

The Expanded Programme on Immunisation (EPI) has been a major component of the accelerated Health Programme which was initiated in 1982. The Government of Pakistan had been committed to the goal of universal child immunisation by the year 1990. The last EPI review was conducted in Feb-Mar 1988. During the last three years tremendous efforts have been made by the Government of Pakistan to increase the expanded programme on immunisation coverage to higher levels (Table 1).

Now there was an obvious need for a field EPI evaluation survey in order to provide the coverage results needed for universal child immunisation. At the request of the Government of Pakistan, WHO and UNICEF agreed to organise a nation-wide EPI review from 13–30 January, 1991 by an international team consisting of 7 international members (6 from WHO and 1 from UNICEF), 36 National Members supported by the Federal EPI Cell of National Institute of Health, Islamabad [Government of Pakistan (1991)].

The objective of this review was to evaluate the immunisation coverage of children 12–23 months of age including, in particular, the immunisation status before their first birthday, together with the assessment of dropout rates and reasons for incomplete immunisation.

Table 1
Expanded Programme of Immunisation (EPI) Data Regarding Expanded Programme of Immunisation in Pakistan from 1977 to 1990

Vaccine/Dose	1977–87	1988	1989	1990
BCG	26926336	4236292	4065712	4673505
POLIO				
I	29876289	4768641	4883074	5478595
II	23591143	3768332	3899832	4278840
III	17212591	3169281	3510834	4018122
BOOSTER	5706872	1138662	992455	1025439
DPT				
I	15925776	3755887	4018140	4551616
II	13310467	3277074	3603269	4070464
III	11725039	3114883	3493929	3695488
BOOSTER	2669949	950015	923077	980183
D.T.				
I	10916177	557489	33221	278729
II	9304014	497301	292073	228097
BOOSTER	2891465	193188	67658	39165
TETANUS TOXOID				
I	6718926	2938030	4421663	5191841
II	3705743	2079442	3113490	3670422
BOOSTER	106682	133130	259572	1042951
MEASLES	13393559	3171508	3534952	4392782

Source: Government of Pakistan (1990-1991).

Second, to evaluate the Tetanus Toxoid (TT) immunisation coverage of mothers of infants (0–11) months of age.

Third, to review all aspects of EPI management at various levels.

The immunisation coverage survey included the collection of information regarding immunisation based on availability of an immunisation card and mother's history of children less than age 12–23 months for EPI antigens and greater than mother of infants 0–11 months for the neonatal tetanus protection in each urban and rural clusters. For the purpose of the survey 240 clusters were randomly selected by provinces and with urban/rural areas. Throughout the survey a total of 8651 households were visited in all the clusters selected. Information on the immunisation status was collected from 1968 children 12–23 months of age and from 1965 mothers of infants 0–11 months of age from all the selected areas. The immunisation coverage results and the neonatal tetanus protection of infants results obtained by the survey are shown in the attached Table 2 to Table 6.

Table 2

Results of Immunisation Coverage Survey by Antigen and Dose According to Card Plus History for Children 12–23 Months Age Group, Pakistan, January, 1991

Province	Area	No. of Children	BCG (%)	DPT (%)			OPV (%)			Measles (%)	Immunity Status		
				1	2	3	1	2	3		Not	Partial	Full
Punjab	Urban	211	96.7	100.00	100.00	99.1	100.00	100.00	99.1	99.1	0	1.4	98.6
	Rural	212	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0	0	100.00
Sindh	Urban	212	94.8	99.1	97.2	92.5	99.1	97.2	92.5	93.9	0.9	11.8	87.3
	Rural	211	96.2	95.7	91.7	86.7	95.7	91.7	86.7	93.9	4.3	17.0	78.7
N.W.F.P	Urban	215	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	1.4	0.9	97.7
	Rural	212	99.1	99.1	99.1	99.1	99.1	99.1	99.1	99.1	0.9	0	99.1
Balochistan	Urban / Rural	215	83.7	86.5	79.5	67.4	86.5	79.5	67.4	74.4	10.7	29.8	59.5
A.J.K.	Urban / Rural	210	99.0	99.5	98.6	97.1	99.5	98.6	97.1	97.1	0.5	11.4	88.1
Country Wide			97.5	98.5	97.4	95.6	98.5	97.4	95.6	97.0	1.3	5.2	93.5

Source: Government of Pakistan (1991).

Table 3

Coverage Mothers of Children 0–11 Months Age Group by TT According to Card Plus History, Pakistan, January, 1991

Province	Area	No. of Mothers	Tetanus Toxoid Percentage				
			1st Dose	2nd Dose	3rd Dose	4th Dose	5th Dose
Punjab	Urban	213	97.7	97.7	20.2	8.0	2.8
	Rural	211	99.5	96.7	12.8	1.9	0
Sindh	Urban	211	85.3	79.3	1.4	0.5	0
	Rural	212	72.0	61.8	0.5	0	0
N.W.F.P.	Urban	214	97.2	95.3	27.1	6.1	1.4
	Rural	211	97.2	95.3	34.1	1.9	0.5
Balochistan	Urban/ Rural	213	36.2	30.0	6.1	0.9	0.5
A.J.K.	Urban/ Rural	210	95.2	93.3	24.3	4.3	0.5

Source: Government of Pakistan (1991).

Table 4

Source of Immunisation for Children 12–23 Months Age Group, Pakistan, January, 1991

Province	Area	Source of Immunisation (%)			
		Hospital	Health Centre	Out Reach/ Mobile Team	Private
Punjab	Urban	13.3	14.7	71.0	–
	Rural	2.4	0.5	97.1	–
Sindh	Urban	35.3	21.9	36.3	6.5
	Rural	4.9	6.4	76.4	12.3
N.W.F.P	Urban	27.0	31.9	41.1	–
	Rural	15.2	8.6	76.2	–
Balochistan	Urban/ Rural	6.7	10.5	82.8	–
A. J. K.	Urban/ Rural	1.0	42.1	56.9	–

Source: Government of Pakistan (1991).

Table 5

Source of Tetanus Toxoid Immunisation for Mother of Children 0–11 Months Age Group, Pakistan, January, 1991

Province	Area	Source of Immunisation (%)			
		Hospital	Health Centre	Out Reach/ Mobile Team	Private
Punjab	Urban	22.1	17.8	56.3	2.8
	Rural	4.8	1.4	93.8	–
Sindh	Urban	36.1	24.4	30.6	8.9
	Rural	5.3	15.1	65.1	14.5
N.W.F.P	Urban	36.5	28.4	32.2	2.9
	Rural	24.4	4.9	70.7	–
Balochistan	Urban/ Rural	9.1	24.7	64.9	1.3
A. J. K.	Urban/ Rural	–	45.0	55.0	–

Source: Government of Pakistan (1991).

Table 6

Reason for Immunisation Failure among Non and Partially Immunised Children 12–23 Months Age Group

Reason	Number	%
Unaware of Need for Immunisation	20	10.3
Unaware of Need for Subsequent Visits	29	15.0
Fear of Side Effects	6	3.1
Others	9	4.6
Subtotal: Lack of Information	64	33.0
Postponed until another Time	5	2.6
No Faith in Immunisation	3	1.5
Subtotal: Lack of Motivation	8	4.1
Place of Immunisation Too Far	1	0.5
Time of Immunisaton Inconvenient	3	1.5
Vaccinator Absent	50	25.8
Mother too Busy	12	6.2
Family Problems	11	5.7
Child Ill not Brought	10	5.2
Child Ill Brought but not Immunised	3	1.5
Others	32	16.5
Subtotal: Obstacles	122	62.9
Total	194	100.0

Source: Government of Pakistan (1991).

CONCLUDING REMARKS

The high coverage rate achieved in Punjab, North West Frontier Province and Azad Jammu and Kashmir needs to be maintained. Furthermore, there is still room for improvement especially in TT coverage of mothers. The two lagging provinces, namely Sindh and Balochistan need special attention, particularly the latter. In all circumstances, greater emphasis should be put on reaching children in their first year of life. The programme should be regularised along with other health facility activities. Mobile activities being very costly, these should be undertaken as a follow-up to defaulters and for neglected areas.

The main objective of the EPI Programme is to reduce child morbidity and mortality from the six diseases namely poliomyelitis, diphtheria, prenatal tetanus, pertussis, Measles and Tuberculosis. The EPI aim was to reduce children's mortality from these diseases by 90 percent by the year 1990, and in fact infant mortality has been reduced from 106.4 per 1000 live births in 1984-1985 [Government of Pakistan (1986)] to about 100.9 in 1990-1991 [Govenment of Pakistan (1992)].

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