

Evaluation of Immunization Programme at Hyderabad, Andhra Pradesh, India 2006

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Universal immunization programme in India

- Started in 1985 in India
- Child immunization component: BCG and oral polio vaccines at birth, DPT and oral polio vaccines at 6, 10 and 14 weeks, Measles vaccine at 9 months of age, DPT and oral polio booster dose at 18 months of age, DT vaccine between 4.5-5.5 years of age, TT to school children at 10 and 15 years.
- Antenatal component: Two doses of tetanus toxoid

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Immunization programme at Hyderabad, Andhra Pradesh, India 2005

- Reported Immunization coverage in 2005-06:
 - Measles: 98%
 - DPT (I booster): 89%
 - DT (II booster): 63%
- National Family Health Survey report for AP:
 - Complete immunization in infants up to measles: 58%
- Reported attack rates of diphtheria increased from 11 to 21 per 100,000 between 2003 and 2006

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Objectives of the immunization programme evaluation at Hyderabad, AP, India 2006

- Estimate the coverage of various vaccines given to children
- Identify the problems areas
- Suggest recommendations to improve the coverage

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Methods for assessment of input and process to Immunization programme at Hyderabad, AP, India 2006

- Tool: Semi structured questionnaire and WHO immunization coverage forms to assess Infrastructure and logistics at the district head quarters and urban health centres
- Sample: 30/60 urban health centres
- Observation of immunization review meetings: 5
- Observation of immunization sessions: 5

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Methods: Vaccination coverage survey at Hyderabad, AP, India 2006

- Lot Quality Assurance Sampling in 7 circles of the city
- Three age groups
 - 12 - 23 months (for measles)
 - 24 - 35 months (for 1st booster)
 - 54 - 72 months (for 2nd booster)
- Sample size
 - Lot of 94 children for each circle in each age group
 - Coverage cannot be considered to exceed 80% if more than 9 of the 94 children are incompletely vaccinated for age in each lot
- Vaccination status
 - Immunization card/mothers' history (if card unavailable)
 - Reasons for incomplete vaccination (wherever applicable)
- Analysis
 - LQAS analysis by circle
 - Weighted average coverage for the district

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Results: Inputs to immunization programme at Hyderabad, AP, India 2006

- Staffing: adequate in 6.6% (2/30) of the health centres
- Logistics: Cold chain equipment functional in 93% (28/30) units.
- Cold chain of vaccine is well maintained in public sector
- Private sector is not monitored where 20% of vaccinations are received

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Results: Processes in immunization programme at Hyderabad, AP, India 2006

- Immunization sessions: Information about the next scheduled dose is not conveyed to the mother in all the five out reach sessions observed. Supervision of the session or field verification is not done by the supervisory staff
- Adverse events following immunization are not reported in all the thirty urban health centres.
- Vaccination coverage up to measles only are monitored at all the five district reviews. Booster coverage not monitored in the review meetings.

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LQAS analysis of antenatal coverage by circle, Hyderabad, AP, India, 2006

Circle number	>3 Antenatal Check ups	2 nd dose -Tetanus Toxoid
1	85	92
2	79	92
3	88	92
4	88	94
5	88	94
6	90	90
7	82	94
Coverage*	91%	99%
* Weighted average		9

LQAS analysis of vaccination coverage by circle, Hyderabad, AP, India, 2006

Number of **incompletely vaccinated** children among the 94 in each lot / circle (d=9)

Circle number	Measles (12-23 months)	DPT-booster (18-36 months)	DT (54-72 months)
1	26	46	64
2	39	50	74
3	22	24	59
4	30	39	63
5	17	37	71
6	18	37	41
7	17	29	51

Lots where coverage can not be considered to exceed 80% (n>9) in pink

Overall vaccination coverage, Hyderabad, AP, India, 2006

Number of vaccinated children among the 94 in each lot / circle

Circle number	Measles (12-23 months)	DPT-booster (18-36 months)	DT (54-72 months)
1	68	48	30
2	55	44	20
3	72	70	35
4	64	55	31
5	77	57	23
6	76	57	53
7	77	65	43
Coverage *	74%	60%	33%

*Weighted average

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Reasons for incomplete immunization of less than 6 years children at Hyderabad, A P., India 2006

- Lack of information: 48%
- Obstacles for immunization: 32%
- Lack of motivation: 20%

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Limitations

- Availability of vaccination cards among different age groups of the surveyed children:
 - In 12-23 months: 466/658 (71%)
 - In 18-36 months: 450/658 (68%)
 - In 54-72 months: 253/658 (38%)
- Limitation is partly addressed by checking the field worker's records if the vaccine has been received at the urban health centres

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Conclusions

- Lack of adequate human resource has affected the immunization programme resulting in
 - incomplete coverage of the areas
 - no inter personal communication between the mothers and the health staff
- Lack of awareness about need of boosters
- Monitoring of immunization is done up to measles vaccine, boosters are not monitored

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Recommendations

- Increase the number of field workers
- Encourage inter-personal communication between the mothers and health staff
- Need to improve the awareness regarding boosters among mothers
- Monitor the coverage of booster doses during reviews at all levels

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LQAs for immunization coverage survey at Hyderabad, India 2006

- Basis for sample size calculation:
 - P_0 - 0.2
 - P_a - 0.08
 - alpha error - 1%
 - power- 20%
- Sample size : 94
- Using Cluster sampling methods 11 clusters of 9 each are selected from each circle (removed 5 at random) by probability proportionate to size

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Assessment of Immunization programme

	Input	Process	Output
Staff	District level	Training, monitoring, monthly reviews	Proportion of optimally functioning units
	Health centre level	Monitoring, monthly reviews, immunization and antenatal clinics	Proportion of children & antenatal women covered by immunization
	Field level	Out reach sessions	
logistics	Vaccine	Vaccine logistic forms & vaccine supply chain	Proportion of centres with adequate vaccine
	Cold chain equipment	Maintenance of equipment Maintenance of cold chain	Proportion of centres administering quality vaccine
	Bio hazard equipment	Injection safety practices	Proportion of children with adverse events after immunization

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Immunization coverage among Muslim and non-Muslim children, Hyderabad, AP, India, 2006

Age group (Months)	Muslim		Non-Muslim		Coverage ratio (p)
	N	Vaccinated for age(%)	N	Vaccinated for age(%)	
12-23	223	155 (69)	435	334 (77)	0.90 (0.05)
18-35	225	122 (54)	433	274 (63)	0.86 (0.03)
54-72	217	53 (24)	441	182 (41)	0.59(0.00)

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 - 54 - 72 months (for 2nd booster)
- Sample size
 - Lot of 94 children for each circle in each age group for a critical value of nine
- Vaccination status
 - Immunization card/mothers' history (if card unavailable)
 - Reasons for incomplete vaccination (wherever applicable)
- Analysis
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 - Weighted average coverage for the district

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Results: Inputs to immunization programme at Hyderabad, AP, India 2006

- Staffing: District immunization officer on leave for the past one year. 6/60 (10%) medical officer's posts are vacant. 39/240 (16%) field worker posts are vacant (One field worker for 15000-24000 population)
- Proportion of optimally functioning units: (2/30) 6.6%
- Logistics: Cold chain equipment non functional in 2/30 (6.6%) units. Cold chain of vaccine is well maintained in public sector (private sector is not monitored where 20% of vaccinations are received).

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Reasons for incomplete immunization of less than 6 years children at Hyderabad, India 2006

- Lack of information: 48%
 - not aware of need to return for next dose: 46%
 - not aware of need for immunization: 29%
 - not aware of time and place of immunization: 17%
- Obstacles for immunization: 32%
 - children ill and not brought for vaccination: 35%
 - mothers too busy/had family problems: 46%
- Lack of motivation: 20%
 - postponed vaccination for another time: 59%
 - belief in rumors about adverse events: 18%