Social Determinants and Polio 'Endgame': A Qualitative Study in High Risk Districts of India

RAJIB DASGUPTA, *SANJAY CHATURVEDI, †S VIVEK ADHISH, **KALYAN K GANGULY, ††SANJAY RAI, $LEENA SUSHANT AND $N K ARORA

*From the Center of Social Medicine and Community Health, Jawaharlal Nehru University, Delhi; *Department of Community Medicine, University College of Medical Sciences and GTB Hospital, Delhi; †Department of Community Health, National Institute of Health and Family Welfare, Delhi; **Reproductive Health and Nutrition Division, Social Behavior Research Unit, Indian Council of Medical Research, New Delhi; ††Center for Community Medicine, All India Institute of Medical Sciences, New Delhi; and $The INCLEN Trust International, INCLEN Executive Office, New Delhi, India.*

Correspondence to: Prof Narendra K Arora, Executive Director, The INCLEN Trust International, 5th Floor, 18, Ramnath building, Yusuf Sarai, New Delhi 110 049, India. E-mail: nkarora@inclentrust.org

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ABSTRACT

Objectives: *To understand the perceptions and likely determinants that facilitate or act as barriers in implementing additional strategies for polio eradication: (a) accelerated delivery of mOPV1 (monovalent polio vaccine type 1); (b) use of IPV (inactivated polio vaccine); and (c) provision of incentives.* ***Design:*** *Qualitative. Rapid appraisal procedures (RAP) were adopted to derive the reality by synthesizing multiple sources of information; search for opinions, motivations, behaviors and attitudes of key stakeholders within their organizational and socio-cultural matrix.* ***Setting:*** *Two districts of Uttar Pradesh – Moradabad and J P Nagar.* ***Subjects:*** *Total 244 interactions were conducted; 33 interviews and 4 focussed group discussions (FGD) conducted with providers; 33 mothers (<5 years) and 10 leaders were interviewed; 8 FGD were conducted with mothers of under-fives. Informal interactions (156) were also conducted with village pradhans, religious leaders, parents, businessmen, journalists (Hindi and Urdu media), mobilizers, vaccinators and supervisors.* ***Results:*** *Providers expressed reservation regarding accelerated rounds of OPV; scientific rationale of accelerated rounds is not clear to parents and leaders. Although technical advantages of introducing IPV exist, issues of logistical difficulties and injection safety emerged strongly. Providers and communities indicated a clear 'no' to the cash incentives but argued for developmental issues. Resistance to the program has declined over time but still the program is perceived as the "government's need, not ours".* ***Conclusion:*** *The polio eradication program is critically poised, an opportunity to intensify efforts for reducing inequities in health services and improve access of all children to the PHC services. Ongoing dialogue with local communities and strong political commitment would be essential to translate the technological innovations into a sustainable program.*

Key words: *Eradication, Inactivated polio vaccine (IPV), Incentives, Oral polio vaccine (OPV), Poliomyelitis, Qualitative research, Resistance, Social mobilization.*

INTRODUCTION

The Global Polio Eradication Initiative has witnessed a number of strategic and technological shifts in India. Since 2000-1, when India was seen to be rapidly moving towards zero incidence of wild poliomyelitis virus (WPV), several 'endgame' strategies (for interrupting final chains of polio

transmission) were adopted to facilitate eradication including mopping up campaigns(1). For over a decade, Moradabad and Jyotiba Phule (JP) Nagar districts of Uttar Pradesh (UP) have been reporting majority of polio cases in India with 'Moradabad strains' accounting for spread of WPV within and outside the country. UP reported over 80 per cent of the total cases (676) of WPV outbreak during 2006(2-5). There were regular reports of persistent pockets of resistance/reluctance to the polio eradication initiative in these 2 districts. Discussion during India Expert Advisory Group (IEAG) meetings indicated that a thorough analysis of yet another outbreak of WPV particularly in UP and Bihar, despite using a more potent vaccine (monovalent oral polio vaccine 1 [mOPV1]), was essential(6). Persistence of WPV circulation has also been attributed to lack of proper implementation of strategies at the grass roots level rather than the efficacy of mOPV1(7). Efficacy of OPV and the required number of doses has been a matter of intense debate(8-10). Undoubtedly, OPV has worked for most parts of the globe.

The Seventeenth IEAG noted with concern that WPV continued to be an infection of very young children and recommended that younger age groups require repeated OPV administration within a shorter period of time(2). It has been asserted that infants will require 10 doses of OPV by 6-9 months in order to achieve protective levels of immunity(11). Simultaneously, there have been demands from certain quarters for introduction of the injectable polio vaccine (IPV) as an endgame strategy(7). Resistance to vaccination of under-five children by their parents has been widely reported from these areas (and other parts of the world) along with "fatigue" and "burnout" of the service providers(12-14). It is imperative to maintain routine immunisation (RI) as well with recent improvements in coverage reported from these areas(7).

In view of the above issues and the imperatives of a long drawn eradication campaign, the Government of India (GOI) and the National Polio Surveillance Project (NPSP) considered the following additional strategies towards end-2006:

(*a*) accelerated delivery of monovalent oral polio vaccine type 1 (mOPV1);

(*b*) use of inactivated polio vaccine (IPV) as part of fixed site immunization activity; and

(*c*) provision of incentives (health and non-health) during a fixed site activity.

The present study was planned to gain an understanding of perceptions and likely determinants that could potentially facilitate or act as barriers in implementing these strategies in Moradabad and JP Nagar districts, UP, India.

METHODS

Study setting and timings: Moradabad and JP Nagar districts had reported maximum number of wild polio virus cases during 2006. In all, 10 blocks (5 in each district) were selected for the study based on perceived social resistance to polio drops**.** Decision to select a particular block was based on review of NPSP data, interactions and insights of district level providers and NPSP units, and consensus among the investigator team. We did a purposive sampling of blocks to get a complete range of views and perceptions prevailing in the two districts rather than targeting any region or community/group (Moradabad district–Thakurdwara, Dillari, Moradabad (city), Sambhal, Kundarki; J P Nagar District–Dhanaura, Gajraula, Amroha, Rehra, Hassanpur). Data collection lasted for three weeks from December 2006 through January 2007, which included a National Immunization Day (7th January).

Investigators: The study team was multi-disciplinary, comprising of program evaluation experts, epidemiologists, health social scientists, anthropologists and public health specialists. All the team members have participated in program evaluation research since 1997 and are trained in qualitative research methods.

Tools: Qualitative research methods were used for the study. Rapid Appraisal Procedures (RAP) were adopted to derive the reality by synthesizing multiple sources of information. An attempt was made to search for opinions, motivations, behaviors and attitudes of key stakeholders within their

organizational and socio-cultural matrix. Emphasis was laid on identifying social determinants that could affect perceptions about, access to, acceptance and uptake of proposed modified strategies. Open ended semi-structured in-depth interviews, unstructured interviews, and focus group discussions (FGD) (with pre-defined topic guides) were conducted with a wide range of stakeholders at the district, block and grassroots levels.

Stakeholder selection: One PHC was selected in each identified block for interviews and FGDs. FGDs were held with ANMs, Anganwadi Workers, Mobilizers/ ASHA workers in identified PHCs. Semi-structured in-depth interviews were also held with the parents of under-5 children and religious, social and political leaders. Special emphasis was placed on interviewing leaders from major religious groups, influential business persons and political leaders. To complement in-depth interviews and FGDs, informal interactions (unstructured inter-views) during pulse polio campaign were also conducted to obtain insights during the NID. Profile and number of stakeholders interviewed and FGDs conducted in each of the two districts are given in the ***Table*** **I** and **II**. None of the clients or providers who were approached for in-depth interviews refused to participate.

Data collection instruments, data processing and analysis: Based on our previous work on polio eradication program in India(15-17), systematic reviews, and other published qualitative research studies on polio eradication, topic guides for FGDs and questionnaire for in-depth interviews were developed.

Detailed notes were taken during in-depth interviews by research team members but not audio recorded. All FGDs were audio recorded and handwritten verbatim by research assistants. The notes were later supplemented by transcripts of audio tapes, and thereafter translated into English. An '*emic*' view was obtained by ensuring that all interactions were held in Hindi and that investigators were familiar with the local dialect customs and culture.

Qualitative data was analyzed in a stepwise manner: free listing of responses, domain formation and data summarization. Data was analyzed separately for each category of stakeholder and then re-analyzed to assess similarities and differences in perceptions across stakeholders. Based on experience of investigators from previous qualitative studies in traditional and developing societies, data were analyzed and interpreted by trained social scientists from diverse cultural backgrounds. Semi-quantitative qualifiers were used while interpreting and summarizing the results of the qualitative study. Adjectives were used to describe them like 'some' was used to denote responses from less than 25% respondents; '*almost half*' for 25-50% responses; 'majority' for 50-75%; '*most*' for 75-90%; and '*almost all*' was used when more than 90 percent of the respondents echoed similar perceptions.

Quality assurance measures: A lot of emphasis was laid on the initial training of the investigators. To improve the validity and reliability of the observations and inferences; topic guides were prepared by a multi-disciplinary team and the same team was also involved in the data analysis. Topic guides and interview schedules were translated to Hindi and Urdu and back translated to English. Quality assurance visit was made by one of the investigators (NKA) to the field when actual data collection was going on. Besides these, standard guidelines for interviewing and conducting focus group discussions were followed.

RESULTS

Analysis of the qualitative information revealed two emerging trends in the perceptions on initiatives proposed by the program managers–a strong trend of *synergy*, and a very weak trend of *divergence* of views, between two distinct categories of stakeholders: providers and community stakeholders. Since the qualitative enquiries work on 'emerging' instead of forced '*a priori'* theories, the findings of this study are presented through these two emerging trends. Quotes given with each domain echo and represent the sentiment of majority/most of that sub-group of stakeholders. We did not find differences in observations between districts and blocks.

Synergy of Perceptions

A. Frequent rounds of OPV

(*i*) *Providers*

- Routine services likely to be affected

TABLE I NUMBER OF STAKEHOLDERS INTERVIEWED AND FGDS CONDUCTED IN EACH DISTRICT

Stakeholder	District		
	Moradabad	JP Nagar	Total
Providers			
A. *Interviews*			
District Level			
District Magistrate	1	1	2
Chief Medical Officer	1	1	
District Immunization Officer	1	1	7
Surveillance Medical Officer	1	1	
Routine Immunization Officer	1	0	
Block / PHC Level:			
Block Medical Officer	4	4	8
Block PHC Medical Officer	4	4	8
PHC / Addl PHC Medical Officer	4	4	8
B. *Focus group discussions*			
ANM	1	1	2
Vaccinators	1	0	1
Mobilizers	0	1	1
Community stakeholders			
A. *Interviews*			
Mothers of children (<5 yrs)			
Rural:			
Muslim	6	5	11
Hindu	3	3	6
Urban:			
Muslim	5	5	10
Hindu	3	3	6
Community leaders:			
Muslim	7	2	9
Hindu	0	1	1
B. *Focus group discussions*			
Mothers of children (<5 yrs)			
Rural:			
Muslim	1	1	2
Hindu	1	1	2
Urban:			
Muslim	1	1	2
Hindu	1	1	2

(*a*) *"OPDs get shut. CHC has staff, but Additional PHCs may have problems. Give medicines today and then . . . after six days. People are already troubled with one month (rounds of pulse polio). They will revolt with 15 days (rounds)."* [District Level Provider]

- Need augmentation of infrastructure and manpower to prevent further disruption of general health services

(*a*) *"Deep freezers, fuel, generators, cold boxes, are less."* [District Level Provider]

- Likely to aggravate 'fatigue' among all categories of staff; programme performance may suffer

(*a*) "*You get less X (households) when rounds are conducted at intervals of one-and-a-half to two months; X (households) will increase if rounds are conducted every 15 days."* [PHC doctor]

- In an environment of suspicion, resistance might increase

(*a*) *". . . we will have to explain the reasons to the community; doctors also question, 'give only as many doses as are necessary."* [Block Level Provider]

(*b*) *"The public has already got very irritated now if the rounds are increased they will show a lot of resistance next time."* [PHC doctor]

(ii) Community stakeholders

- Questions raised about increasing the frequency

(*a*) *"The old woman was telling that they are giving the vaccine overdose. She was not ready to give drops to her child."* [Rural Muslim Mother]

(*b*) *"I still have my doubts; why are you administering the vaccine so frequently?"* [Urban Muslim Mothers- FGD]

(*c*) *"Will it give rise to any other problem?"* [Urban Hindu Mother]

(*d*) *"Those mothers who are immunizing their children at present will also ask as to what is the sudden need to give it in 15 days. They would*

TABLE II DETAILS OF INFORMAL INTERACTIONS CONDUCTED DURING FIELDWORK AND ON NATIONAL IMMUNIZATION DAYS

Stakeholders interviewed	Numbers
Urban businessmen	4
Journalists (Hindi/Urdu media)	7
Mobilizers (CMCs and BMCs)	21
Local leaders	29
Marginalized parents (Muslim and Hindu)	43
Vaccinators (during NID, in booths and in the field)	28
Supervisors	24
Total	156

also question about the motives behind frequent rounds." [Urban Hindu Mother]

- Those who are currently resistant/ reluctant are unlikely to comply

  (*a*) *"Those who are currently accepting might still accept OPV every 15 days but those who are refusing will not allow in any case."* [Urban Hindu Mother]

  (*b*) *"People who are following just now would also stop doing so, they would also doubt that there is something wrong that they are coming for it so frequently."* [Urban Muslim Mothers-FGD]

  (*c*) "Every body would run away and that is finally our loss." [Urban Muslim Mother]

- May lead to strengthening of rumours

  (*a*) "But people may even think that why is it being given more frequently. Do they again plan to stop our child bearing." [Urban Hindu Mothers-FGD]

B. Distribution of incentives during pulse polio rounds

(*i*) *Providers*

- Most of the providers said that there was acceptance of gifts and toys and attracted young children. However cash incentives will lead to a potential damage to the program; and might breed competitive populism and bargaining tendency at grassroots level.

(*ii*) *Community stakeholders*

- Majority of the clients opined that the gifts and financial incentives are not going to work in long run.

  (*a*) "*When whistles and toffees are not distributed properly how would money be . . . there is so much of corruption.*" [Rural Hindu Mother-FGD]

  (*b*) "*You should know if Rs100/- comes for distribution, then only Rs50/- would be distributed*." [Rural Hindu Mothers-FGD]

  (*c*) "*Unless people make up their mind, incentives would not work. Such people can change their mind anytime*." [Rural Muslim Mother]

  (*d*) "*For her child mother can never be lured*." [Urban Hindu Mothers-FGD]

C. Introduction of Injectable Polio Vaccine into the Polio Eradication Initiative

(*i*) *Providers*

- Most of the providers were against introduction of another 'injectable' vaccine primarily due to logistic reasons. It would be very difficult to convince even the utilizer client to accept.

  (*a*) *"It (IPV) is not going to be successful. If only 30 percent coverage is achieved, it is pointless. There will be no benefit below 80 percent (coverage). If there is a case of polio even after giving injections, then both the strategies will fail. Confusion will increase. Then the oral vaccine will also not be accepted. This vaccine is expensive too*." [District Level Provider]

  (*b*) "*We do not have a full network for RI. There are only two ANMs for an urban population of 250,000. Who will implement it? We cannot do RI (properly)."* [District Level Provider]

  (*c*) *"People accept injection in an emergency; but polio is not an emergency (for the community)."* [District Level Provider]

  (*d*) *"A further blow to the Pulse Polio programme in our district. Why are all*

experiments being done here?" [District Level Provider]

- However, many of them thought that IPV, if added to DPT, can be effectively introduced in RI.

(*ii*) *Community stakeholders*

- Mothers were worried about an injections and were of the opinion that IPV would create a sense of scare among children and has possibilities of injection related complications,

  (*a*) "*Children would be scared. When their turn comes they would run away into lanes, mother would run after them to save her neck. But once gone, a child is not easily caught hold of and thus missed*." [Rural Muslim Mothers-FGD]

  (*b*) "*If vaccine is not effective through drops and it is necessary to give by injections then it is fine, but what if infection is transmitted through injections and abscess is formed, there would be further resistance*." [Rural Muslim Mothers-FGD]

  (*c*) "*Who knows, they (paramedics) might be reusing syringes*." [Rural Muslim Mother]

  (*d*) "(Acceptable) *if a single injection suffices and repeated rounds end*." [Urban Hindu Mother]

  (*e*) *"People have to be explained. We all know vaccine is same and government aim is same but people understand different motives of the government. So we have to explain to them."* [Muslim Leader]

- Some of them thought that a combined IPV+DPT can be acceptable under RI.

  (*a*) *"When you are giving other injections give even IPV, nobody would ever know."* [Rural Hindu Mother]

Divergence of Perceptions

There was no divergence among providers and community stakeholders on 'the frequent rounds of OPV' and 'the IPV'. It was seen on the issue of incentives only.

Distribution of incentives during pulse polio rounds

(*i*) *Providers*

- Most of the providers found the idea of health incentives (*e.g.*, heath camps, distribution of drugs and services during NIDs) unworkable. For them, already burdened machinery was not good enough to be deployed for an obscure goal.

  (*a*) *"But can we do it? Can we organize 1000 camps? . . . Have to be consistent. . . . We should not go for major changes."* [District Level Provider]

(*ii*) *Community Stakeholders*

- Many of them wanted other health services–*e.g.*, free check up for child and medicines to be made available at the booth.

  (*a*) *"There is considerable demand for health related incentives".* [Muslim Leader]

  (*b*) *"If they can, probably, give some medicines for pneumonia, fever, multivitamin tonics."* [Rural Muslim Mothers-FGD]

- Despite the apparent demand for health services, 'overkill' could raise suspicions.

  (*a*) "*If medicines are given with polio drops, it will raise suspicion.*" [Muslim leader]

  (*b*) *"Along with children, will you give us drops to stop bearing children?"* [Muslim Mother]

DISCUSSION

Providers expressed strong reservation regarding 'accelerated rounds of OPV' since fatigue among healthcare workers was evident. The strategy would entail significant augmentation of resources and could lead to increased resistance among some communities. The rationale of accelerated rounds (the current rounds already perceived as too many) was not clear to parents and leaders; sustained advocacy would be required to gain acceptability. The question "why only polio?" (while delivery of routine health services remained dismal) was uppermost in the minds of the community.

Experience of the smallpox eradiation program indicates that eradication is not entirely a biological or technical exercise. Similar patterns of social resistance to smallpox immunisation was reported from these districts and other 'hotspots' during the 1970s(18).

Technical advantages of introducing IPV as an end game strategy have been advocated by experts(19-21). Issues of logistics difficulties and injection safety were raised strongly both by the providers and community stakeholders. Community members and providers wanted to know about the number of doses of IPV that would obviate need of repeated OPV rounds; otherwise this intervention could hurt the current momentum of the program. Despite considerable demand and acceptance in our communities for therapeutic injections(22,23), enthusiasm about preventive injections (vaccines) was lacking; IPV was thus unlikely to have any great demand. Although some improvement in coverage of Routine Immunisation has been reported recently(24), in the current background of very low coverage of routine immunization in UP, care should be taken so that none of the proposed innovations undermine this important child health program.

In the present study, there was no demand for individual cash incentives. On the other hand, groups and leaders at several study sites strongly argued for effective and responsive primary healthcare services, thus constituting demand for 'group incentives'. In view of the programmatic constraints of manpower and logistics, providers were not sure about the sustainability of activities like repeated health camps. Though both providers and clients agreed that 'add-ons' like whistles, caps, toffees attracted children to booth, benefits of such add-ons were likely to be minimal on the program coverage as mothers "could not be lured" because community in general and mothers in specific wanted to be convinced about the utility of repeated OPV rounds. Incentives and coercion co-existed in the Family Planning Program (FPP) and were considered 'legitimate' means to 'motivate'; sporadic use of these nevertheless "had done much to undermine the credibility of the program"(25-27).

Targeted (read vertical) eradication/elimination programs offer both opportunities and threats to health services systems but may prove to be "much less effective than visualised"(28). Eradication and ongoing programs need to have complementary approaches; "in many cases the problem is not that eradication activities function too well but that primary health care activities do not function well enough!"(29). Targeted programs provide opportunity to strengthen management capacity at district and lower levels(16,17). Earlier Pulse Polio evaluations done by IPEN teams have borne out that these opportunities are exploited differently in different parts of the country. While health systems appeared to respond well in several well performing (health-wise) southern states, 'community fatigue' and 'implementation fatigue' was complained of in poor performing and polio endemic states with repeated immunisation rounds(5,14,16,17). Innovative social mobilisation strategies and campaigns have engaged with 'non-believers' and 'non-acceptors'. Over time there has been a decline in resistance to the program. Yet, inadvertently, a message has gone to the most resistant groups that the state is desperate to do anything to achieve 100 per cent coverage; it is perceived as the "government's need, not ours".

The study adopted qualitative research methods and will have inherent limitations of purposive sampling of specific locations, respondents and the background of investigators. The methodology has stated explicitly the quality assurance measures which were incorporated right from the time of conceptualization of the study to minimize bias.

The final stages of polio eradication need to be seen as an opportunity to intensify efforts to reduce inequities in health services and remove barriers to reaching all children with primary health care services. The polio eradication program is critically poised at present. In one year after this study 10 rounds of pulse polio immunization were conducted in study area (Moradabad and JP Nagar districts)(2). Although the study observations had suggested that there were reservations among community and providers, the strategy adopted during 2007 by national polio eradication initiative resulted in marked reduction in paralytic polio due to WPV1 but WPV3 outbreaks continued to occur in different parts of UP and Bihar. The program strived to

overcome anxieties of providers and communities through communication strategies and made extra efforts to strengthen health systems. Ongoing dialogue with local communities and strong political commitment would be essential to translate technological innovations into a sustainable program. Answers need to be sought from social determinants so that proven technological strategies, that have yielded results in most parts of the world, can work in these pockets as well.

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