

Deconstructing Social Resistance to Pulse Polio Campaign in Two North Indian Districts

*SANJAY CHATURVEDI, †RAJIB DASGUPTA, §VIVEK ADHISH, **KALYAN K GANGULY, ††SANJAY RAI, LEENA SUSHANT, SRABASTI AND NARENDRA KARORA

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

Correspondence to: Prof Narendra K Arora, Executive Director, The INCLIN Trust International, 2nd Floor, F-1/5, Okhla Industrial Area Phase I, New Delhi 110020, India. nkarora@inclintrust.org

Manuscript received: December 31, 2008; Initial review: February 27, 2009; Accepted: April 28, 2009.

Objective: To gain an insight into the phenomenon of social resistance and rumors against pulse polio campaign.

Design: Qualitative, community-based investigation, mapping perceptions of various stakeholders through in-depth interviews (IDIs), focus group discussions (FGDs), non-formal interactions and observations.

Setting: Moradabad and JP Nagar districts of Uttar Pradesh.

Subjects: IDIs (providers 33, mothers 33, community leaders 10); FGDs (providers 4, mothers 8) and non-formal interactions (156) with community leaders, parents, businessmen, journalists (Hindi and Urdu media), mobilizers, vaccinators and supervisors.

Results: A distinct machination of social resistance and rumors against oral polio vaccine during supplementary immunization activities (SIA) was observed in some minority dominated areas. The pattern can be understood through a model that emerged through qualitative evidence. In spite of all this, most parents in minority areas

supported the SIAs. Only a few clusters from extremely marginalized sections continued to evade SIAs, with an endemic pattern. Through social osmosis, these rumors reached majority community as well and some parents were affected. However, in such cases, the resistance was sporadic and transient.

Conclusion: While the program's focus was on microbiological issues, the obstacles to polio eradication lie in the endemicity of social (and/or cultural) resistance in some pockets, leading to clustering of perpetually unimmunized children - in spite of good coverage of SIAs at macro level. This may sustain low levels of wild poliovirus transmission, and there can be exceptions to the robustness of the pulse approach. A micro level involvement of volunteers from marginalized pockets of minorities might be able to minimize or eliminate this resistance.

Key words: Eradication, India, Pulse polio, Rumors, Supplementary Immunization Activities (SIAs), Social resistance.

Published online: 2009 September 3. PII:S097475590800748-1

The 60th World Health Assembly urged endemic states (including India) to engage local leadership and members of the remaining poliomyelitis affected populations for ensuring acceptance of poliomyelitis eradication activities. Immunization campaigns have deeply rooted social and political dimensions in addition to their health benefits – and this makes the

situation complex. The wild polio virus 1 (WPV1) outbreak in India in 2006 (648 cases) was followed by a WPV3 outbreak in 2007 (791 cases). Majority of WPV cases were reported from two large Indian states – Uttar Pradesh (UP) and Bihar(1). Disproportionately higher number of paralytic polio cases have been reported among marginalized segments of Muslim population. Endemicity in these

hotspots has been variously attributed to biological determinants like the peculiar environmental and sociodemographic milieu of western UP (high population density, high birth rate, poor sanitation, etc.) coupled with poor performance of supplementary immunization activities (SIAs) with consequent low coverage, and also to social and program determinants, including falsification of data and resistance by the minority community(2).

While technical strategies and innovations have focussed largely on vaccines(3,4), social determinants of the program have not been accorded comparable importance. Persistent hotspots marked by similar patterns of social resistance towards the end of the eradication efforts of smallpox and polio programs (thirty years apart) in the same states (Uttar Pradesh and Bihar) portend that lessons of the smallpox eradication have not been learnt and applied to the polio eradication initiative(5). In this long-drawn eradication campaign, fatigue and burnout has been reported among service providers; and among marginalized communities the phenomena has manifested as social resistance with complex constructs(6-8). Lately though, social mobilization efforts have been considerably stepped up and reduction in social resistance to vaccination along with improvement in the tonality of media coverage has been reported(9). However, knee jerk reactions such as mandatory single-dose OPV administration for all *Haj* pilgrims (adults and children) have added to the confusion(10).

If the goal of polio eradication is to be achieved, the program strategy should be acceptable to everyone concerned without harassment and hesitation. In this context, it will be imperative that the determinants of underlying social resistance in the endemic pockets of Uttar Pradesh and Bihar are systematically analyzed. This is particularly critical when younger age groups need to be repeatedly immunized at short intervals to achieve optimal immunity. The present study was designed to gain an understanding of the phenomenon of social resistance/reluctance and rumours against pulse polio campaign in two highly endemic districts of western Uttar Pradesh, namely Moradabad and Jyotiba Phule Nagar (JP Nagar).

METHODS

Study setting and timings

On the request of regional office of the World Health Organization (WHO) and Ministry of Health and Family Welfare, Government of India, Moradabad and JP Nagar districts from the highly endemic areas of western Uttar Pradesh were purposively selected for the study. After interactions with district level providers, review of NPSP data, and consensus among the investigating team - Thakurdwara, Dillari, Moradabad City, Sambhal, and Kundarki blocks from Moradabad; and Dhanaura, Gajraula, Amroha, Rehra, and Hassanpur blocks from JP Nagar were selected. The decision to select these blocks was based on perceptions of program managers that these blocks demonstrated social resistance to polio drops. The term 'social resistance' was derived from the providers' and program managers' perspective. Data collection lasted for three weeks from December 2006 through January 2007, which included a National Immunization Day (7th January).

Stakeholder selection

One primary health center (PHC) was selected in each identified block for in-depth interviews (IDI) and focus group discussions (FGDs). IDIs were held with different levels of providers, mothers of under-5 children, and community leaders (religious, social and political). Special emphasis was placed on interviewing leaders from different religious groups, influential business persons and political leaders. FGDs were held for female health workers (Auxiliary Nurse Midwives), vaccinators, mobilizers (community-based functionaries of NGOs/UNICEF), and mothers of under-5 children in the identified PHCs. To complement IDIs and FGDs, a total of 156 non-formal interactions with local leaders, Hindi/Urdu journalists, businessmen, mobilizers, vaccinators, supervisors, and parents of children from marginalized Muslim and Hindu communities were also conducted. Profile and number of stakeholders interviewed and FGDs conducted in each of the two districts is reported in **Table I** and **II**. None of the clients or providers who were approached for in-depth interviews refused to

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

Stakeholder	District	
	Moradabad	J P Nagar
<i>A. Providers' Interviews</i>		
District Level		
District magistrate	1	1
Chief medical officer	1	1
District immunization officer	1	1
Surveillance medical officer	1	1
Routine immunization officer	1	0
Block / PHC Level		
Block medical officer	4	4
Block PHC medical officer	4	4
PHC / Addl PHC medical officer	4	4
Total	17	16
<i>B. Providers' Focus Group Discussions</i>		
Health workers (female)	1	1
Vaccinators	1	0
Mobilizers	0	1
Total	2	2
<i>C. Community Stakeholders' Interviews</i>		
Mothers of under-five children		
Rural		
Muslim	6	5
Hindu	3	3
Urban		
Muslim	5	5
Hindu	3	3
Community leaders		
Muslim	7	2
Hindu	0	1
Total	24	19
<i>D. Community Stakeholders</i>		
Focus Group Discussions		
Mothers of under-five children		
Rural		
Muslim	1	1
Hindu	1	1
Urban		
Muslim	1	1
Hindu	1	1
Total	4	4

TABLE II PROFILE AND NUMBER OF STAKEHOLDERS PARTICIPATING IN NON-FORMAL INTERACTIONS

Stakeholders interviewed	Numbers
Local Community Leaders (Muslim/Hindu)	29
Parents (Muslim/Hindu; Mother/Father)	43
Journalists (Hindi/Urdu media)	7
Urban Businessmen	4
Mobilizers	21
Vaccinators (During NID, in booths and in the field)	28
Supervisors	24
Total	156

participate. Observations were also recorded during the field work on a National Immunization Day (NID).

Data collection and analysis

Attempt was made to search for opinions, motivations and perceptions of key stakeholders from the district, PHC and community levels. IDIs, FGDs, and non-formal interactions including observations were used in the study to make an assessment of reality by synthesizing multiple sources of information. Based on our previous work on polio eradication programs in India(11-13), systematic reviews and other published qualitative research studies on polio eradication, guides for FGDs and tools for in-depth interviews were developed.

All FGDs were audio recorded and handwritten verbatim notes were later supplemented by transcripts of audio tapes, before final translation into English. Interviews were not audio taped; instead they were recorded verbatim by research assistants. All interactions were held in the locally spoken and understood language – *Hindustani*, and the investigators were familiar with the local dialect, customs and culture. The in-depth interviews lasted for 30-50 minutes. The duration of FGDs ranged from eighty minutes to two hours. FGD of providers consisted of 8-10 respondents, while FGDs of community members ranged from 9-13 members. Issues explored in FGDs included problems and constraints of the pulse polio program, reasons for not accessing some/all pulse rounds, response of the

administration towards defaulters, perceptions/reasons of specific groups (*e.g.* geographically isolated, specific caste or religious groups) who did not immunize their children with oral polio vaccines, and details of rumors/boycott of pulse rounds by any group(s). The non-formal interactions attempted to explore, capture and triangulate some sensitive domains of information. Notes were, however, made of non-formal interactions; the decision to include their perceptions was on the basis of consensus arrived among the investigators that they were internally consistent with findings from in-depth interviews and FGDs.

Qualitative data were analyzed in a stepwise manner: free listing of responses, domain formation, coding, and analysis. Data were analyzed separately for each category of stakeholder and then re-analyzed to assess similarities and differences in perceptions across stakeholders. The triangulation was done at two levels – across methods and across respondents. The consistency indicating towards a substantive significance (the way it is used in qualitative data) was explored.

Conceptual framework

The study adopted the *grounded theory* approach to develop an inductively derived explanation about the phenomena emerging from the data(14) instead of forcing or testing an *a priori* theory(15). We began with the data collection and allowed the emergence of relevant explanation(s). Through constant comparison and analysis, the team inductively derived a model that represented the phenomena. Since the enquiry involved micro-sociological perspective, the dictum - “all is data” was followed. A plethora of information, including some from informal interactions, contributed to the construction of the model. This was done with the awareness that some of the information could have been erroneously misclassified as journalism, and even the founder of the Grounded Theory had been a victim of such criticism(16).

Concept identification began with the first set of interviews with district level providers. Data collection was alternated with analysis. Open coding was initially done by opening up the text of the

interactions and subjecting them to intensive scrutiny, asking the question ‘what is going on here’? Detailed line-by-line microanalysis was done. Phenomena were identified from the interactions during interviews and FGDs, and analysis of stakeholder perceptions. Properties and dimensions of the phenomena were also identified, giving it specificity(17). Data was weaved around phenomena by axial coding. Thus, the major categories of phenomena began to emerge from the data. Finally selective coding was done for construction of core categories. We reached a point in both the districts when information seemed repetitive, and assured that the data saturation was achieved. Memo writing was done by handwritten notes. The theory finally arrived at went beyond mere reconstruction of events, it was a co-construction between researchers and participants(18). The model arrived at was reflective of practical situations and the structural conditions that led to these problems(19).

Study team and quality assurance measures

A multi-disciplinary team comprising of program evaluation experts, health social scientists, anthropologists, public health specialists and epidemiologists constituted the study team. All the team members have participated in several polio eradication program reviews since 1997 and were trained in qualitative research methods(11-13) in these districts and were familiar with local cultural milieu. Health workers and mobilizers from local communities also facilitated the interactions.

Five investigators undertook the field work, conducted interviews (formal and non-formal) and FGDs. They were assisted by four research assistants. One investigator conducted quality assurance visits during data collection. The entire team participated in preparation of tools, data analysis and finalizing the report.

RESULTS

This study has attempted to analyze the phenomena that lead to the social resistance and contextualize the situations in which rumors spread. The nature and content of rumors have also been analyzed. While there were indications on the possible sources

of some of the rumors, in the limited scope and the design of the study it was not possible to track the sources. While the source (reported) and content of rumors had strong religious association, the authors were sensitive to the fact that such issues were not just of religion but of marginalized communities in general, and intense politicization had further complicated the situation. There were no differences in the two districts, and between study blocks, which were contiguous.

A. An emerging model of rumors and their impact

A systematic pattern of rumors, religious edicts, and suspicion to oral polio vaccine was observed among the poorest of Muslim families (especially Quraishis/Ansaris/Saifis) in urban/peri-urban areas like Sarai Pukhta in Moradabad city and Sarai Tareen in Sambhal, and with less intensity, in some rural clusters of Dingarpur and Ratupura. There were instances of sporadic reluctance among marginalized Hindu families (especially Sainis/Khadgavanshis) as well. However, this seldom translated into a significant or lasting resistance in spite of reporting occasional incidents of coercion at the individual family level. The health workers were largely Hindus and represented the face of the state to the Muslim communities. Overcoming reluctance/resistance among Muslims was reported by health workers (Hindus) to be a far more difficult task. Reports of coercion by the administration came from marginalised Hindu communities, including Dalits. There were occasional reports of 'reverse coercion' (triangulated through both provider and client interactions) from Muslim majority areas where the health workers were forcibly asked to mark their children as immunised (an indelible ink-mark on their fingers) without giving vaccine. The process of generation and dissemination of rumours leading to resistance to the polio vaccine consisted of a series of inter-related phenomena (**Box 1** and **2**).

B. Possible factors sustaining social resistance / reluctance

The model presents a set of necessary conditions for the rumors to be generated and spread. However, it was important to explore and attempt to explain how these phenomena are sustained. The content of

rumors appeared to represent different concerns of Muslim communities (**Table III**). They also indicated that in the current geo-political environment, health behavior of communities might be influenced by unrelated non-health events. We present a set of additional conditions that have probably been responsible for sustaining social resistance in these districts for a considerable length of time.

The social divide and mutual mistrust amongst religious minority

Among the marginalized Muslims, the elite of their community often appeared to have little credibility - and even a professional or a well-to-do businessman was considered a part of the elite. The middle class that could have acted as an interface - and a critical section determining the behavior of the community, was largely missing. Level of cynicism was so high in some of the extremely marginalized sections of minority that they even considered civil society as an intruder. Metro-based minority institutions were perceived as the Muslim mask of Western influence. IEC (Information, Education and Communication) attempts by Muslim celebrities and metro-based Islamic institutions were seen with suspicion, and were unlikely to have the desired impact.

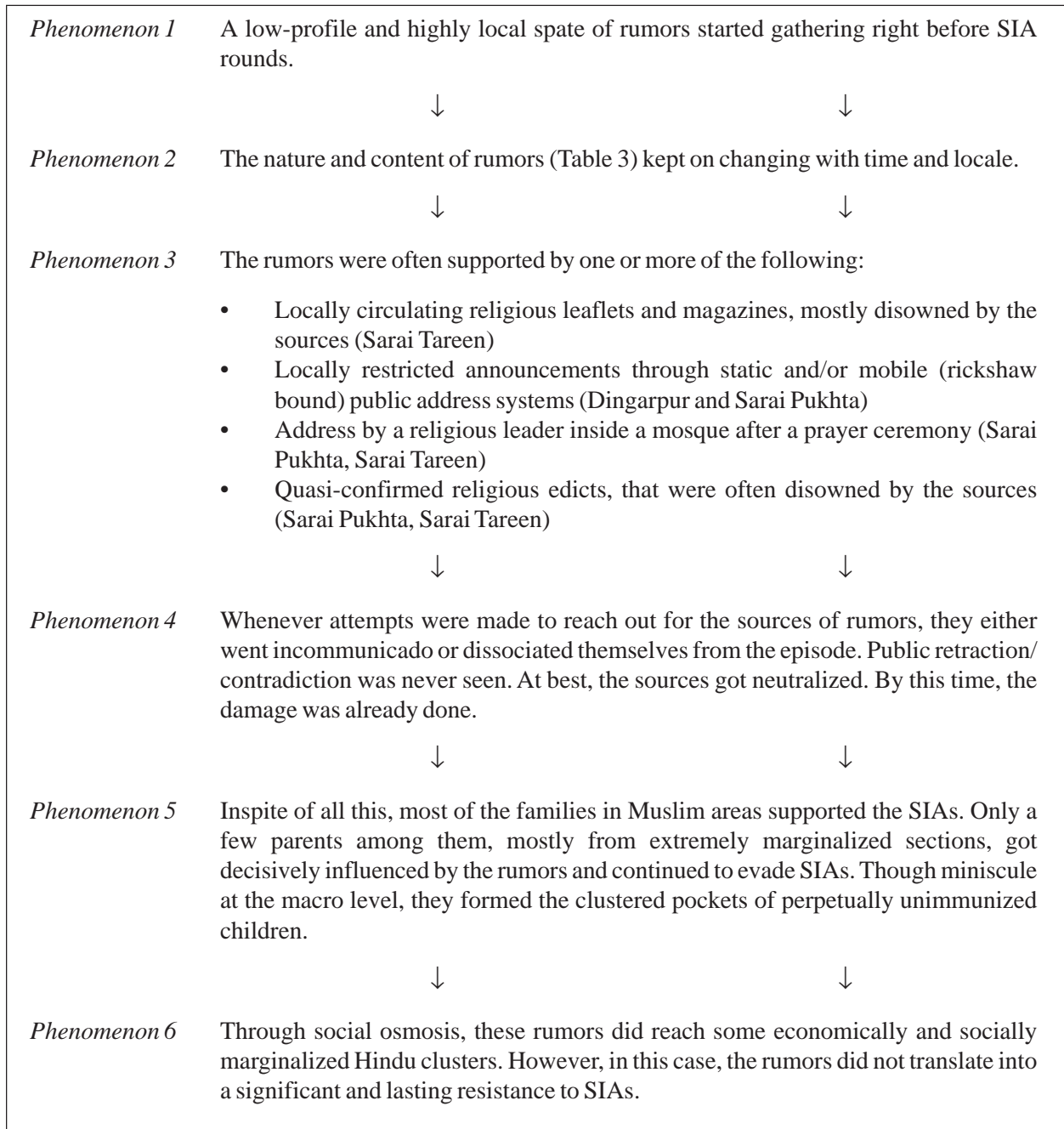
"If you really want to do something, you will have to involve volunteers from Qureshis and Ansaris. See, there is no middle class in Muslims. Ordinary Musalman says that well-to-do people in their community have a double face. You keep on depending on Jamia-Shabana etc. ... nothing will happen. They don't even listen to me." [Artisans' Union Leader, Moradabad]

"Celebrities don't mean anything in this place. Poor people don't have any faith in the educated section of their own community. Educated and rich people are seen as westernized and untrustworthy." [Urdu Journalist, Sarai Pukhta - echoed by several Community Stakeholders]

Class strata so different, yet looked alike during SIA rounds

The poorest of the poor and the rich behaved similarly while evading SIAs. Both of them defeated

Box 1 EMERGING MODEL OF RUMORS AND RESISTANCE TO PULSE POLIO CAMPAIGN



pulse polio rounds in their own ways. However, the rich got their children’s routine immunization (RI) through private practitioners while the children of poor households were often left out of even the RI as they were primarily dependent on weak public health services. This probably was one of the most critical reasons for the apparent difference in the incidence

of WPV and other vaccine preventable diseases (VPDs) among the two strata.

“People in Budh Vihar and Sarai Pukhta behave similarly on pulse days. Both of them avoid polio drops. However, the rich go to private practitioners for routine immunization. The poor are neither going

Box 2 RUMORS AND RESISTANCE: REPRESENTATIVE QUOTES*Phenomenon 1*

- “Everytime there is a polio day, news start spreading that the polio programme is against Muslims. This makes me feel scared.” (Mother-Muslim, Sarai Pukhta)
- “Disquieting news are heard about these drops whenever a polio day is approaching I feel like going to some other place with my children on that day” (Mother-Muslim, Dingarpur)
- “In some places, people say that rumors start two to three days before every NID” (Provider, Thakurdwara)

Phenomenon 2

- “Our men keep talking about polio drops, and everytime there is something new about it. Sometimes it’s about sterility – sometimes about pig’s blood – sometimes about conspiracy against Muslims. If the drops are good, why so much of bad news?” (Mother-Muslim, Dingarpur)
- “Polio drops are made up of blood of pigs, dogs and mice. This is the reason, why we are not giving drops to our children.” (Mother-Muslim, Rathupura)
- “We were told in Madarsa that polio drops cause sterility.” (Mother-Muslim, Sarai Pukhta)
- “Each time, you will hear newer and more and more weird things about the vaccine They can stretch the limits of imagination.... Last time there was a strong rumor that the polio vaccine is prepared by the Jews and America is using them to finish Muslims.” (Provider, Sambhal)
- Rumors keep on changing. Last time we neutralized one type of rumor, now we face another type in this round.” (Community Mobilizer, Sambhal)

Phenomenon 3

- “During the last round, an Urdu magazine was circulated in this area. In one of its articles it was said that the polio drops contain pig’s blood and therefore are prohibited for Muslims. The magazine was apparently published by Nadwa, Lucknow. When contacted, the Nadwa denied any such publication.” (Community Leader-Muslim, Sarai Tareen)
- “Lodspeakers of the mosque ask us to give polio drops to children but the simultaneous announcements from rickshaw prohibit us. What to do? It raises suspicion.” (Mother-Muslim, Dingarpur)
- “Mosque attenders were told to resist the polio program. A sealed edict came from Saharanpur. It was told in the post-prayer address that the whole program is against Muslims. Since than no one from the mosque is available for comments. Many people have tried to contact them.” (ISM Practitioner, Sarai Pukhta)
- “25% Muslims do not give polio drops to their children. And out of these, 90 % are not giving it because of religious edicts.” (Community Leader-Muslim, Sarai Pukhta)
- “In September 2006, there was announcement from a mosque that polio drops contains pig’s fat.” (Provider, JPNagar)

Phenomenon 4

- “Religious leaders don’t retract or contradict their statements. At best they can be asked to remain silent. With great difficulty, I contacted the Imam Saheb. He said that I will stop discussing this topic any more – but refused to retract. The damage was already done.” (Artisans’ Union Leader, Moradabad)
- “After such addresses or announcements, no one contradicts. How can anyone contradict the truth?” (Father-Muslim, Sarai Pukhta)
- “Imam Saheb is not meeting anyone after that address. Poor people have faith in him and whatever he has already said stays in their minds.” (Community Leader-Muslim, Sarai Pukhta)

Phenomenon 5

- “All these rumors and leaflets keep on circulating and many parents are worried. However, only a handful of them get convinced so much so as to resist the program. Majority of the parents give polio drops to their children.” (Community Mobilizer, Sambhal)
- “Barring some clusters of Quraishis, rumours do not translate into resistance. However, the anxiety is widespread.” (Mother-Muslim, Sarai Tareen)
- “These pockets of perpetual resistance are very small but unless we are able to reach them we would not be able to eradicate polio.” (Provider, Sarai Tareen)

Phenomenon 6

- “Some Hindu areas also get influenced by such rumors. Mainly the scheduled cast people. But the resistance to polio drops is very temporary thing in Hindu areas.” (Provider, Rehra)
- “Resistance is very rare in Hindu households. Sometimes poor people start asking about the rumors but it is always a transient phenomenon.” (Provider, Thakurdwara)
- Jatavs were initially scared of the program. There were rumors about impotence. When they saw that everyone is giving drops to their children - they also joined.” (Father-Hindu, Sheetla Sarai)
- “Resistance in Hindu localities is unheard of. In spite of rumours, Sainis have always been supporting polio program.” (Father-Hindu, Mazola)

for routine immunization nor receiving pulse polio drops” [Provider, Moradabad City - echoed by several Providers]

Weak healthcare infrastructure

The state of public health services in these districts was poor. Indeed many respondents expressed their dissatisfaction at the lack of primary health care services. PHC medical officers voiced their frustration about their inability to deliver routine

services on account the frequent SIA rounds. The question “why only polio?” while delivery of routine health services remained dismal, was uppermost in the minds of the community.

“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 cycle (rounds of pulse polio).” [District Level Provider]

TABLE III NATURE AND CONTENT OF RUMORS

Nature	Content
<i>Negative effects of vaccine</i>	<ul style="list-style-type: none"> · causes sterility/impotence. · causes shortening of penile length even in children. · starts showing its negative effects even after 2 doses.
<i>Undesirable constituents of the vaccine</i>	<ul style="list-style-type: none"> · contains pig's fat/meat. · is pink in colour because of pig's blood. · is prohibited (<i>Haraam</i>) for Muslims because of some evil ingredients.
<i>Conspiracy/Community under siege</i>	<ul style="list-style-type: none"> · different vaccines are being used for Muslim populations. · Muslims are being specifically targeted through an American conspiracy. · vaccines have been manufactured by the Jews, and the US machinery is using them to finish Muslims.
<i>Haj vaccination policy</i>	<ul style="list-style-type: none"> · Saudi government is interested in getting the adults vaccinated. Why then the international authorities are specifically targeting our children?
<i>Suspicion and Cynicism</i>	<ul style="list-style-type: none"> · generally no one cares for us. Why are they so much interested in getting our children immunized by this particular vaccine? · sudden and intense involvement of WHO and other international agencies speaks for itself. There must be something fishy about it.

Politicized issue and tutored stakeholders

There was intense grassroots politicization of the issue. Leaders, especially in minority areas, had more than one stand/front on the issue, and they used them depending upon the addressee. Attention overload had tutored most of the stakeholders, including parents, in diverse ways. Even a non-utilizer client was likely to be aware about 'what is politically correct/safe to say', regardless of the ground reality. Evidence available 'on the record' was vulnerable to miss some highly significant aspects of the truth.

"This place is visited by so many people that everyone knows what to say and what not to say. If you are an outsider and move with a notepad, no one will speak the truth." [Practitioner of Indigenous System of Medicine, Sarai Pukhta - echoed by several Community Stakeholders]

"Politicians speak in two languages – so people have also learnt that. If you really want to know what's going on stop taking interviews and engage people in heart-to-heart conversation." [Urdu Journalist, Sarai Pukhta]

Children held hostage between parents and state in some extremely marginalized pockets

Linking acceptance of the vaccine to developmental issues was becoming increasingly common. These issues, ranged from supply of essential goods in public distribution shops to construction of roads and bridges, and were raised by both Hindus and Muslims. As a rural Muslim mother put it, "Polio is your concern, not mine" – the program was thus perceived as the "government's need". The acceptance of the vaccine was being used to negotiate with the state machinery for developmental issues including road construction, basic sanitation, donations, loans, and even licences.

"Some people think that this is a government program.....and if it is opposed, the state will do something for us." [District Level Provider, Moradabad]

"They have understood that it is our need – not theirs. So they are twisting our arms to get things done. They also use their children as captive in this bargain. They want us to make roads, clean garbage, arrange for arms license etc. This has created

numerous difficulties for our day to day working." [Provider, Thakurdwara - echoed by several Providers]

"Every week you people (read outsiders) are at their doorstep. Anyone will use this situation to his advantage. By keeping the children inside on polio day, poor people are increasing their bargaining power. You just forget about them for one or two rounds . . . the resistance will decrease." [Community Leader-Muslim, Sarai Pukhta]

DISCUSSION

The phenomenon of rumors and resistance to OPV has been periodically reported by various partners of the program and researchers(20,21). The content of rumors represented multiple layers that probably reflected different concerns and segments of the fearful communities. Eradication and ongoing programs need to have complementary approaches. Often, the eradication campaign are more visible while the primary health care activities do not function well(22). Such contradictions provide fertile ground for social resistance to repetitive activities like immunization. Earlier Pulse Polio evaluations done by INCLEN Program Evaluation Network (IPEN), and a published component of present study have documented community fatigue because of repeated immunization rounds(8, 11-13, 23). The experience of the smallpox eradication programme clearly indicated that eradication was not purely a biological or technical exercise. Patterns of social opposition to smallpox immunization were reported from the same states - Uttar Pradesh and Bihar, and other areas during the 1970s(5).

Immediate needs such as food, security and employment are likely to take priority over other nationally and internationally set goals and programs, when scarce resources find competing interests(24). The developmental issues used as a bargaining point should be seen in this light. It raises a fundamental concern of felt needs versus epidemiological needs, and it demonstrates that the top-down vertical approach is ill-equipped to address the plethora of local political, social and economic conditions. On one hand, this calls for reforms in the choice of programs that address local

health priorities; on the other, program managers have to engage in advocacy (to a reasonable extent) to articulate developmental needs and aspirations of local communities. The field of development communication can make a meaningful contribution in this regard.

The qualitative evidence generated in this study suggests that while program managers and academics concentrate on microbiological and other technical issues(10-11), the critical missing link to eradication may lie in resolving challenges of social implementation of available interventions. In these situations, the overall coverage at the district or block level might look good in spite of harboring less visible clusters of perpetually unimmunized children. Such clusters, though miniscule when seen at macro level, may sustain low level of transmission of WPV- more so with relatively low levels of RI coverage. Despite 97% coverage in Netherlands, several outbreaks of poliomyelitis occurred in the last three decades, among clustered unvaccinated persons(25). The phenomena of resistance/reluctance result in vulnerable subjects being clustered (most of them located in extremely poor sanitary conditions, and therefore, with increased environmental exposure) and provide the critical mass to allow sustained WPV circulation. Thus, there can be exceptions to the robustness of the pulse approach. The program will have to minimize or eliminate the clustering of perpetually unimmunized children as a critical strategy for what is termed as 'end-game' in this global initiative. Our analysis from two WPV endemic districts of western Uttar Pradesh suggested that a systematic social resistance to SIAs exists, and demands to be addressed proactively – with required sensitivity.

As described earlier, marginalized Muslims perceived Muslim celebrities and metro-based Islamic institutions as outsiders. IEC attempts by them probably had relatively less than the desired impact. Seemingly, this was yet to be fully appreciated, even by the program managers - although the SM Net supported by UNICEF initiated a wide range of innovative social mobilization strategies with several positive outcomes(26). Marginalized Muslims often sought involvement of their own volunteers in micro-planning. A need for

evolving area and locality specific participatory methods for resistance reduction was felt across different parts of the study area. Ongoing engagement with major Islamic seminaries and schools was welcome, but the same process would be necessary to be pursued with local level religious and social leaders, with equal respect and seriousness. The feeling of 'otherness' needs to be minimized before we can expect optimal acceptance for any government sponsored program. In this context, the PHC doctor is uniquely placed to facilitate such processes. However, s/he can claim legitimacy only when effective and responsive public health services are delivered on ground.

The methodological approach adopted in this study was useful to deconstruct some of the phenomena linked to the resistance/reluctance observed during polio eradication campaign in endemic districts of North India. In the given context, we faced the challenge of coping with an unstructured reality(27). While it is impossible to begin research with no preconceptions, this exercise was conducted with 'a more rather than less open mind'(28). There is a bias in social research in favoring 'underdogs' and drawing attention to social inequities(29). We drew upon 'Other'(30) while addressing class differentials within the same (minority) religion to distinguish between parental/group responses to routine immunization and SIAs. Our explanation may be a partial one, with limited explanatory power. The strength of this work lies in its attempt in unravelling social determinants in WPV endemic districts where social mobilization strategies have changed almost as frequently as technical strategies, none of them relying on credible evidence. The present model needs to be validated in other locations with similarly placed societies and program situations.

Lastly, we need to re-examine the scope of the concept of 'social resistance'. Does it include 'cultural resistance' by default? Or we need to be little more discreet about these two seemingly distinct phenomena? Science places certain realities that cannot be understood or addressed without liberating ourselves from our training of political correctness. The endemic resistance against polio eradication program, witnessed in this study, refused

to be totally explained by socioeconomic marginalization alone. Contents of some of the rumors indicated that the phenomenon had a distinct share of cultural resistance as well.

Contributors: RD, SC and NKA: Concept, design, acquisition of data, analysis, interpretation and writing of manuscript; KKG, VA and SR: Conception, design, acquisition of data and analysis; and LS and S: analysis and critical revision of manuscript.

Funding: South East Asian Regional Office, World Health Organization, New Delhi, India.

Competing interests: None stated.

REFERENCES

1. National Polio Surveillance Project. Eradication Strategy. Available from: URL: <http://www.npsindia.org/Eradication%20Strategy.asp>. Accessed Feb 01, 2008.
2. Thacker N. Polio eradication: window of opportunity. *Indian Pediatr* 2007; 44: 81-82.
3. Grassly NC, Fraser C, Wenger J, Deshpande JM, Sutter RW, Heymann DL, *et al.* New strategies for the elimination of polio from India. *Science* 2006; 314: 1150-1153.
4. Grassly NC, Wenger J, Durrani S, Bahl S, Deshpande JM, Sutter RW, *et al.* Protective efficacy of a monovalent oral type 1 poliovirus vaccine: a case control study. *Lancet* 2007; 369:1356-1362.
5. Bhattacharya S. Expunging Variola: The Control and Eradication of Smallpox in India 1947-1977. New Delhi: Orient Longman; 2006. p. 212-239.
6. India Times. Transcript of live chat with Deepak Kapur, Chairman, India National Polio Plus Committee, Rotary International, on November 16, 2002. Available from: URL: <http://chat.indiatimes.com>. Accessed Dec 31, 2007.
7. Dyer O. WHO's attempts to eradicate polio are thwarted in Africa and Asia. *BMJ* 2005; 330: 1106.
8. Arora NK, Lakshman M, Patwari AK, Goswami K, Sinha L. Barriers in Polio Eradication – 2000 - 2001. New Delhi: INCLN; 2007.
9. The Seventeenth Meeting of the India Expert Advisory Group for Polio Eradication, 29-30 May 2007: Conclusions and Recommendations. Available from: URL: http://www.npsindia.org/download/IEAG/IEAG_RECOMMENDATIONS.pdf. Accessed Sep 4, 2007.

10. The Hindu. Plan for polio drops to Haj pilgrims. 2006 Nov 24. Available from: URL: <http://www.thehindu.com/2006/11/24/stories/2006112402541500.htm>. Accessed Sep 04, 2007.
11. IndiaCLEN Programme Evaluation Network. Pulse polio immunization program evaluation. New Delhi: The Network; 1998.
12. IndiaCLEN Programme Evaluation Network. Pulse polio immunization program evaluation. New Delhi: The Network; 1999.
13. IndiaCLEN Programme Evaluation Network. Pulse polio immunization program evaluation. New Delhi: The Network; 2000.
14. Strauss A, Corbin J. Basics of qualitative research, 2nd ed. Thousand Oaks: Sage; 1998.
15. Glaser B. Basics of grounded theory analysis. Mill Valley: Sociology Press; 1992.
16. Bryant A. A Constructive/ist Response to Glaser. *Qualitative Social Research*. 2003; 4(1), Art. 15. Available from: URL: <http://nbn-resolving.de/urn:nbn:de:0114-fqs0301155>. Accessed Mar 18, 2009.
17. Corbin J, Holt NL. Grounded theory. *In*: Somekh B, Lewin C [eds]. *Research Methods in Social Sciences*. New Delhi: Vistaar Publications; 2006.
18. Charmaz K. Grounded theory: objectivist and constructivist methods. *In*: Denzin N, Lincoln YS [eds]. *Handbook of Qualitative Research*. Thousand Oaks: Sage; 2000. p. 509-535.
19. Glaser B, Strauss A. *The Discovery of Grounded Theory*. Chicago: Aldine; 1967.
20. The Department of Social Work, Jamia Millia Islamia . Press release 2006 Sep 05. Available from: URL: http://jmi.nic.in/press/press2006/pr_5sep2006_i.htm. Accessed Apr 25, 2008.
21. Kishore J, Pagare D, Malhotra R, Singh MM. Qualitative study of wild polio cases in high risk districts of Uttar Pradesh, India. *Natl Med J India*. 2003; 16: 131-134.
22. Dowdle WR. The principles of disease elimination and eradication. *Bull WHO*. 1998; 76: 22-25.
23. Dasgupta R, Chaturvedi S, Adhish V, Ganguly KK, Rai S, Sushant L, *et al.* Towards polio 'endgame': need to focus on social determinants. *Indian Pediatr* 2008; 45: 357-365.
24. Bonu S, Rani M, Baker TD. The impact of the national polio immunization campaign on levels and equity in immunization coverage: evidence from rural North India. *Soc Sci Med* 2003; 57: 1807-1819.
25. Conyn-van Spaendonck MAE, de Melker HE, Abbink F, Elzinga-Gholizadea N, Kimman TG, van Loon T. Immunity to poliomyelitis in the Netherlands. *Am J Epidemiol* 2001; 153: 207-214.
26. The Fifteenth Meeting of the India Expert Advisory Group for Polio Eradication, 4-5 May 2006: Conclusions and Recommendations. Available from: URL: <http://www.npsindia.org/download/IEAG/Report%20of%2015th%20IEAG%20draft%205%20May.pdf>. Accessed Sep 12, 2008.
27. Mukherji PN. *Methodology in social research: dilemmas and perspectives*. New Delhi: Sage; 2000. p. 13-84.
28. Gomm R. *Social Research Methodology: A Critical Introduction*. New York: Palgrave Macmillan; 2004. p. 235-239.
29. Hammersley M. *Taking Sides in Social Research: Essays on Partisanship and Bias*. London: Routledge; 2000.
30. Other A. Above infection: status and hygiene behaviour in a hospital setting. Unpublished paper, cited In Gomm R. *Social research methodology: a critical introduction*. New York: Palgrave Macmillan; 2004. p. 235-239.