



Patterns of vaccination acceptance

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Abstract

Immunization is one of the major public health interventions to prevent childhood morbidity and death. The Expanded Programme on Immunization has gathered momentum worldwide since 1974. The range of vaccines in the programme is being expanded in the years to come. All across the globe, a high level of vaccination coverage has been reached and now needs to be sustained. In part, the coverage has been made possible by the broad acceptance of vaccinations, although there are variations resulting in different configurations of fully, partially and non-immunized children. Using the results of studies carried out by the Social Science and Immunization Project in Bangladesh, Ethiopia, India, Malawi, the Netherlands and the Philippines, this article describes and discusses patterns of vaccination acceptance and non-acceptance. It shows how context affects acceptance of vaccinations, and analyses the underlying reasons behind refusal and resistance. The article also develops conceptual tools for the analysis of acceptance and non-acceptance and discusses explanatory theoretical perspectives. © 1999 Elsevier Science Ltd. All rights reserved.

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Since the days of Jenner and Pasteur, inducing an immune response to infectious diseases by way of vaccination has become a widely applied intervention to keep people and animals healthy. In nineteenth-century Europe and its colonies, the state emerged as the keeper of public health, using smallpox vaccination and sanitary measures as its major instruments. The introduction of smallpox vaccination as a routine public health measure did not always proceed smoothly, however. Resistance came from various sources: effective traditional ways of preventing smallpox by way of variolation, religious objections, and disapproval of the leading role of the state (Arnold, 1993; Sköld, 1996; Egers and Streefland 1997). However, population-wide smallpox vaccination eventually became an established procedure. In this

sense, the nineteenth century may be seen as a gestation period for later developments in the field of vaccination.

In the twentieth century, the number of vaccines has increased considerably. Globally, the geographical and population coverage of vaccination programmes has expanded dramatically, and vaccination has served to eradicate smallpox, an often fatal disease that also led to disfigurement. Childhood immunization has emerged as a major preventive health strategy (Basch, 1994; Cutts and Smith, 1994; Mackett and Williamson, 1995; WHO/UNICEF, 1996). In 1974, in the aftermath of the successful Smallpox Eradication Campaign, the WHO's Expanded Programme on Immunization was launched. Subsequently, national vaccination programmes were organized across the globe under the auspices of the WHO and with support from UNICEF and bilateral donors. Initially, the programmes vaccinated against six diseases (polio, measles, neonatal tetanus, diphtheria, pertussis, tuberculosis), but depending on country-specific disease prevalence, the availability of new vac-

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cines and financial resources, ministries of health have begun to include other diseases as well, for instance hepatitis B and yellow fever. Vaccines against other diseases, already developed or expected to be developed, may be added in the future to the national vaccination programmes. Financial rather than managerial or techno-

¹ Of course the global coalition of immunization stakeholders, which includes research institutes, WHO, the pharmaceutical industry, UNICEF, and bilateral donors, can exhibit friction and shifts in power balances from time to time (see on such points Walt, 1993, 1994). In this respect, it is interesting to follow the development of the Children's Vaccine Initiative. (CVI, 1997; Muraskin, 1996a,b).

² Political instability and civil war do not necessarily interfere with vaccination campaigns, as was clear from the case of specially brokered ceasefires for National Immunization Days in Afghanistan, The Philippines, and El Salvador.

³ See for an excellent bibliography of this research and discussion of the results: Heggenhougen and Clements (1987), Pillsbury (1990).

⁴ The Social Science and Immunization Project began in 1994 and includes both country and transnational studies. The collaborating institutes are: the Social Development Research Centre, De la Salle University, Manila, The Philippines; The Bangladesh Rural Advancement Committee, Dhaka, Bangladesh; The International Centre for Diarrhoeal Diseases Control, Dhaka, Bangladesh; the Centre for Development Economics, University of Delhi, Delhi, India; the Centre for Social Research, University of Malawi, Zomba, Malawi; the Department of Community Medicine, University of Addis Ababa, Addis Ababa, Ethiopia; The Medical Anthropology Unit, University of Amsterdam, Amsterdam, The Netherlands; the Global Health Studies Program, University of Iowa, Iowa City, USA, and the Royal Tropical Institute, Amsterdam, The Netherlands. The principal investigators of the country studies are: K.M.A. Aziz, Abbas Bhuiya and A.M.R. Chowdhury (Bangladesh); Mesfin Kassaye (Ethiopia); Veena Das and Ranen Das (India); Wycliffe Chilowa (Malawi); Anita Hardon and Pieter Streefland (The Netherlands); Pilar Ramos-Jimenez (The Philippines). The principal investigators of the transnational studies are: Veena Das and Paul Greenough (immunization and the state); Anita Hardon and Thavitong Hongvivatana (global programming and technology development); Pieter Streefland, Mushtaque Chowdhury and Pilar Ramos-Jimenez (social demand for vaccinations in relation to the coverage, quality and sustainability of vaccination programmes). Fieldwork was carried out in 1996 and 1997. The project has been financially supported by the Ministry of Foreign Affairs of Denmark, the Ministry of Foreign Affairs of The Netherlands, the University of Amsterdam, the University of Iowa, the Royal Tropical Institute, Amsterdam, and the Rockefeller Foundation. Working papers have been published in India and Malawi; a set of country monographs and synthesis papers on transnational studies will be published in 1999. See for background Greenough and Streefland (1998) and for recommendations Expanded Programme on Immunization (1998).

logical restrictions appear to hinder inclusion of these other vaccinations. One vaccination, that against polio, may soon disappear from the national programmes as a result of imminent eradication of the disease (WHO/UNICEF, 1996).

Given technological innovation in immunization and strong global infrastructure for vaccination programming, this preventive strategy can be expected to continue¹. However, the continuity of national vaccination programmes is not guaranteed. In many countries these programmes are under various kinds of pressures. In some countries, political instability may interrupt routine immunization². After the initial surge of financial support for national vaccination programmes, such leading donors as UNICEF are gradually withdrawing their support, passing responsibility on to national governments. Vaccination services are also under pressure because the national health services of which they have become an integral part are deteriorating due to economic restrictions and diminished organizational resilience. National health services are dealing with increasing disease burdens, due for instance to the HIV/AIDS epidemic and/or an increasing incidence of malaria. Governments have failed to provide supplementary budgets to meet increased need. On the contrary, they have imposed budgetary restrictions and emphasized the need for cost recovery efforts (Chabot et al., 1995). Finally, the organizational culture of a vaccination program might be insufficiently adapted to the specific and often changing social and cultural environment (Streefland, 1995).

The continuity of vaccination programmes is not only a matter of the supply side. An intriguing and very important social phenomenon is the parents' worldwide acceptance of childhood immunization. In the 1980s, when immunization coverage was still relatively low, social science research on immunization understandably emphasized the social and cultural factors that could explain reluctance to accept vaccinations³. Now that vaccination programmes have been introduced on a worldwide scale and coverage has reached levels of 80% and higher, important questions are: How and why does vaccination acceptance become a prevailing social condition? How flexible is this demand if the quality of services deteriorates? When and why do parents not accept vaccination?

This article investigates variations in vaccination acceptance from various analytical angles and attempts to provide an explanatory framework. We discuss the variations in vaccination contexts. We explore theoretical perspectives that illuminate the meanings policy makers, health workers and parents attach to vaccination acceptance and refusal.

The article uses ethnographic material collected in the context of the Social Science and Immunization Project (SSIM) studies in Bangladesh, Ethiopia, India, Malawi, The Netherlands and The Philippines⁴. In

each country, acceptance and non-acceptance of vaccinations is questioned. Each study combines qualitative and quantitative data collection methods, including observations of vaccination sessions, semi-structured and in-depth interviews with mothers, focus group discussions and the examination of documents and records. Acceptance data from the country studies are synthesized using standard indicators to provide insights at an aggregate level.

Variations in contexts

In many countries, vaccinations have become integrated into the regular health services. The same staff are involved in curative and preventive health care, and contacts between health workers and patients usually include a range of activities. Vaccinations are also organized as “vertical” programmes with their own staff and resources. These two variants can be called routine vaccination and campaign vaccination. In a third approach, a specific vaccination campaign may be conducted side by side with routine immunization. For example, on National Immunization Days (NIDs), health services staff predominantly, though not exclusively, vaccinate as many eligible children as possible against polio as part of the worldwide campaign to eradicate this disease around the year 2000 (WHO, 1996; WHO/UNICEF, 1996).

From the perspective of the people to be vaccinated, the actual vaccination situation will be perceived as somewhere on a continuum between routine and campaign. How it is perceived depends on the specific mixture of routine and campaign elements. Everything familiar in terms of the location, timing, personnel, language and technology will draw the perception toward the routine end of the continuum. Everything unfamiliar—staff from another town, a different site, strange jargon, extra media attention, new vaccination technology, a newly introduced vaccine—will be experienced as campaign. Routine and campaign aspects are not necessarily indicative of positive or negative feelings: routine may mean security, but it can also mean irritation with staff that always arrive late at the outreach centre; campaign may stand for intrusion, but also for curiosity and excitement. There is another important characteristic of situations people perceive as ‘campaign’: the ‘campaign’ conditions may make people reflect on basic questions regarding vacci-

nations. Something that was hitherto automatic, like taking a child to be vaccinated, may no longer be so automatic if a new vaccine is introduced that, for example, gets specific media attention.

Shared notions emerge when relatives or neighbours exchange accounts of their vaccination experiences (bad treatment by a health worker, a childhood vaccination with a painful side-effect), which then colour their subsequent experiences. Together with prevailing beliefs about disease aetiology, ideas about the potency and efficacy of modern medicine, and views on the need for preventive health measures, these shared notions may be called local vaccination cultures⁵. The large scale of routine immunization services, or of specific vaccination campaigns which include standard messages and practices, and the universal mass media messages about how to have healthy babies, create similarities in the experiential basis of local vaccination cultures. This can also be seen as a constant pressure on the local vaccination cultures to integrate into regional, national or even global ones. Still, the local inspiration can be strong and the persistence of local dissimilarities considerable. This might be related to remoteness of location, as is the case in rural Ethiopia, where outreach vaccination teams tend to arrive late, but leave on time, speeding up vaccination practices to the extent that needles are used immediately after sterilization, when they are still hot. It could also be connected with serious side effects, leading to an abscess and hospital treatment. A deeper understanding of people’s vaccination behaviour should be guided by a sensitivity to differences in local experiences and vaccination settings.

Part of the explanation for why parents, usually mothers, take their children to be vaccinated can be found in state regulation of their lives. Sometimes, public policies enhance conformity to medical practices which the state deems necessary, such as vaccination or fertility regulation. This control may be straightforward if there is a political regime that curtails individual freedom and creates an atmosphere of intimidation and threats, such as the Derg regime (1974–1991) in Ethiopia. Kloos (1998, p. 513) notes that “the perpetuation of the Derg of the strong Ethiopian bureaucratic tradition with its centrist and authoritarian tendencies, now cast in socialist rhetoric, deterred empowerment and spontaneous participation of the people.” He then continues, reflecting on prevailing attitudes among administrators: “These attitudes contributed to social and cultural barriers between health services and patients that affected utilization.” The recent SSIM Ethiopian country study carried out fieldwork in villages and health centres in the Gurage Zone. Vaccination service delivery is still poor quality, due to poverty, a his-

⁵ Elements and approaches for understanding local vaccination cultures can be found in pharmaceutical anthropology since it focuses on local variations in drug use culture. See for excellent papers on local traditions in drug use: Etkin and Tan (1994), Van der Geest and Reynolds-Whyte (1989).

tory of civil war, and some legacies from past regimes. It was also clear, however, that nowadays mothers no longer attend vaccination sessions with their children in a context of coercion. During interviews they freely criticise the vaccination staff for their inattentive attitudes.

Prevailing forms of social inequality may help people adhere to the vaccination rules, since the socially weak (landless peasants, young mothers) will easily conform if the village elite sets the rules. Sciortino's (1992, pp. 130–137) description of primary health care in Indonesia shows how at the village level, the health care administration, by way of its linkages with the local government structure, operates through the village headman and the elite when villagers need to be mobilized for health activities. Sciortino emphasizes how, given the local relations of power and dependency, the majority of poor villagers feel they must obey the requests to attend health activities.

The Netherlands vaccination programme is an example of a how a promotive vaccination regime (how compliance with vaccination schedules and practices is encouraged) stimulates popular acceptance of vaccination and adherence to vaccination schedules (Egers and Streefland, 1997; Hardon et al., 1998). Today's high coverage in the Netherlands is grounded in a century-old public debate on the individual right of parents not to have their children vaccinated versus the public health need for compulsory vaccination. The resultant policy allows that parents who do not want to have their children vaccinated are exempted from the rule.

When a child is born Dutch parents are informed about prevailing vaccination practices by a public health nurse who makes a home call. The birth registration system informs the vaccination departments about each new birth. Failure to attend vaccination sessions leads to telephone calls, letters, and sometimes another visit from a public health nurse. Immigrants receive promotional material in their own language, and there is often an interpreter at the vaccination sessions. In a recent study among immigrants in two Dutch cities, vaccination acceptance was found to be high. Immigrants perceive immunization as something automatic, some of them are explicitly of the belief that it is compulsory. Though all the promotional and follow-up activities that are part of the Dutch vaccination regime appear to be designed as stimulation, an element of pressure cannot be denied. Registration is a pivotal element of the Dutch vaccination system, since this is how newborn children are traced. Non-immunized children of immigrants are predominantly found among illegal immigrants, who perceive registration as threatening.

What has been noted in the above three country cases about more prescriptive or more promotive vac-

cination regimes was relative to the aggregate national societies. But there are local variations. Even in a prescriptive system there is room for district or village variation depending on the personalities of the people working in certain health posts, and on the organizational culture of the local health services (Streefland, 1995). We should also not be static in our views of levels of prescriptiveness. There are disjunctures in past political histories, as well as in the periods during which new political systems establish themselves. Political and administrative changes may be reflected in the level of prescriptiveness characterizing vaccination services in a certain period. The changes in Ethiopia illustrate this disjuncture. Moreover, there may be a global increase in prescriptiveness, as with smallpox eradication, which could occur again during the "mopping up" stage of the current WHO polio eradication campaign.

Discussing the smallpox eradication campaign in India and Bangladesh, Greenough (1995, pp. 633–645) gives a number of clear examples of intimidation and coercion and raises human rights issues involved. He also cites the danger that memories of rigorous containment procedures might become part of the local vaccination culture. The recent SSIM field studies in India and Bangladesh do not substantiate this. Probably too much time has gone by since the smallpox eradication—well over twenty years ago—for today's young mothers to remember vividly the excesses and incorporate them into their critical assessment of the present vaccination practices. There is also a clear difference between the prescriptive smallpox eradication regime and the present vaccination practice, generally perceived as beneficial to children, which did not exist previously.

Vaccination acceptance and non-acceptance

The vaccination status of cohorts of children in specified areas or groups is expressed as a coverage rate or ratio, with the number of vaccinated children as the numerator and the total number of children as the denominator. The indicative value is questionable, since in many countries births are not registered and consequently the denominator has to be estimated. Moreover, due to vaccination registration problems the accuracy and/or reliability of the numerator can also be doubtful. This was clear from observations made during the Ethiopia study (SSIM project). At one site, the vaccinated children between one and two years of age had been registered in the monthly reports as being under one, and at another there was a difference between the sum totals of the monthly reports and the annual report. Even if it is accurate and reliable, the coverage indicator does provide little infor-

mation about future prospects, or about problems inherent to the vaccination process⁶. An approach directed at understanding parents' vaccination decisions, using the supplementary concepts of acceptance and non-acceptance is, therefore, important. The context of these decisions was discussed in the previous section. Here the focus is on the meaning of acceptance and non-acceptance and the related concept of social demand. Nichter (1995, p. 617) defines demand and acceptance as follows: "Active demand entails adherence to vaccination programs by an informed public which perceives the benefits of and need for specific vaccinations. Passive acceptance denotes compliance: passive acceptance of vaccinations by a public which yields to the recommendations and social pressure, if not prodding, of health workers and community leaders."

If we want to understand vaccination behaviour, the concepts "active demand" and "passive acceptance" are not sensitive enough as instruments for assessing actual vaccination behaviour. Instead, we propose the basic concepts of "acceptance", "social demand", and "non-acceptance", which has individual and collective forms: "refusal" and "resistance".

Acceptance can be more or less active, depending on what the parent does: the time made available to attend a vaccination session, the distance covered, and the questions asked during a vaccination contact. Despite efforts to take vaccination services to the villages by establishing outreach centres, in Malawi and Ethiopia mothers sometimes have to walk long distances, and distances of over 25 km with the added inconvenience of the hot sun are mentioned by informants. The fieldwork in India shows that a decisive factor in setting vaccination times is availability of public transport to take the health workers to the villages. The schedule requires mothers to interrupt their housekeeping and agricultural work, fodder and firewood gathering, sometimes causing the women not to attend. Observations of vaccination sessions and interviews with mothers in Bangladesh, Ethiopia and Malawi show that the context often does not allow them sufficient time and comfort to ask questions. Health workers are hurried and rude behaviour sometimes puts the mothers off. There the routine that mothers experience is familiar low quality of care.

Acceptance might or might not be rooted in an informed and knowledgeable vaccination culture. First,

as a practical point, if parents are well informed about vaccination schedules, this will enhance their capability to attend the vaccination sessions. The SSIM field studies show that there is a deficiency of information. A lack of practical information about when the outreach vaccination sessions take place was a common complaint. Second, appropriate information about the purpose of immunization, and the diseases that vaccinations aim to prevent may enhance acceptance. This point was addressed by Nichter (1995). In the SSIM project, however, no conclusive indications have been found in this respect.

Acceptance behaviours should be viewed in their local situational context. A case from the fieldwork in the district of Pauri Gharwal in the Indian state of Uttar Pradesh shows how social inequality in the form of caste may interfere with the accessibility of vaccination sessions. The case also illustrates the determination and anger on the part of some mothers:

Immunisation sessions in the low coverage village of [the] Pauri Gharwal [district] were organised at the house of the anganwadi worker belonging to the Rajput caste. As a result the scheduled caste mothers are denied entry to the house. All scheduled caste mothers had to wait outside the house, till the ANM completed the vaccination of the children of the upper-caste women... There was a lot of resentment among the scheduled caste mothers due to this... The mothers, however, feel unable to voice their protest as the ANM is married to a person of the neighbouring village who is known as *Sethji* (referring to an economically well-off person). He is not only an upper caste person, but is also politically influential (SSIM/India, 1998, p. 148)⁷.

The social demand for vaccinations is another important determining concept (see also Nichter 1995, p. 617). The definition proposed here relates to the general finding from the SSIM studies that mothers often accept vaccinations based on a perception of a general benefit (to prevent future illness, to boost their children's general health, to mitigate the seriousness of future illness, or a combination of these) or a specific one (protection against a specific disease such as polio). Further that perceptions of vaccinations are usually grounded in trust in the biomedical system, which may or may not coincide with trust in the health services or in specific health workers. Social demand represents people requesting the authorities or the health services to provide vaccinations or to improve the quality of vaccination delivery.

Requests for vaccinations may occur when there is a threat of or actual epidemic, inadequate or irregular childhood immunization, or a decrease or breakdown of existing vaccination services due to political (civil

⁶ Coverage surveys are often used to provide an indication of the reliability of routine statistics.

⁷ Scheduled castes are groups in Indian society with a very low position in the social hierarchy based on their supposed ritual impurity. They used to be called Untouchables and Harijans, and are now also known as Dalits.

war) or economic (recession) factors. In India (SSIM/India, 1998, pp. 157, 158), complaints were lodged with the authorities about health workers not attending regularly to a village. Very few other examples of requests for vaccinations were reported in the country studies, but informants did complain to interviewers about outreach services not regularly taking place. This alerts us to the fact that the open articulation of a demand may not always be possible due to a local sociopolitical vaccination context. The demand then remains hidden and will not be noticed by the health services⁸.

There is, however, a very sizeable social demand for better quality of vaccination services. In all the country studies, with the exception of The Netherlands, mothers complained to the researchers about how the vaccinations are provided. The complaints included the lack of information, late arrival of personnel at the outreach centres, rude behaviour, and technical incompetence, as was evidenced by serious side effects. This social demand is expressed as complaints to the outsider, the researcher, though it is not usually expressed directly to the vaccination services. The lack of direct expression may be grounded in the dependency of mothers on the services, and mothers' need for the vaccinations to continue, no matter how inadequate the service. But sometimes the discontent is articulated to the health services openly and sharply, as in Bangladesh and India. Due to very serious side effects—an abscess leading to paralysis, in one case, even a death attributed to the vaccination—a litigation commenced against the vaccinator. Discontent can also be articulated by not going for vaccinations, perhaps only temporarily, which is direct, albeit passive, expression.

The third important concept is non-acceptance, with parents not complying with a request or order from the health authorities to come with a child for vaccination. Acceptance and non-acceptance are not mutually exclusive. As was found in the SSIM studies, there are gradations of acceptance. Parents may change from acceptance to non-acceptance between one child and the next, in the course of one child's vaccination career, or in the case of a specific vaccination, e.g., the measles vaccination. At aggregate levels, this will lead to dynamic configurations of fully immunized, partially immunized, and non-immunized children. As is clear from the SSIM studies, there can be a disturbingly high proportion of partially immunized children.

There appear to be three modes of non-acceptance. In the first, the mothers are *willing to go, but unable to do so*. The reasons mentioned by the mothers in the

country studies of the Social Science and Immunization Project include: a heavy workload, sickness of mother or child, having a funeral to attend, road flooded, weather too hot and distance too long, and, in the case of immigrants in The Netherlands, being on holiday to the home country.

In the second, the mothers *just refuse to go*. The main reason for this is the malfunctioning or inadequacy of the vaccination services. So, in Malawi and Ethiopia mothers state that they just gave up, since most of the time, the vaccinators did not get to the outreach clinic anyway, or there were no vaccines once the vaccinators did show up. Sometimes the distance, more than 20 km on foot, is too far. Women also mentioned health workers shouting at them as a reason. In Bangladesh, the mothers were misinformed about the times of the vaccination session and came a way for nothing. In India, inadequate timing of sessions, rude staff behaviour and the caste related limitations to accessibility were reasons not to go. In all these cases, by not going, the mothers make a statement about the vaccination provision and it is important for the health services to listen and respond. In each country studied, serious side effects are another reason for mothers to stop going for vaccinations, though they may resume with the next child or even in due course with the same one. Sometimes, as was reported in Bangladesh, one such case can develop into a nucleus of refusal, focused on the perceived malfunctioning of a certain staff.

The third mode of non-acceptance *questions the need for vaccination*. This collective non-acceptance may go beyond the sum of individual refusals and become organized resistance. The large-scale resistance against smallpox vaccination in the nineteenth century has been well documented (Arnold, 1993; Sköld, 1996; Egers and Streefland, 1997). At its basis were the availability of the variolation alternative, the fact that the new technology was identified with the colonial power (Arnold, 1993), religious objections, and the conviction that the state had no right to impose such intrusive measures. This resistance often had a broad base and was sometimes well organized. As documented by Greenough (1995), the smallpox eradication campaign of the 1970s also met with opposition, usually of an individual nature. Nichter (1995) mentions examples of resistance to routine vaccination in India based on various conspiracy-type theories. One such theory, also prevailing in The Philippines in 1995, is that TT vaccinations for adult women are actually used for family planning purposes. In The Netherlands, a society with a promotive vaccination regime, resistance to vaccination now occurs among two groups. One is orthodox Protestants, whose behaviour is based on religious convictions (Veenman and Jansma, 1992). The other is anthroposophy and New Age followers, usually highly

⁸ See about hidden transcripts of the weak Scott (1990).

educated parents, who especially resist the measles vaccination, which is combined in The Netherlands with rubella and mumps, since they are convinced this specific vaccination may impair the immune system. This group also includes parents who are convinced that vaccinations have negative, long-term and unknown side effects. Unlike the resistance based on religious ideas like “if we fall ill it is the will of God”, the “alternative expressions” of resistance to vaccination are directed at core assumptions about the biomedical system itself. These parents adhere to alternative sets of assumptions about the immune system and how to keep it strong, and might causally link a specific vaccination to some serious illness^{9,10}. Not surprisingly, cases of adverse effects discussed in scientific journals and highlighted in the popular press will be used to underline their criticisms and alternative models (Gangarosa et al., 1998). News travels fast in social networks with access to the Internet (Clements, 1998). Again, as in the cases of non-acceptance discussed above, these forms of resistance can also be understood as a statement. In this case, it is not a statement demanding better vaccination services, but one demanding that the state recognize individual (parental) freedom to refuse vaccination.

Sometimes, if vaccination is associated in the collective imagination with a child's death or another negative occurrence, it becomes an issue in an on-going

social or political conflict. Under these circumstances, parents will interpret new information in this light, as they will the representations of vaccination by another stakeholder in the conflict, such as the state, the medical profession, or an international agency like the WHO. Collective resistance to vaccination must, therefore, also be understood in the specific context of ongoing social conflicts. This is clear in the following examples of national level opposition to tetanus toxoid vaccination in The Philippines and local level resistance to polio vaccination in rural West Bengal, India.

In The Philippines, where the Roman Catholic Church has a very strong position, fertility regulation is an important subject. There is a sharp social and political divide in society between “pro-lifers”, supported by the Church and a significant part of the popular press, and those who want to allow contraception. In the mid 1990s the “pro-lifers” claimed that the Department of Health used tetanus toxoid vaccinations as abortifacients or even to sterilize women. They were able to obtain a court order which forbade the Department to continue giving the vaccination. Supported by the press, they painted “a picture of a global conspiracy involving the World Health organization and their local collaborators—the Ministries of Health” (Tan, 1995, p. 29). Tan (1995) points out that the anti-tetanus vaccination campaign was one tactic in a conflict in which the “pro-lifers” had claimed earlier that all contraceptives were abortifacients and that condoms did not protect against HIV. Milstien (et al.) point out that in Mexico, Tanzania and Nicaragua similar events took place and emphasize the role of WHO in “combating the misinformation” (Milstien et al., 1995, p. 27). As was noted above, this may be an uphill battle since the agency can be defined as a participant, and its information will only reach people who want to listen.

As part of the Indian country study in the SSIM Project, Banerjee and Coutinho (1997) studied the events in rural West Bengal involving the association of childhood death and illness with oral polio vaccination. In the issue of 15 December, 1996, *The Statesman* reported the deaths of three children in one village, and many more children falling ill after receiving oral polio vaccine as part of the first round of the Pulse Polio Immunization (PPI) campaign. Subsequently, the local community refused to participate in the second phase of the PPI campaign. Due to its slowness and perceived haphazardness, and the atmosphere of distrust, the state investigation that led to the finding that the deaths could not be related to the vaccines used, had no effect. The report of the events highlights the different representations and accusations made by the villagers, the press, local politicians and the government health officials. It makes it clear how the religious (Muslim, Hindu) and political (Congress I

⁹ Martin (1994) provides extremely interesting material about various views on immunity now held in the USA. Decisions to resist vaccination are sometimes based upon assumptions about the learning capacity of the immune system: “If vaccines are seen as a form of ‘education’ for the immune system, it will not follow that everyone will desire this ‘education’”. Sometimes people feel reluctant to accept vaccination, even in the face of government regulations that make it compulsory for school attendance. Sometimes people refuse vaccinations for themselves or their children and suffer the consequences. It is as if people are saying to the state as purveyor of health education, and of education for the immune system (in the form of vaccination), Thanks anyway, but my immune system and I will learn to adjust to our environment ourselves” (Martin, 1994, p. 198).

¹⁰ A recent example of the linkage of a specific vaccination with subsequent illness is the on-going controversy in France around the hepatitis B vaccination, which a well-organized opposition movement claims causes multiple sclerosis. It began in late 1996 and developed in 1997 and 1998, involving civil court cases to get damages for alleged victims and, most recently, criminal cases against senior state officials who allegedly endangered the public. On October 1, 1998, the French Ministry of Health suspended routine vaccination against hepatitis B of adolescents in French schools. Immunization of infants and high risk adults was not suspended (Press Release WHO/67, 2 October 1998). See on expert views of issues involved Expanded Programme on Immunization (1997).

vs leftist parties) divisions in local society are articulated in the chain of events. As regards the local political aspect, “At the micro-level then, immunization became an occasion for articulating political differences, and for gaining political mileage. More importantly, it provided the scope for reworking political affiliations and loyalties” (Banerjea and Coutinho, 1997, p. 23). The authors note that non-participation in the second PPI round should not be understood as “a collective active resistance to the PPI program of the State. The community did not act as a collectivity that was opposed to vaccinations.” There was no organization, no active mobilization, they claim. “Therefore, non-participation in this context could be seen as stemming from several individual refusals, which may have been unorganized but nevertheless structures around the illness and death after the first phase, or previous experiences with vaccines.” It was the media that represented the individual actions as “collective non-compliance, wherein the community was constituted as actively voicing its demand for medical attention and care, in the wake of the crisis following the December campaign” (Banerjea and Coutinho, 1997, p. 21).

Explanatory perspectives

An explanatory framework for understanding vaccination acceptance requires linkages to theoretical perspectives. These perspectives also illuminate the representations of vaccination acceptance in the discourses of various immunization programme stakeholders—vaccinologists, policy makers, programme managers, vaccinators. No single explanation pertains to all the different patterns of acceptance. Encouraged by a promotive regime, young mothers might follow the practice they see around them and continue to adhere to a vaccination schedule because of a basic trust in vaccination technology and providers. Other mothers might discontinue because of distrust due to serious adverse effects, or as a result of weighing the risks of getting a disease versus adverse vaccination effects. Various explanatory perspectives cover a wide range, and elements from different perspectives can be combined. Five different perspectives with special relevance to differentiation in vaccination acceptance are presented below.

The perspective of variations in rational vaccination use

In pharmaceutical anthropology, a great deal of attention has been devoted to lay rationalities about the uses of medicines. There can be differences between professionals’ biomedically-inspired notions regarding the safety, efficacy, and necessity of certain drugs, and

the users’ considerations (Hardon, 1991). The drug use culture of a certain area or group includes preferences for certain forms of medication, like injection (Reeler, 1990; Reynolds et al., 1994). Vaccination may fit the local drug use culture, which often emphasizes the efficacy of injections.

There may, however, also be an element of tension between a local drug use culture and prescriptive elements in a vaccination regime. Medicine use in developing countries is to a large extent a matter of self-care (Van der Geest et al., 1996). People make their own choices, embedded in local drug cultures, about what medicine to use when illness occurs. This contrasts with the rigidity of the vaccination schedule, determined externally by the health services and not related to everyday individual health risks (Greenough and Streefland, 1998, p. 8).

The perspective of collective decisions by vaccination users

Large-scale vaccination acceptance and compliance with vaccination schedules can be understood as the collective result of individual decisions by interdependent users. People have their children vaccinated because everybody does so and it seems the normal thing to do. There are not necessarily deep reflections behind mothers taking their infants to the child health clinic. They do so because everyone else does, and because it is what good mothers seem to do. Taking their children for vaccinations has become their habitus (Bourdieu, 1990). And unless adverse effects or rumours about “bad” vaccines intervene, each collective visit to a vaccination session will reinforce the notion of normality. In this sense, all vaccination users are interdependent, as they support and are supported by each others’ decisions.

What is difficult under these circumstances is to refuse vaccination. It requires taking a stand, weighing the alternative options, and giving explanations to others—neighbours, family members, health care staff. It means taking control over the body of one’s child. In societies where young mothers are held in low esteem and have little power in the household, as is the case in South Asia, it is even more difficult to take this kind of extraordinary stand and would require great personal courage.

Vaccination cultures involving new technologies and organizational principles, collective decisions, and collective health care arrangements evolve over time. De Swaan (1990) has documented how the growth of public health care systems in Western Europe were an aspect of a wider process of state formation. These collective arrangements, he explains, originated from the fear of contagious disease and epidemics on the part of the more well-to-do. The history of the vaccination

practice and acceptance in The Netherlands, with evolving discussions on private and public responsibilities and the need for government action to protect the public from epidemics, illustrates this historical process (Egers and Streefland, 1997).

This long-term process theoretical framework only partly applies to developing countries. In some former colonies, such as India, the introduction of smallpox vaccination in the early nineteenth century exhibits some similarities to the European process. But in many African countries, large-scale smallpox vaccination did not follow the same process, or become common practice until the beginning of the twentieth century. In many developing countries, public health care arrangements emerged rapidly and with strong outside catalyzing influence after national independence. Expansion of the vaccination coverage was swift and internationally steered as part of the WHO's Expanded Programme on Immunization. In some places, the vaccination programme was at the frontier of the modern medical system, since other elements of modern medicine were still non-existent there for much of the population (Streefland, 1994). In many places, regular vaccination through a public health programme represented a juncture between pre-modern and modern culture, as defined by Giddens (1991, p. 102). A new "expert" biomedical system designed to deal with the dangers of childhood disease became operational in areas where disease and death were then still largely explained in terms of fate and religious forces. In due course the child care habitus of mothers changed and vaccination became one of its pivotal new aspects¹¹.

The perspective of trust in the competent provider

Giddens has emphasized the importance of trust in "expert" systems in "modern" societies. These abstract "expert" systems provide security in day-to-day life (Giddens, 1991, p. 112). This is a crucial departure from what he calls the traditional world, or pre-modern orders, where security is provided by kinship relations, the local community, religious cosmologies and tradition. Trust is defined here as "confidence in the reliability of a person or system, regarding a given set of outcomes or events, where that confidence expresses

a faith in the probity or love of another, or in the correctness of abstract principles (technical knowledge)" (Giddens, 1991, p. 34).

This theoretical focus on trust in expert systems is particularly relevant to the world of modern medicine. Even where technology is relatively simple, as in the case of vaccination practice, people's acceptance of vaccinations expresses confidence in the correctness of the abstract technical principles and manufacturing systems of immunology, vaccinology, vaccine delivery systems, vaccine procurement and the management of vaccination programmes. Yet, this trust is not absolute. Giddens (1991, pp. 90, 91) points out that "respect for technical knowledge usually exists in conjunction with a pragmatic attitude towards abstract systems, based upon attitudes of scepticism or reserve" and that bad experiences can lead to cynicism or withdrawal.

Giddens also stresses the importance of perceptions of quality at access points to the expert system, i.e., the public health nurse or the staff at the child health centre. It is at these access points that bad experiences can occur or that trust can be sustained. Here, some findings from the SSIM Project in Asia have specific relevance. In Bangladesh and India, in the event of serious side effects, the specific health worker doing the vaccination was blamed, not the medical technology. In The Philippines the trust in vaccination technology in general was maintained by admitting it might be "unfit" for one specific child. In other words, a bad experience at an access point need not necessarily affect the trust in the expert system as a whole.

The perspective of risk perception

Perceptions of risk can influence vaccination acceptance in two ways¹². First, the perceived risk of a child getting an immunizable disease can contribute to acceptance. Second, the perceived risk of vaccinations being detrimental to the health or having negative side-effects can lead to non-acceptance.

In affluent countries, immunizable diseases such as smallpox, whooping cough, tetanus and diphtheria have largely disappeared. They linger only in the memories of the elderly and of immigrants. The improvement of the living conditions and of the effectiveness of preventive public health programmes has drastically changed the risks perceived among parents that their offspring might get a childhood disease. Among populations where childhood diseases are still common because no effective vaccination programme has been in place long enough or with sufficient coverage, the risk perception might be different. But even among these populations, vaccination acceptance is not necessarily based solely on risk perception. The SSIM studies and earlier research in South India (Nichter, 1995)

¹¹ The rapid change in habitus is an important subject for future research. Studies on changes in fertility practices, like the one of Säävälä (1997) in South India, provide an important comparative perspective.

¹² Mary Douglas had made important anthropological contributions in our understanding of the cultural setting of risk perception (Douglas, 1986, 1992; Douglas and Wildavsky, 1982). See Gabe (1995) for sociological approaches.

show that the conviction that a vaccination has a general positive effect on the health may be more decisive.

Growing mistrust in competence of experts and efficacy of technology, incited by the press and specific interest groups, can lead to the second kind of risk perception. Participation in the programme itself is perceived as a risk, and this can decrease vaccination acceptance. Decreased acceptance can also occur if adverse effects are common.

Increasing epidemiological lay knowledge about disease can promote the idea that vaccination itself is a greater threat than getting the disease. At present, there is evidence of this trend among well-educated groups in Europe and the USA who adhere to anthroposophist and New Age ideas. Rogers and Pilgrim give an illuminating example in an article on mass immunization in the UK (Rogers and Pilgrim, 1995, p. 83). They interviewed nineteen mothers who had refused to have their children vaccinated. They were clearly familiar with the vaccination promotion arguments, but they had also read scientific and alternative literature on the topic. They seemed to have reached their stand after weighing the various discourses. The authors summarize: “The question of risk assessment for these parents was essentially in conflict with the types of knowledge claim common in the health promotion literature. The data elicited suggest that this risk assessment involves a combination of some of the following: medical opinion on vaccine risk is misleading; host health status, not immunisation status, is the best predictor of healthy recovery from naturally contracted infections (in those committed to homeopathy); immunisation debilitates a child’s immune system, making him or her prone in later life to auto-immune disorders; naturally acquired immunity is permanent, whereas vaccine induced immunity may wear off or even fail to provoke antibody activity at all; and vaccines provoke a far greater level of serious iatrogenic effects than are officially conceded and recorded. Some of these ideas were arrived at intuitively, but often they were shaped and reinforced by access to auto-immunisation arguments in their social network, or by reading critiques of [mass childhood immunisation] from alternative medicine and social medicine literature. One of the paradoxes about this group of mothers, in their challenge to the official health promotion position, is that they were paragons of virtue, if not zealots, about reducing potential risks to their children’s health in every respect apart from their opposition to immunisation.”

This kind of informed challenge to the public health policy and discourse stressing the need for childhood

vaccination is much more sustained than media-triggered doubts about a specific element of the technology, e.g., a vaccine. The imminent expansion of vaccination schedules with more vaccines and vaccine combinations will only enhance the parents’ doubts and trigger discussion. It will stress parents’ perception that, in vaccination practice, “experts” are making fundamental decisions about their children’s health, without consultation or providing the option to exempt.

The perspective of the state, power and the body

Public health programmes, including vaccination programmes, can be defined as the regulation, surveillance and control of bodies by the state, or by others with the permission or encouragement of the state.

In the colonial period, as Arnold noted with respect to British India, mass vaccination against smallpox was part of “a colonizing process in which medicine was implicated” (Arnold, 1993, p. 290). In the colonial context, vaccination was promoted by the colonial power and had a profound political meaning. The introduction of vaccination in British India came “at a critical moment in the history of colonialism in India. For a regime but recently established by force of arms and with the struggle against the Marathas still unresolved, vaccination offered a welcome opportunity to give “fresh proof” of the East India Company’s ‘humane and benevolent’ intentions toward its subjects...” (Arnold, 1993, p. 135). Still, the introduction did not go smoothly at all. At first there was resistance based on the threat vaccination presented to the indigenous practice of variolation¹³. Other resistance emerged when vaccination was made compulsory, although the colonial administration was hesitant to enforce the ruling: “The colonial regime remained nervous of a backlash against compulsory vaccination and coercive state medicine” (Arnold, 1993, p. 155).

Observations about prescriptive vaccination regimes fit into this theoretical perspective that stresses control, usually by the state, over individual bodies. The state sees the stability of the body politic as resting on its “ability to regulate populations (the social body) and to discipline individual bodies” (Scheper-Hughes and Lock, 1987, p. 8, italics in original text). Dissent, refusal and, most certainly, resistance are considered a threat to state power.

At another level, this perspective addresses the state’s right to coerce individuals to have themselves or their children vaccinated. In The Netherlands the emergence of the vaccination practice was characterized by a debate on the state’s responsibility to safeguard public health and the instruments available for this purpose.

Finally, the perspective of state power relates to the view of the state as the guardian of the public good of

¹³ See on variolation also Greenough (1980).

herd immunity. Parents who decide not to have their children vaccinated against measles will be considered “free riders”, since they benefit from the herd immunity that results from the conformity of the others, but their refusal can negatively affect the public good and lead to unwanted effects, namely outbreaks of immunizable diseases (see also Gangarosa et al., 1998).

Conclusion

As a major global preventive disease control strategy, immunization requires considerable efforts involving new vaccines and delivery mechanisms, vaccine production and procurement, programmatic planning, and securing financial support. For the strategy to be effective in the long run, parents must continue to bring their children in for vaccination.

Using results from research carried out in Bangladesh, India, The Philippine, Ethiopia, Malawi and The Netherlands in the framework of the Social Science and Immunization Project, this article has explored how vaccination acceptance and non-acceptance can be understood within the contexts of more promotive and of more prescriptive vaccination regimes. Local vaccination cultures with their own health practices, knowledge and beliefs about immunization, and past experiences with routine or campaign vaccination constitute the interpretational settings. Acceptance dynamics include the trust in biomedical technology and in the health services personnel. The results of ethnographic research show that users' relations with the health services and users' perceived quality of their work and personal contact style largely determine whether parents continue to have their children vaccinated.

Vaccination non-acceptance situations range from individual non-attendance due to a work overload or difficulties with the accessibility of facilities, to refusal based on previously observed adverse effects. Sometimes the refusal of individual parents has a clear social or political aspect, such as local political strife or a social resistance movement. Under these conditions, in addition to vaccination cultures, an understanding of wide social and political processes is required to comprehend the prevailing gradations of acceptance.

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