

**THE ROLE OF HEALTH
COMMUNICATIONS IN RUSSIA'S
DIPHTHERIA IMMUNIZATION PROGRAM**

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BASICS consultant Robert Porter traveled to Novgorod, Russia, to evaluate the impact of the local communications strategy for diphtheria control on the coverage rates for diphtheria immunization for adults between 40-59 years of age

Porter made two data collection trips November 14-27, 1996 and December 13-22, 1996

Attached is an abstract about the abovementioned subject, written by Robert W Porter, Robert Steinglass, Paul Olkhovsky, Mark Rasmuson, Fatima A Dzhathoeva, Boris Fishman, and Vera Bragina

APPENDIX

The Role of Health Communications in Russia's Diphtheria Immunization Program

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Abstract

As part of a broader effort in health communication assistance and training, BASICS worked with staff from *oblast* public health agencies to design and implement communication activities supporting local diphtheria immunization programs. Aggressive outreach efforts along with strong administrative sanctions had already achieved impressive adult coverage rates for first doses of diphtheria-toxoid vaccine (Td1). Consequently, communication interventions emphasized the need for second and third doses, particularly for people 40 to 59 years of age, the group at greatest risk of diphtheria mortality. Media products included television and radio public service advertisements (PSAs), news coverage, print ads, posters, leaflets, and transit cards. Outcomes were assessed through vaccination coverage data and more qualitative measures. In one project site, increases in coverage were relatively modest (an aggregate increase of 4.5% for Td1, Td2 and Td3). In a second site, with a stronger communications component, the increase in coverage was much greater (approximately 60%). Although it is not possible to disentangle completely the effects of communications from other aspects of *oblast* immunization programs, these and other data suggest that health communications can play an important supporting role in Russia's ongoing mass immunization efforts. As individual choice and health-seeking behaviors become more significant determinants of immunization status and coverage, the potential importance of health communications in diphtheria control will only increase.

Overview

The diphtheria communication interventions discussed in this report were undertaken through a collaborative Russian-American program involving BASICS (a project funded through the United States Agency for International Development), the Russian Ministry of Health, and the former State Committee for Sanitary and Epidemiologic Surveillance. The overall aim of BASICS work in Russia was to strengthen the capacity to plan, implement, and evaluate public health communication programs both at the federal level and in selected *oblasts*. The primary focus was on technical and training assistance in communications research, strategic planning, and campaign implementation. The actual implementation of communication activities was carried out by public health agencies involved in diphtheria control efforts in Novgorod City, Voronezh *oblast*, and the city of Yekaterinburg. Although some communication support was given to childhood immunization programs, city- and oblast-level activities concentrated on adult immunization. The emphasis was on using local media, especially radio and television, to inform adults of the need for second and third doses of tetanus-diphtheria vaccine and to positively influence their more general attitudes toward diphtheria vaccination.

Under control since the 1950s, diphtheria in the Russian Federation and the other independent states of the former Soviet Union reemerged in recent years as a result of decreasing immunization coverage among infants and children and waning immunity to diphtheria among adults [1, 2, 3]. The spread of the epidemic throughout Russia was further accelerated by economic dislocations, internal labor migrations, and shortages (at least initially) of vaccines and other essential medical supplies. Aggressive anti-epidemic measures were initiated in 1993 [1, 2].

Mobile immunization teams brought booster vaccinations to adults in their homes and at work sites. Coverage quotas were established for health workers and their supervisors along with fines for nonperformance. Without proof of vaccination, petty traders could not obtain licenses to operate stalls in local markets, university students were not allowed to take final examinations, and the paychecks of workers in many enterprises were withheld [4].

By 1995, when BASICS first began to work in Russia, this aggressive program of outreach services, backed up by strong administrative sanctions, had achieved impressive coverage rates among adults for one dose of diphtheria-toxoid vaccine within the previous ten years (estimated at approximately 85 to 90 percent in project *oblasts*) [5,6]. By early 1996, public health authorities were focusing more programmatic attention on increasing coverage for second and third doses of diphtheria vaccine, particularly for adults aged 40 to 59, the group at highest risk for diphtheria mortality. It was apparent, however, that this kind of mass immunization effort would be difficult to sustain over the longer term. Home visits to pensioners were beginning to falter [4]. Chronic fiscal problems and a population increasingly skeptical of state-imposed policies and programs also threatened further increases in immunization coverage. Russian health-system managers recognized that individuals and communities would have to take greater responsibility for their own health.

The United States has never successfully mounted the kind of mass adult immunization program which has characterized the Russian response to the diphtheria epidemic of the early 1990s. But public health programs in the United States *have* made successful use of marketing

communications to promote protective health behaviors and influence service utilization. In a series of early discussions, program counterparts in the Ministry of Health and allied agencies in Moscow expressed considerable interest in using these kinds of marketing strategies and communication tools to support diphtheria immunization programs in Russia.

Diphtheria Communications

BASICS work with its partners in health communications was conducted primarily at the *oblast* level, where, in Russia's increasingly decentralized health system, diphtheria and other disease control programs are now managed and financed. Teams in the three project *oblasts* conducted formative audience research, designed message concepts, and developed communication strategies and media plans. With modest financial support from BASICS (under \$10,000 per *oblast*) together with some additional *oblast* funds, the teams then implemented their own communication programs.

Formative research [7, 8] carried out by the *oblast* teams indicated that adults saw diphtheria as a potentially serious disease, but not as a very immediate, personal threat. Respondents felt no great urgency regarding the need to take preventive measures. Positive attitudes toward immunization were undermined by nagging concerns about vaccine efficacy and service quality, combined with some resentment toward the more coercive aspects of the immunization program. People also expressed skepticism regarding the competency of medical personnel, fueled in part by past publicity on the negative side effects of vaccines and an apparent shift in diphtheria immunization policy (emphasizing the importance of second and third doses).

On the basis of this research the planning teams settled on several key message points

- Diphtheria is dangerous but it is preventable through vaccination
- The vaccine is safe and effective
- Individuals are responsible for being sufficiently vaccinated (second and third doses offer complete protection) and should consult their doctor about their vaccination status

These messages were incorporated into a variety of media products TV and radio public service advertisements (PSAs), print ads, posters, leaflets, and transit cards

Four television PSAs were produced in Moscow by *Medicine for You* the semiprivatized public information arm of the Ministry of Health Three of the PSAs focused on adult immunization, emphasizing the diphtheria immunization messages noted above, the fourth PSA targeted mothers and focused on the timely completion of the full childhood immunization schedule The four TV PSAs were distributed to project *oblasts* in September 1996

All of the other media products created for local campaigns were developed in the *oblasts* The *oblast* teams also worked with local media outlets to generate news coverage (TV, radio, and print) as well as free placement for TV and radio PSAs (there was no precedent for running unpaid public service advertising in these *oblasts*)

Evaluation

Information to guide program design and assess performance came from both *oblast* health information systems (HIS) and rapid, inexpensive studies that could be implemented by staff from *oblast* health agencies. Exploratory focus group research was carried out in Novgorod and Voronezh [7], a quantitative communications tracking study was conducted in Novgorod [9], and rapid, semi-quantitative consumer surveys, employing purposive samples were implemented in Voronezh and Yekaterinburg [10]. Vaccination coverage data generated through *oblast* health information systems were also available for Voronezh and Novgorod [6].

The preliminary focus group research sought to identify barriers to immunization that could be addressed through consumer-oriented communication strategies and messages. The Novgorod tracking study looked at the interplay between consumer attitudes, social norms, and immunization status, and also (through a systematic sampling of diphtheria immunization records) provided dose-specific coverage estimates for the period immediately before and after the core communication intervention. HIS data also offered estimates of change in vaccination coverage at six month intervals (but these estimates were less sensitive to our more time-limited interventions). Finally, the rapid surveys, employing purposive samples of vaccinated consumers, profiled audience exposure to diphtheria communications.

The Novgorod Tracking Study

Objectives The tracking study in Novgorod had three basic objectives. The first was to estimate diphtheria vaccination coverage rates immediately prior to and just after the two-month period of more intensive communication activities. The second was to explore the relative

importance of psychological and social factors (consumer beliefs, attitudes, and perceptions of prevailing social norms) which either facilitated or stood in the way of receiving second or third doses of diphtheria vaccine. The third objective was to assess the feasibility of a survey that could be implemented quickly and at minimal expense while still employing a statistically rigorous sampling design.

Research Design To address these multiple research objectives, the study followed a two-phased design, involving a review of Novgorod City's immunization records, phase I, followed by a household survey, phase II. Intensified diphtheria communication activities began in September, 1996 and ended in mid-November (the "intervention period"). The review of immunization records, phase I, was carried out in the third week of November, and phase II was conducted in the first two weeks of December.

The household survey employed a probability sample composed of two groups matched by age (40 to 59 years). The first group consisted of eligible adults who had received at least one dose of Td since 1986 and were therefore eligible for either Td2 or Td3, but did not receive either dose during the intervention period ("controls"). The second group consisted of eligible adults who were vaccinated with a second or third dose during the intervention period ("cases").

Phase I, Review of Immunization Records In the first phase of the study, a systematic review of diphtheria immunization records for adults 40 to 59 years of age in Novgorod City was conducted by 10 epidemiologists from the city's Sanitary Epidemiological Station. This record

system is maintained by staff of the two adult polyclinics and the city hospital to track individuals in need of immunization against diphtheria. Each immunization card lists the individual's name, date of birth, home address, date(s) of vaccination, clinic catchment area (*uchastok*), and, in some cases, telephone number and work address. After a random start, the team of record reviewers examined every 25th card in the system. If the date of birth recorded on the card fell within the specified range, the person's name, address, and immunization status was entered on the record-review form. If the date of birth did not fall within this range, each card following was examined until an eligible individual was found. After recording the appropriate data from this card, the reviewers repeated the process (examining every 25th card) until the entire record system was covered. The data collected through this systematic sampling of immunization cards was the basis for estimating coverage rates for people 40 to 59 years old.

Diphtheria vaccination coverage rates for individuals 40 to 59 years of age at the beginning of the intervention were 74.1 percent for Td1, 21.3 percent for Td2, and 9.2 percent for Td3 (table 1).

Over the two-month intervention period, approximately 4.5 percent of the population 40 to 59 years of age received at least one dose of Td.

Because of the lag time in transferring vaccination information to immunization cards, these figures probably underestimate coverage, particularly for Td2 and Td3 administered in the second month of the intervention period. This potential bias probably has less of an effect on baseline estimates and a greater effect on estimates of coverage at mid-November. Consequently

there may be a slightly greater increase in overall immunization coverage than these findings suggest

Phase II , Household Survey In order to draw the matched sample for the household survey, individuals were classified as either "cases" or "controls," or were screened out of the study if they did not meet our case or control definitions. A total of 3,319 individual immunization cards were selected and reviewed following these sampling procedures. Of this total, the record review team found 87 individuals meeting the study's case definition. Additionally, 2,079 individuals were classified as controls. (The remainder either had never been immunized since 1986 or had already received three doses of Td prior to the intervention period.) A simple random sample of 87 individuals from this listing of controls was then selected. The resulting target sample for the household survey consisted of 174 respondents, 87 who had been vaccinated (with either Td2 or Td3) during the intervention period and 87 who were eligible for a second or third dose, but were not vaccinated during the period of intensified diphtheria communications.

While the review of immunization records was under way, the survey team, consisting of 6 professional staff from Novgorod's Center for Preventive Medicine and their supervisor, finished development of a draft survey instrument. The questionnaire was designed to collect information on respondents' demographic characteristics, media habits, relevant beliefs, attitudes, and perceived norms, how respondents learned about the need for second and third doses, and reasons why they received or failed to receive a second or third dose during the two-month

intervention period. The questionnaire was then pretested in two focus groups whose participants were drawn from outpatient waiting rooms in the city's polyclinics.

Except for some recent door-to-door political polling, little or no survey research of the sort undertaken in this study had been carried out in Novgorod. For the vast majority of respondents, the interview would be a novel experience. The interview team (five physicians and one sociologist) was also new to these survey research methods. We did not know how difficult it would be to locate respondents or how successful interviewers would be in securing their cooperation. Once the survey team began actual field work, however, the interview process proceeded surprisingly well.

In sum, both the record review and the household survey design proved quite feasible to implement. The interview team completed the household survey over a period of two weeks, conducting interviews in addition to their regular duties. The completion rate for cases was very high, 86 of 87 case questionnaires were successfully completed. The completion rate for controls was not as high. Interviews with 12 out of the 87 controls in the original sample listing were not completed, for a variety of reasons.

Survey Findings Of the demographic characteristics measured in this survey, only gender was associated with a change of immunization status during the intervention period, women were twice as likely as men to receive a second or third dose of diphtheria vaccine.

Although earlier formative research also suggested that less educated individuals were less likely to have received second or third doses this study found no evidence of such an association, either during the intervention period or when we looked at immunization status irrespective of vaccination dates

Overall, two-thirds of the entire sample was employed and, as with level of education, there was no significant association between employment status or place of employment and receiving a vaccination during the intervention period

Beliefs and Attitudes As noted earlier, focus groups and in-depth interviews conducted several months before this study uncovered a variety of beliefs and attitudes regarding diphtheria, diphtheria immunization, and alternative forms of prevention that were highly relevant to message development and planning. But these *qualitative* data could not offer much insight into the statistical distribution of specific attitudes and beliefs in the population, or the extent to which they were associated with immunization status. Consequently, a battery of questions on diphtheria-related beliefs and attitudes was developed to explore their relationship to respondents' immunization status

Very little difference in the pattern of responses to these questions was found when the mean response scores for cases and controls were compared. Beliefs and attitudes do not appear to differentiate the group that received Td2 or Td3 during the intervention period from the group that did not

Social Norms The concept of "social norm" has to do with what other people think or feel about a given issue or behavior. Broad social norms or expectations regarding appropriate or inappropriate behavior can be codified as formal policies or regulations, as in regulations regarding smoke-free buildings in the United States or requiring proof of diphtheria vaccination as a precondition for some categories of employment in Novgorod. Even when not formally codified, norms may exert a diffuse influence on individual behavior. Nevertheless, a person's individual beliefs, attitudes, and behaviors are not always consistent with prevailing norms. Though people may know what they ought to do, this does not mean that they usually do what they ought to.

To explore the role of norms as determinants of diphtheria immunization behavior, we asked survey respondents a series of questions about what most people they knew believed about diphtheria. Once again, there were very few differences in the distribution of mean scores when the responses of those who received a second or third dose of vaccine are compared to the responses of those who did not. Just as individual beliefs and attitudes did not differentiate between those who were vaccinated and those who were not during the intervention period, differences in social norms do not explain differences in dose-specific immunization status.

Reasons for Getting Vaccinated So why did people get vaccinated? Adults in Novgorod receive diphtheria vaccinations in three ways. First, health workers visit them at home, bringing immunization services directly to eligible clients. Individuals can refuse to be vaccinated, or

otherwise avoid health workers who show up on their doorstep but clearly many respondents feel pressured to comply with the wishes of mobile vaccination teams. Health workers also visit work sites to provide vaccinations. Some of these workplace programs are obligatory even coercive. Finally, adults are vaccinated in clinical settings. Health workers may advise them to visit a polyclinic to receive a vaccination or local authorities may require it. It is difficult to precisely measure the extent to which respondents were pressured or required to receive an additional vaccination. We estimate however that nearly one half of the respondents who were vaccinated during the intervention period felt that vaccinations were required—that is, 18 percent said that they were forced to get vaccinated by local authorities and 28 percent reported that they were vaccinated at work (where vaccinations have often been mandatory, table 2). Nineteen percent of recent vaccinations were given to respondents by medical workers who came to their home. These respondents may have been glad to comply with the recommendations of health workers, but they did not actively seek out immunization services. However, just over one-fifth (21%) of respondents did report that they voluntarily sought out vaccinations at a polyclinic during the intervention period.

In short, a large proportion of the Novgorod respondents who had been recently vaccinated were not offered much of a choice, either vaccinations were explicitly required by some authority or respondents felt they had to be vaccinated. On the other end of the choice continuum, about one-fifth of respondents said they actively sought an additional dose ("I wanted to protect myself from the disease and went to the polyclinic"). The remainder, somewhere between 30 and 40 percent, did not actively seek an additional vaccination but accepted it, albeit reluctantly in some

cases, when it was directly offered by a medical worker

Reasons for Not Being Vaccinated with an Additional Dose Respondents who had not been vaccinated during the intervention period were asked why they had not. Not knowing that they needed an additional dose was by far the leading reason (given by 42% of respondents) for not receiving Td2 or Td3 during the intervention period (table 3). Neither availability nor access to services was a significant barrier to vaccination. Similarly, concerns about negative side effects, the quality of the vaccine, the trustworthiness of physicians (though there may well have been some interview bias here), fear of infection or simply being injected do not appear to be major barriers.

Coverage in Novgorod and Voronezh

HIS data on adult coverage for second or third doses of diphtheria vaccine were also available for the middle and the end of 1996 [6] from two of the project *oblasts* (figure 1). Voronezh recorded a dramatic increase in coverage for Td2 and/or Td3 in the last six months of 1996, up from just under 20 percent at the end of June to just under 80 percent at the end of December, a time frame that includes the period of intensified diphtheria communications. This very steep rate of increase during the last six months of 1996 follows a six-month period during which coverage had leveled off. Coverage data from Novgorod, in contrast, show a much more moderate, straight-line increase in coverage for Td2 and/or Td3.

Did diphtheria communications in Voronezh have a much more significant impact on coverage rates than communications in Novgorod? The reasons for the marked increase in coverage for

second and third doses of vaccine in Voronezh are not fully understood. We do know, however, that media activities in Voronezh differed from those in Novgorod in several crucial respects. Perhaps the most important difference is that *oblast* television in Voronezh is a more effective medium than it is in Novgorod. These are very different media markets. Local Voronezh television does not compete for audience share with television from any nearby and more cosmopolitan urban center. The Novgorod market, in contrast, is dominated by St. Peterburg television, and partly as a result, Novgorod's local channel offers only several hours of (less competitive) programming per day. In addition, the diphtheria communications team in Voronezh, with support from local government, was able to secure placements for diphtheria PSAs in time slots surrounding *Santa Barbara*, one of the most-watched soap operas in Voronezh (and in all of Russia). Local television in Novgorod simply does not have the revenues to purchase this kind of popular programming.

Data from a rapid consumer survey in Voronezh [10] also suggest that exposure to diphtheria communications in Voronezh was greater than in Novgorod. Conducted by staff from the federal Research Institute on Health Education and Health Promotion, this survey followed a different sampling design and used a much more media-focused research instrument than the tracking study in Novgorod. Results from the two studies are not strictly comparable. Nevertheless, it is worth reporting that 72 percent of respondents in Voronezh cited the media as a source of diphtheria information (compared to only 33 percent in Novgorod), and 60 percent of Voronezh respondents who had seen or heard diphtheria messages said that they had influenced their decision to get vaccinated.

Discussion

Diphtheria Communications and Immunization Behavior Taken together this evidence suggests that communications can provide significant support to diphtheria immunization programs in Russia. After two months the various media (TV, radio, print) used for diphtheria communications are cited by a third of Novgorod's recently vaccinated population (aged 40 to 59 years) as one of the means through which they learned about the need for additional doses. In Voronezh, exposure to media-based diphtheria messages was considerably higher, as were coverage rates for Td2 and Td3 during the communications intervention period.

Have diphtheria communications created greater consumer demand for immunization? The answer to this question is not as simple. Learning, attitudes, and behavior can all be influenced by health messages, but to understand how health communications works we need to understand the order of events, how audiences move from stage to stage. Here there are a number of competing theories. One of the most influential, at least in the United States, argues for a hierarchy of communication effects. Health messages and social learning lead people to develop or change specific beliefs and attitudes, and these beliefs and attitudes lead, in turn, to specific behaviors, such as seeking out protective health services.

In the Novgorod tracking study, however, survey respondents had already received Td1, and their attitudes toward immunization were conditioned, in part, by this prior immunization experience. It is difficult, consequently, to disentangle the effects of consumers' direct experience with

immunization services from messages concerning the need for additional doses the safety and efficacy of vaccines, and so forth Still we hypothesized that these attitudes (and related normative expectations) would influence consumers subsequent immunization-seeking behavior and thus affect their immunization status The Novgorod study found, however, that immunization status, during the intervention period, was *not* explained by attitudes, beliefs, or perceived norms Why?

Although the diphtheria immunization program in Novgorod is not immune to the fiscal crises that are affecting the public health system as a whole, it continues to provide vaccinations in the workplace and at people's homes In Novgorod, at least, the majority of people who have received a second or third dose of diphtheria vaccine have *not* done so because they voluntarily sought out vaccination services at polyclinics Either vaccinations were required by local authorities or by the institutions and businesses where people are employed, or else vaccinations were provided by mobile vaccination workers to individuals at home Positive attitudes and active immunization-seeking behavior do not explain immunization status in Novgorod because sooner or later immunization services will come to them, whether they seek immunization or not And clearly many of the residents of Novgorod who received the full diphtheria vaccination series did not have much choice in the matter This is probably the best explanation for the lack of any clear differences in the beliefs, attitudes, and perceived norms of people who were vaccinated during the intervention period and people who were not Receiving two or three doses of vaccine in Novgorod is not (yet) associated primarily with active consumer choices

In Voronezh, the situation is less clear. Consumer research conducted after the period of intensified diphtheria communications indicates that people knew the basic facts about diphtheria and saw immunization as an effective means of preventing it. But this research did not explore consumer attitudes or reasons for vaccination, and we do not know what proportions of adults were required through administrative sanctions to receive a second or third dose of vaccine or voluntarily sought out immunization services.

The Russian Immunization Program in Transition Media-based diphtheria communications in the project *oblasts* are supporting immunization programs that have already proven quite successful in achieving very high coverage rates for Td1. Access to immunization services does not appear to be a problem. Consumer attitudes toward diphtheria immunization in project *oblasts* are now generally favorable. Fear of side effects and concerns about vaccine safety or quality are not, at least any longer, major barriers to immunization for Td2 or Td3. Most people will accept immunization *when it is directly provided*.

In the short term, we can realistically expect that diphtheria communications will lead to greater efficiencies in service delivery. As long as government health services are able to sustain an aggressive immunization program in the workplace and the community, completion rates for the full series of diphtheria vaccinations will continue to rise. But if, over the longer term, the community-based delivery of immunization services is reduced, as a result of budgetary constraints or for other reasons, then individual choice and health-seeking behavior will become

much more significant determinants of immunization status and coverage

We do not fully understand the reasons for the very rapid increase in second and third dose coverage in Voronezh, however, diphtheria communications, leading presumably to greater consumer demand for immunizations appear to be partly responsible. In Novgorod, where the increase in coverage was much less exposure to media messages was also less, and the majority of vaccinations were provided through aggressive outreach to households and work sites

Media-based, consumer-oriented health communications can help people assume greater responsibility for managing their own health, although typically only as part of broader processes of social and cultural transition [11]. A behavioral transition of this sort does not occur evenly, at the same pace, everywhere. Early indications are that it may be happening more rapidly in Voronezh than in Novgorod.

TABLE 1 Td Coverage Rates Novgorod tracking study (based on immunization records for individuals 40 to 59 years of age) [9]

Immunization period	Coverage rate, for		
	Td1	Td2	Td3
By September 13, 1996	74.1	21.3	9.2
By November 17, 1996	76.2	22.7	10.2
Increase	2.1	1.4	1.0

TABLE 2 Reasons for receiving Td2 and/or Td3, Novgorod tracking study [9]

What made you get vaccinated?	Number	Percent*
1 I take care of my health and follow medical workers' recommendations	31	36
2 Medical workers came to my workplace and vaccinated me	24	28
3 I don't want to be a source of infection for my children	22	26
4 I wanted to protect myself from the disease and went to the polyclinic	18	21
5 Afraid for my life	18	21
6 Medical workers came to my home and vaccinated me	16	19
7 Afraid for my family's life	16	19
8 I didn't want to get sick because it costs a lot	16	19
9 Forced to by local authorities	15	18
10 I didn't want to be a burden on my family	13	15
11 I didn't want to leave my family without income	12	14
12 Other	7	8

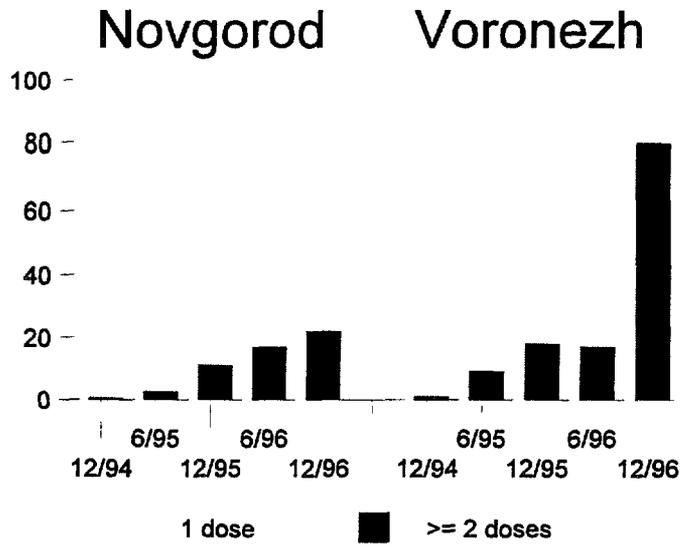
* Based on total respondents who had received Td2 and/or Td3 in the previous two months (n=85, with 1 missing case)

Table 3 Reasons for not receiving Td2 or Td3 Novgorod tracking study [9]

Why didn't you get vaccinated?	Number	Percent*
Service access/availability		
did not have time	12	18
did not have transportation	1	1
long waiting lines at the clinic	2	3
inconvenient clinic hours	0	0
Lack of information		
did not know that I needed one	28	42
don't know where to go	2	3
Perceived risk/severity of disease		
do not feel it is necessary	3	5
indifferent whether I get sick or not	2	3
if I get sick doctors will cure me	3	5
Concerns about vaccination		
afraid of complications/reactions	2	3
do not trust quality of vaccine	0	0
don't trust the doctor	1	2
afraid of being infected	1	2
afraid of the injection	2	3
think I have a contraindication	4	6
Other		
had diphtheria already	2	3
health workers/workplace didn't offer	4	6
just didn't want to	4	6

Based on n = 66, with 9 missing records

Figure 1 Adult coverage, Novgorod City and Voronezh Oblast [6]



References

- 1 Galazka A Overview of diphtheria in the world Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod Russian Federation 4, June, 1997
- 2 Dittman S Current situation of epidemic diphtheria in the new independent states of the former USSR and lessons learned for further action Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4, June, 1997
- 3 Tymchakovskaya I Epidemiologic characteristics of diphtheria in Russia, 1990 - 1996 Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4,6 June, 1997
- 4 Steinglass R, Wylie A Visits to target oblasts in the Russian Federation for diphtheria prevention and control Trip Report Washington BASICS, 1995
- 5 Pianykh, VA Diphtheria control in Novgorod oblast Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4,6 June 1997
- 6 Vitek C Computerized analysis of the diphtheria surveillance data from Voronezh and Vladimir oblasts and Novgorod City Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4,6 June, 1997
- 7 Keith N Diphtheria and immunization qualitative research in Novgorod and Voronezh oblasts, Russian Federation Trip Report Washington BASICS, 1996
- 8 Pervysheva EV Public attitudes towards immunization against diphtheria Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4,6 June, 1997
- 9 Porter RW, Steinglass R, Kaiser J, Bragina V, Fishman B Diphtheria communications in Novgorod results of a tracking study Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod, Russian Federation, 4,6 June, 1997
- 10 Dzhatdоеva FA Evaluation of the effectiveness of communication campaigns in adult immunization in Voronezh, Yekaterinburg and Sverdlovsk region Conference on Diphtheria Control in the Russian Federation Lessons Learned and Current Issues Novgorod Russian Federation 4,6 June, 1997

- 11 Hornik R Public health education and communication as policy instruments for bringing about changes in behavior In Goldberg ME Fishbein M, Middlestadt SE Social marketing theoretical and practical perspectives London Lawrence Erlbaum Associates, Publishers, 1997