FOR PROVIDERS OF SERVICES FOR CHILDREN

2006 Birth Certificate Follow-Back Survey
of Preschool Immunization Coverage

Immunization status of preschool children in Spokane County:

How are we doing?




SPOKANE REGIONAL HEALTH DISTRICT

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Key Findings

- In 2006, survey results for Spokane County showed 72.6% of respondents' preschool children were 4:3:1:3:3 up-to-date (UTD) with their immunizations, lower than the state (76.4%) and national (80.9%) level.

- Results indicate a 2.4% increase in children who were reported as up-to-date in their immunizations from 1999 to 2006. However it is important to remember that respondents to the 2006 survey were more likely to be married and more likely to have a higher education than participants in the 1999 survey. Both of these factors have been found to increase immunization status.

- In both 1999 and 2006, sample children who attended child care regularly between birth and 19 months were more likely to be UTD than those sample children who did not attend regularly.

- In 1999, just over 75% of respondents kept a copy of the immunization schedule at home, while in 2006 this percentage had dropped significantly to 50.8%.

- Significantly more respondents in 2006 (81.5%) reported receiving immunization information from CHILD Profile than in 1999 (21.5%). In 1999, receiving CHILD Profile materials made little difference in the UTD status of the sample child. However, in 2006 respondents who reported receiving these materials were considerably more likely (76.2%) than those who did not receive materials (43.8%) to report their child was UTD.

- In both 1999 and 2006, respondents who reported they knew when it was time for their child's immunization were more likely to have a child who was UTD in his/her immunizations. Keeping an immunization schedule at home made little difference in the percentage UTD.

- The percentage of respondents who reported they had to take time off from work to get their child immunized increased from 36.3% in 1999 (N=74), to 41.1% in 2006 (N=51). Close to one quarter of these respondents (23.1%) in 2006 reported having difficulties taking time off from work. These respondents stated that employers were reluctant to allow the time away from work.

- In 2006, there was a significant increase in the percentage of respondents who reported they had to make a well-baby visit in order to have their child immunized. In both 1999 and 2006, respondents who reported they had to make a well-baby appointment had a larger percentage of UTD children than those who did not have to schedule a well-baby appointment.

- In both 1999 and 2006, approximately 1 in 5 respondents reported their child had not received an immunization when they had expected their child would get one. However, in 1999 failure to vaccinate was primarily due to the doctor's belief that the child was too sick; in 2006, the parent made the decision to not have the vaccination given.

- In 2006, fewer respondents (62.9%) indicated their child's primary care physician recommended immunizations than in 1999 (83.0%). Best practice literature states that any type of health education and discussion by a provider helps increase UTD immunization status.

- Fewer respondents reported taking their child to the Spokane Regional Health District for immunizations in 2006 (1.6%) than in 1999 (9.2%).

- More respondents reported taking their child to a community health clinic in 2006 (4.0%) than in 1999 (1.5%).

- The percentage of sample children receiving the varicella vaccine against chicken pox increased dramatically from 1999 (22.3%) to 2006 (59.7%).

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Introduction

The Birth Certificate Follow-Back Survey (BCFBS) of childhood immunizations in Spokane County was used to measure the immunization level of preschool children in our community. The Spokane Regional Health District's (SRHD's) 2006 Birth Certificate Follow-Back Survey of Preschool Immunization Coverage was funded with state local capacity development funds. The Washington State Department of Health, Maternal and Child Health Program, Immunization Section provided technical assistance. Included in this report are a brief description of the methodology of the BCFBS and the modifications made to the methodology and survey in 2006. The results of the 2006 survey are reported with comparisons to the survey results from 1999.

Background

Vaccine-preventable diseases, such as diphtheria, measles, mumps, rubella, pertussis (whooping cough), paralytic polio, and tetanus, were commonplace in the United States before the advent of mass immunization programs. According to the Centers for Disease Control and Prevention (CDC), illness from these diseases has decreased 95% to 100% since the beginning of the 20th century.[1] The success of immunization programs is largely dependent on people's willingness to have themselves and their children vaccinated.[2]

Because immunization programs have been effective in reducing the incidence of vaccine-preventable diseases, there has been a shift in focus from the risk of the disease to the risk of the vaccine. Most parents today have never seen a child with measles, mumps, or pertussis (whooping cough) and may find it hard to take these diseases seriously. With the advent of the internet, parents can go online and "read well-documented reports of rare ill effects...and they have access to widespread allegations…that vaccination may be linked to disabilities such as autism."[3] However, these allegations have not been substantiated despite multiple research projects addressing the issue.[4]

To understand why immunization status of preschool children is an important community health issue, the concept of "herd immunity" must be understood. The term "herd immunity" was first used in the 1920's and refers to the presence of enough immune individuals in a population so that an infection disappears or there is a reduction of transmission of the infection. Approximate estimates of the required vaccination levels for eradication of certain diseases have been calculated and are shown in Table 1.[5] For the successful eradication of these vaccine preventable diseases, these levels of vaccination should be achieved in all sectors of the population.[6] The goals of the Childhood Immunization Initiative (CII), established by the Clinton Administration in the early 90s, were to increase vaccination coverage levels to 90% by 1996 among children aged 2 years.[7] This goal was extended to the year 2000 in 1997 by the CDC, along with the goal of implementing a system for sustaining the high immunization coverage levels. Furthermore, CII is working to reduce and/or eliminate indigenous cases of diphtheria, tetanus, pertussis, poliomyelitis, Haemophilus influenzae type B, measles, mumps and rubella.

Disease	Percent of Population
Pertussis	80-99%
Measles	92-94%
Poliomyelitis	80-86%
Mumps	75-86%
Diphtheria	~85%
Rubella	83-85%

Table 1. Population Vaccination Levels to Produce Disease Eradication.

In Spokane County and Washington State, incidences of vaccine-preventable disease continue to be identified. Table 2 presents the total number of cases recorded in Spokane County and Washington State for the 10-year period from 1992 to 2001.

Methodology

The methodology used in this project duplicated the Birth Certificate Follow Back Survey (BCFBS) completed in 1999 in Spokane County. The BCFBS methodology was first designed by the CDC and has been used nationwide as well as within Washington State. Briefly, the protocol for this study calls for a random selection of children born in a specified area (county or state)

	Number of Cases	
Vaccine-preventable Disease	Spokane County	WA State
Hepatitis B	103	1,940
Haemophilus Influenza B	<5	115
Mumps	5	143
Pertussis	94	4,069
Polio, Paralytic	0	<5
Tetanus	<5	8

Table 2. Number of Cases of Vaccine-preventable Disease in Spokane County and Washington State (1992-2001).

within a specific time period. The participants are then traced back to their address recorded on the child's birth certificate. Most typically, the contact with the participant would be conducted in a face-to-face interview. During the interview, consent to obtain provider verification of immunizations would be requested. A full description of the BCFBS methodology used in Spokane County can be found in the 1999 Birth Certificate Follow Back Survey report.[8]

For the 2006 BCFBS, a random selection of birth certificates for children born between May 1, 2003 and June 30, 2004 to women living in Spokane County was obtained from the Washington State Department of Health (DOH). To be eligible for selection, the birth had to be classified as a live birth. This date range was set so that the children selected would be 19 to 35 months old at the time of the interview. A total of 250 birth certificates were selected from 6,315 births for the selected date range. However, the eligible sample was 246 because four of the selected children were deceased.

An introductory letter was sent to the parent/guardian of the selected sample at the address listed on the birth certificate (see Appendix A). Approximately three days later telephone interviews began. However, due to the lack of valid telephone numbers received from the birth certificate, a second methodology using a survey packet mailing was sent to increase the response rate. Those participants with valid telephone numbers were interviewed by telephone unless they specifically requested a survey through the mail. The participants that were unable to be contacted by telephone were mailed a packet containing a letter from the project coordinator describing the instructions for completing the study (see Appendix B), the survey tool (see Appendix C), consent form for release of medical information (see Appendix D), and an entry form for a gift certificate drawing.

Participants who returned the consent for release of medical information with the entry form to the drawing were eligible to win one of ten $25 gift certificates. The participants were informed that the consent for release of medical records form did not have to be signed in order to be entered into the drawing. Gift certificates were either mailed to the respondent (with a signature confirmation of delivery) or distributed in person at the SRHD.

The questionnaire used in the 2006 Spokane County BCFBS was adapted from questionnaires used in previous studies by other Washington State counties, from the 1999 questionnaire, and current best practice immunization literature. For this study, a survey database was developed using EpiInfo (a free software program developed by the CDC). Once the respondent agreed to participate, the interviewer entered the responses into the database developed for this study. When all surveys had been entered, the Statistical Package for the Social Sciences (SPSS v13.0) was used to analyze the data.

In addition, the SRHD Community Health Assessment program is equipped with the ability to scan data from questionnaires using a software program called Teleform. Teleform was used for paper surveys that were mailed to respondents. The surveys were mailed to the respondent for the following reasons: 1) by request from the respondent, 2) no valid telephone number was obtained but a valid address was found or 3) the respondent missed several scheduled interviews to complete the questionnaire. Consent for release of medical records (See Appendix B) was requested from the parent/caregiver to confirm the child's immunization status. The information (both questionnaire and immunization record) was entered into EpiInfo and then linked with an Access™ database. Once the data were ready for analysis, the information was exported into SPSS.

Methodological Results

Participant Response Results

In the 2006 survey, a total of 124 questionnaires were completed for a 50.4% response rate. The study in 1999 produced a total of 206 completed questionnaires for a completion rate of 82.7%.

This report will include comparisons of the 1999 BCFBS results to those found in 2006. However, due to the lower response rate in 2006 and differences between the sample respondents and the general population (birth cohort), these comparisons may be misleading.

In 1999 the difference between the sample and the general population mother's marital status and education level were relatively small. This means that the respondents to the 1999 BCFBS were similar in demographic makeup to the population from which they were

drawn. In the 2006 BCFBS, there are fairly large differences between the sample and the population. The respondents to the 2006 BCFBS were considerably more likely to be married, be a college graduate or higher, and considerably less likely to have a high school diploma or less. In both surveys the sample respondents were, on average, 4 to 4.5 years older than the population. Table 3 provides the specific information on these differences.

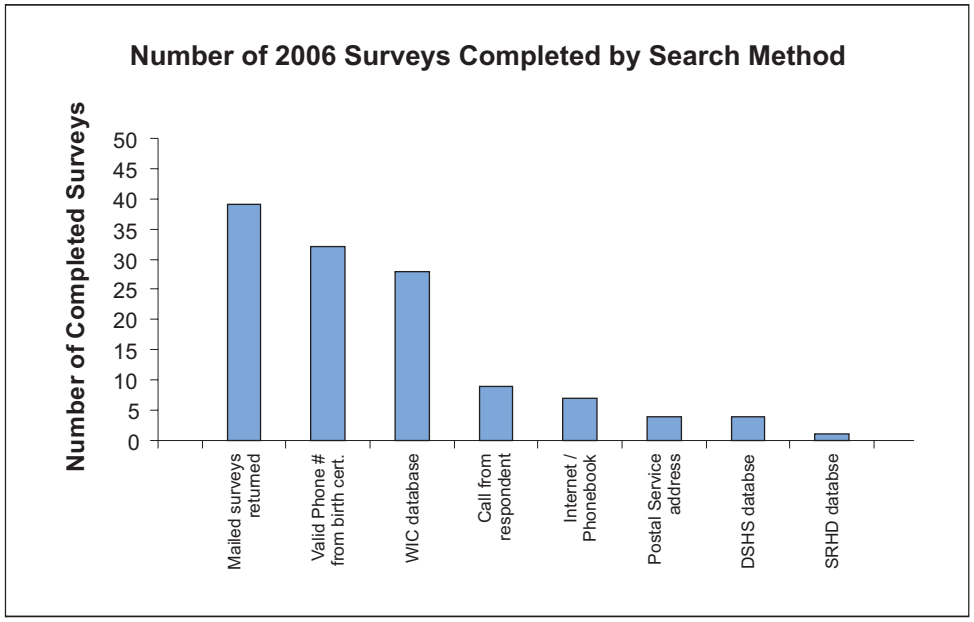
2006 Tracing and Contact Results

The original data set included 245 telephone numbers from the birth certificate information; 32 of these numbers (13%) were usable and resulted in questionnaire completion. Searches were conducted to retrieve valid phone numbers and addresses. These searches included internet, phone book, and databases from the Washington State Department of Social and Health Services (DSHS) and the Washington State Department of Health, Women, Infant and Children (WIC) program, and the SRHD client database. The internet searches produced 7 completed questionnaires; the DSHS database produced 4 completed surveys; the WIC database produced 28 completions; and the SRHD database produced 1 completion.

The second methodology, mailing a survey packet, produced 39 completed and returned surveys, 12 of which were completed via telephone. The United States Post Office provided current addresses, resulting in 4 completions. Nine of the respondents actively called to complete the survey. Figure 1 displays the completion rates for the surveys by the specific methodology.

The survey refusal rate was 3.66% (n=9). An SRHD epidemiologist contacted the nine individuals who had initially refused to participate. Two of the nine requested the survey by mail; however, they did not return the surveys.

Figure 1.



	1999 Sample	1999 Birth Cohort	1999 Diff.	2006 Sample	2006 Birth Cohort	2006 Diff.	1999/2006 Sample Diff.
Child Sex							
Male	53.2%	52.0%	1.2%	54.0%	51.4%	2.6%	-0.8%
Female	46.8%	48.0%	-1.2%	46.0%	48.6%	-2.6%	0.8%
Mom's Marital Status							
Married	71.8%	70.6%	1.2%	84.7%	67.4%	17.3%	-12.9%
Mom's Education Level							
High School or <	39.8%	43.5%	-3.7%	23.6%	38.8%	-15.2%	16.2%
College Graduate or >	25.3%	23.9%	1.4%	42.3%	23.8%	18.5%	-17.0%
Mean Age of Mom (years)	31.2	26.7	4.5	31.0	27.0	4.0	0.2

Table 3. 1999 to 2006 Sample to Birth Cohort Comparisons of Limited Demographic Information.

2006 Health Care Provider Verification of Immunization Status Results

A letter explaining the project was faxed to all Spokane County health care providers on March 22, 2006. Signed consents were subsequently faxed to the appropriate providers. The fax included a request that all immunization records be sent to the SRHD. The first requests for immunization records were faxed on April 7, 2006. A telephone call was placed to each provider prior to the request being faxed in order to locate the correct contact person and fax number. When a request was made for multiple participants, an accompanying form was attached that provided a consolidated list of parent names, child names, and dates of birth. This form was also used to track the consent forms to ensure all forms were sent and received.

Six of the children randomly selected, whose caregiver completed the survey, had not received any immunizations from a health care provider. Therefore, the total number of possible consents for release of immunization records was 118. Of the 118 consents mailed, 91 were returned signed (77.1%) and 1 was returned unsigned. Of the 91 usable consent forms, 83 (91.2%) resulted in returned immunization records from the provider.

Results of BCFBS Questionnaire

The responses to the questions in each section of the questionnaire are reported over the next few pages as descriptive percentages. Further analysis using statistical manipulation is reported in a subsequent section, *Immunization Coverage of Sample Children*.

Figure 2.

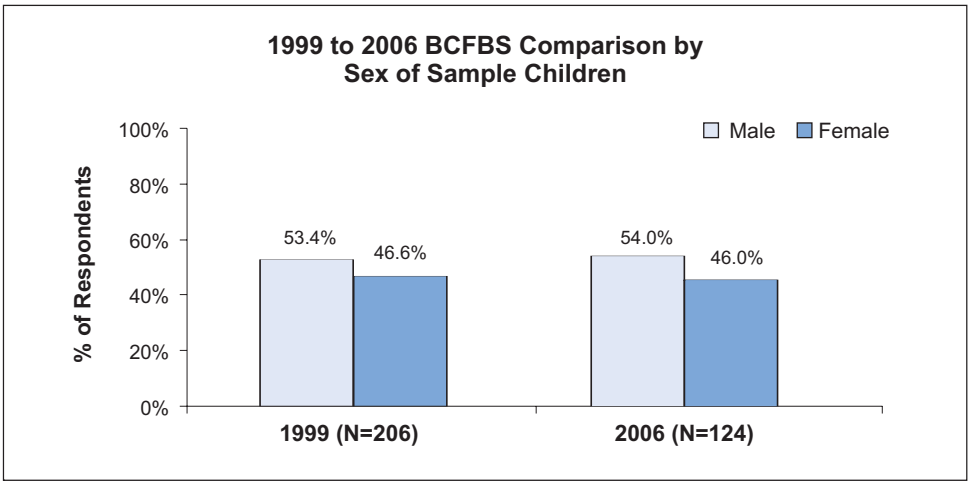
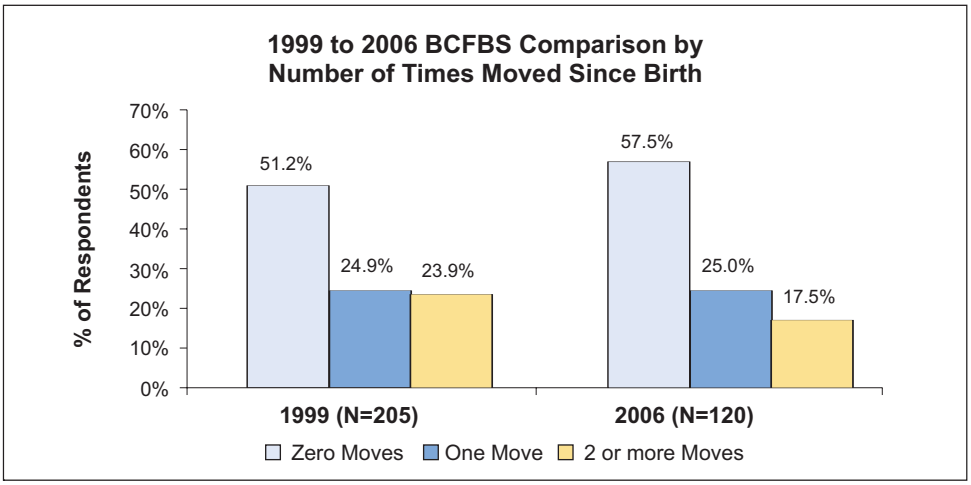


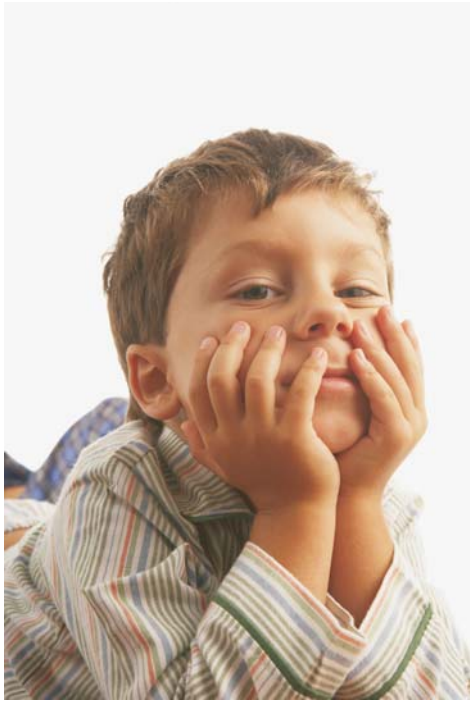
Figure 3.



Demographics of Sample Children

The distribution of sex for the sample children in both the 1999 and 2006 BCFBS was consistent with the general population (Figure 2).

Results from the 1999 and 2006 surveys indicate a relatively stable lifestyle that is not interrupted by frequent moves in residence for most of the sample children. More than half of the respondents in both years reported the child had not moved residences since birth. One quarter had only moved residences once since birth (Figure 3).



Demographics of Parent/Guardian Respondents

The typical profile of the parent/guardian respondent in the Spokane County BCFBS for both 1999 and 2006 indicates that the primary caregiver of the sample children was a 31-year-old female Caucasian, who was married and not employed. In 2006, as mentioned previously, respondents were more likely to have a college degree or higher and were even more likely to be married than in 1999.

Education

Over half of respondents in both survey years had some college experience or greater. However, in 2006, there were significantly fewer respondents than expected with a high school diploma or less, and significantly more respondents who were college graduates or had a graduate level degree than expected ($X^2 = 17.36$, df = 4, p = .002) (Figure 4).

Marital Status

The majority of the respondents in both survey years indicated they were currently married. The percentage in 2006 was considerably higher than in 1999 (Figure 5).

Employment Status

Approximately 60% of respondents in both 1999 and 2006 were either unemployed or were employed part-time during the sample children's first year-and-a-half of life. In 1999, 30.1% reported working full-time. While in 2006, 37.1% indicated they had worked full time at some point during this time frame (Figure 6).

Figure 4.

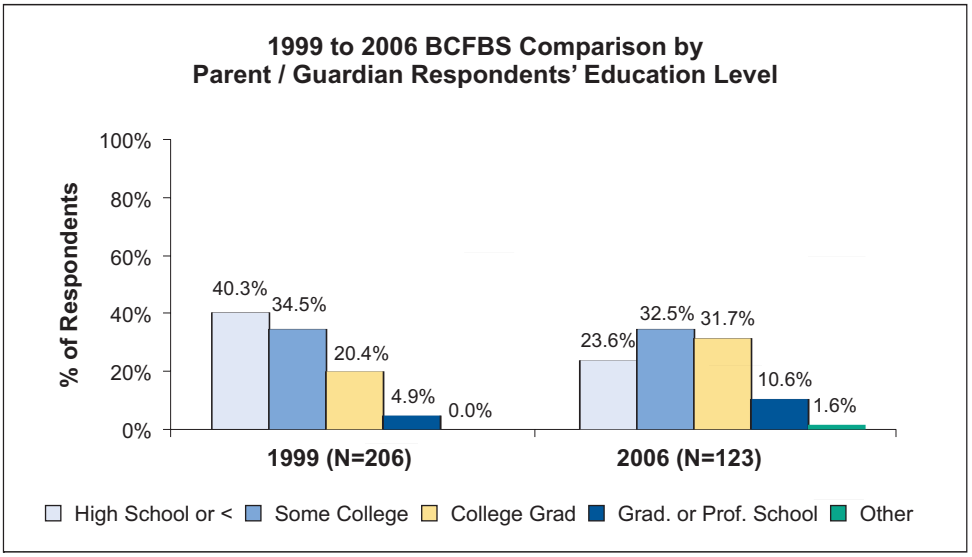


Figure 5.

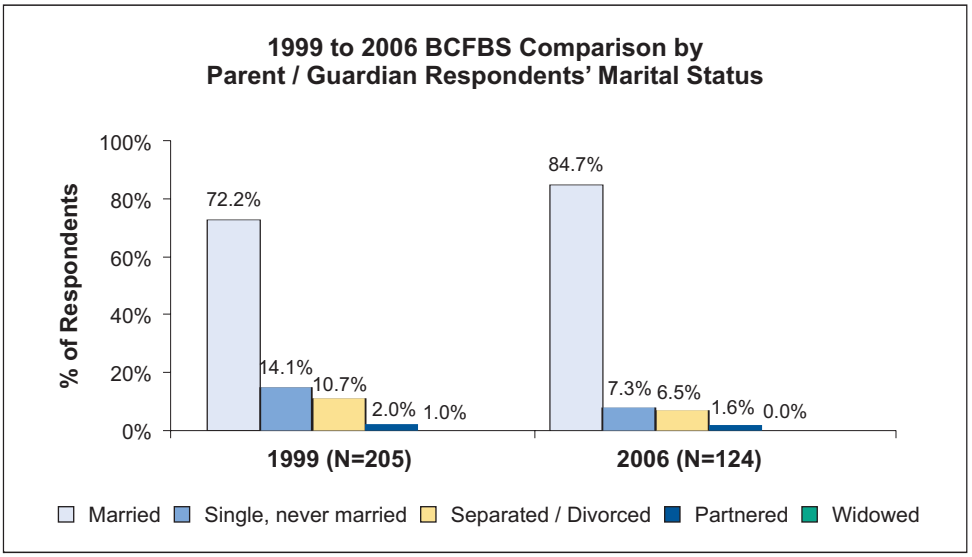
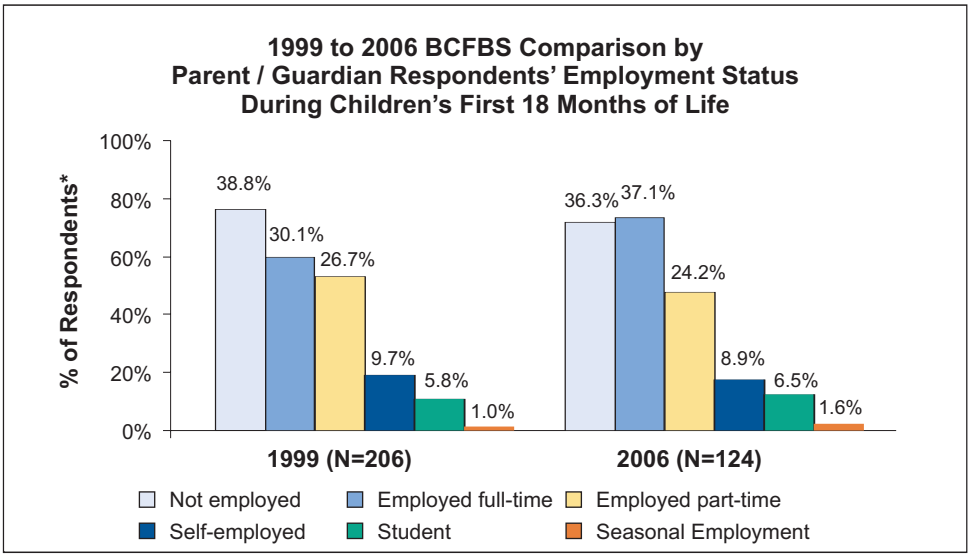


Figure 6.



*** Respondents could indicate more than one response.**

Ethnicity and Race

Respondents were asked to identify whether or not they were of Hispanic origin and to specify whether they were "Mexican, Mexican American, Chicano" or "Puerto Rican." In 2006, the percentage of respondents reporting they were of Hispanic descent increased. In both survey years, the most frequently named ethnicity was Mexican, Mexican American, or Chicano descent.

The racial distribution of respondents in both the 1999 and 2006 BCFBS is reflective of the racial distribution found in Spokane County's general population (Figure 8).

English was reported as the primary language spoken in 96.6% of respondent homes in 1999 and 94.4% in 2006. In 2006, the remaining 5.6% reported the primary language spoken in their homes as either Russian (n=4), Spanish (n=3), or German (n=1). In 1999, the 3.4% other primary languages were Spanish (n=2), Vietnamese (n=1), Hmong (n=1), Russian (n=1), or Lakota (n=1).

Number of Persons in the Household

The number of persons living in the household of the sample children in both 1999 and 2006 were similar. In 1999, the size of the household ranged from 2 to 11 people, while in 2006 the size ranged from 2 to 10. The mean number of persons living in the household in 1999 was 4.22, while in 2006 it was 4.23. In 1999, 67% of the sample children lived in a household with four or more people. In 2006, 68.5% lived in a household with four or more people. The number of persons counted in the size of the household included children and adults.

Figure 7.

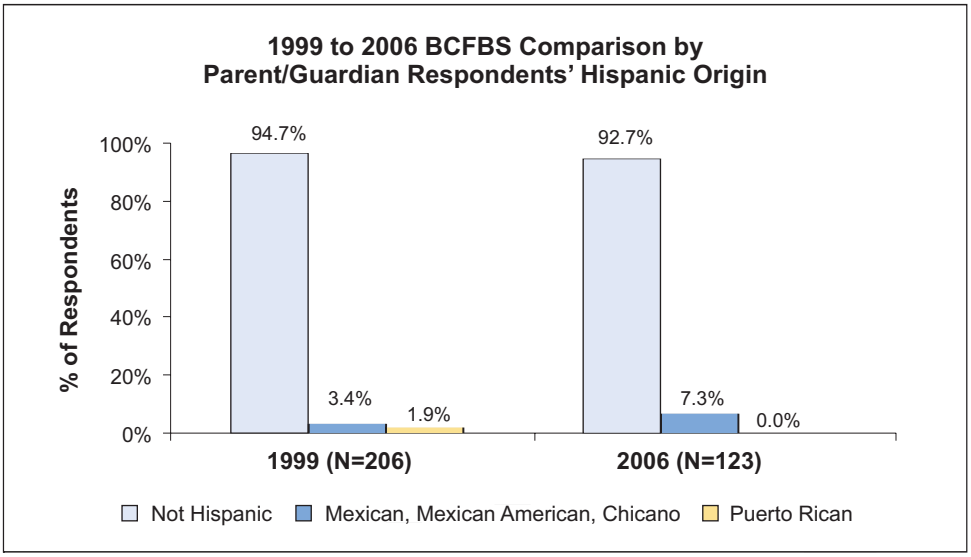
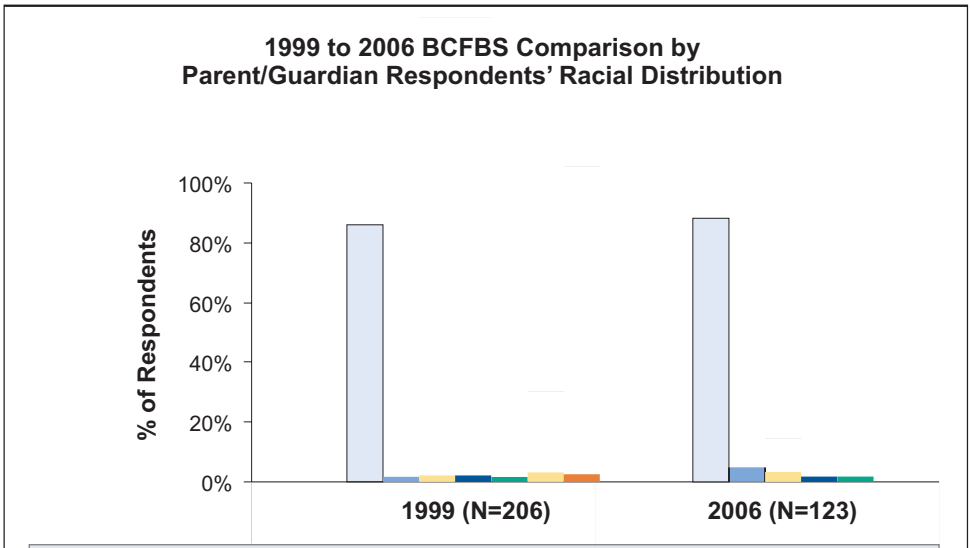


Figure 8.



	1999 (N=206)	2006 (N=123)
Caucasian	86.40%	88.70%
Multi-race	1.50%	4.80%
Hispanic/Latino	1.90%	3.20%
African American	1.90%	1.60%
American Indian/Alaska Native	1.50%	1.60%
Refused	2.90%	0.00%
Asian	2.40%	0.00%

Household Income During First Year of Life

In 1999, 29.1% of respondents reported living at or below 100% of the Federal Poverty Level (FPL). This is considered to be extreme poverty. In 2006, a significantly smaller percentage of respondents reported living in extreme poverty (20.2%). Likewise in 1999, 31.6% reported living at or above 200% FPL. In 2006, there was a significant increase in the respondents who

reported they lived at or above 200% FPL (46.8%) (Figure 9). In 2006, a family of four living at or below 200% FPL had a household income of $40,000 per year or less.

Health Care and Immunizations

In both 1999 and 2006, the majority of respondents reported they had a primary care physician chosen for the child prior to birth (Figure 10).

An even greater percentage reported currently having a regular health care provider for their child (Figure 11).

Most of the respondents in both survey years reported taking their children to a private provider for their medical care. However, in 1999, 1.0% reported taking their child to a community health clinic for medical care. In 2006, this percentage had risen to 6.5% (Figure 12).

The results from both survey years indicate the majority of sample children had some type of medical insurance coverage during the first year-and-a-half of life. Of the total participants surveyed

Figure 9.

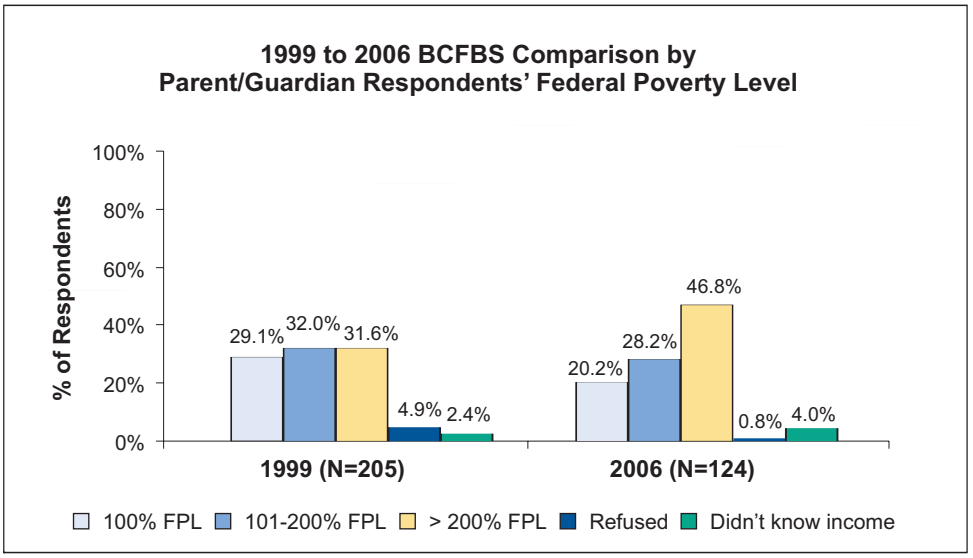


Figure 10.

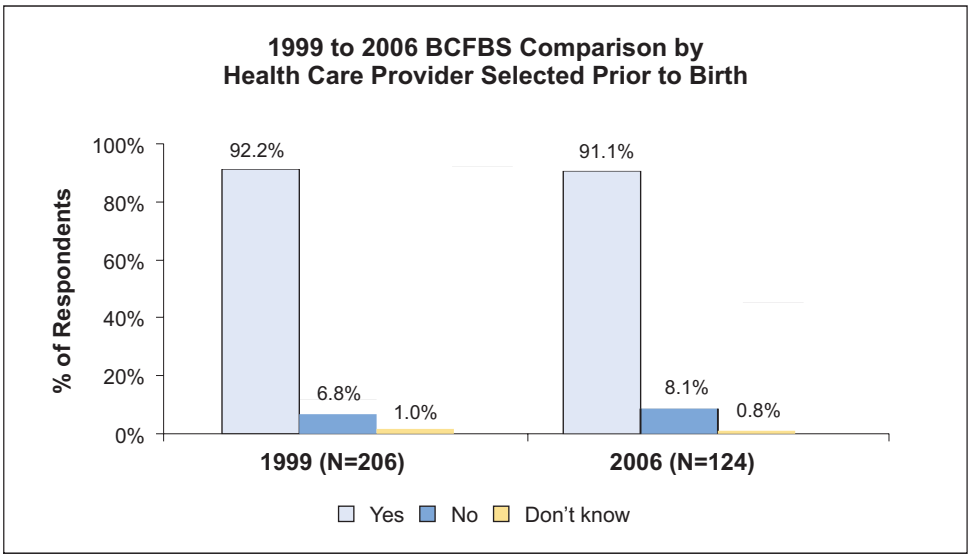


Figure 11.

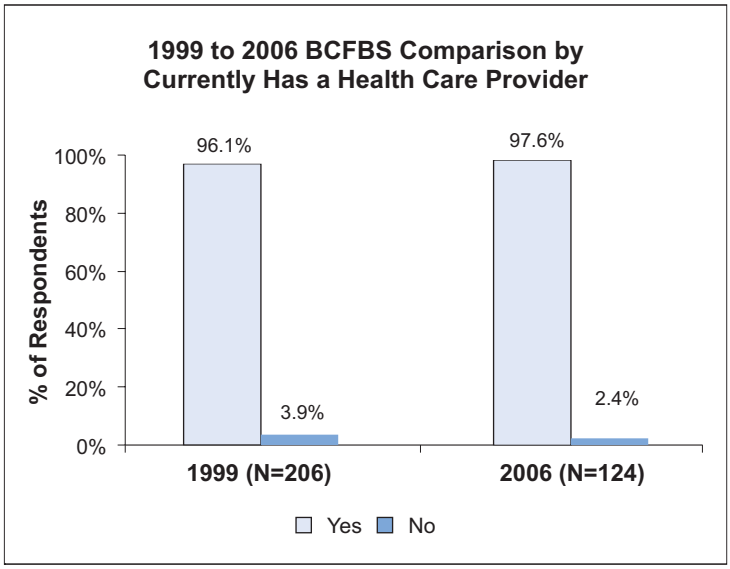
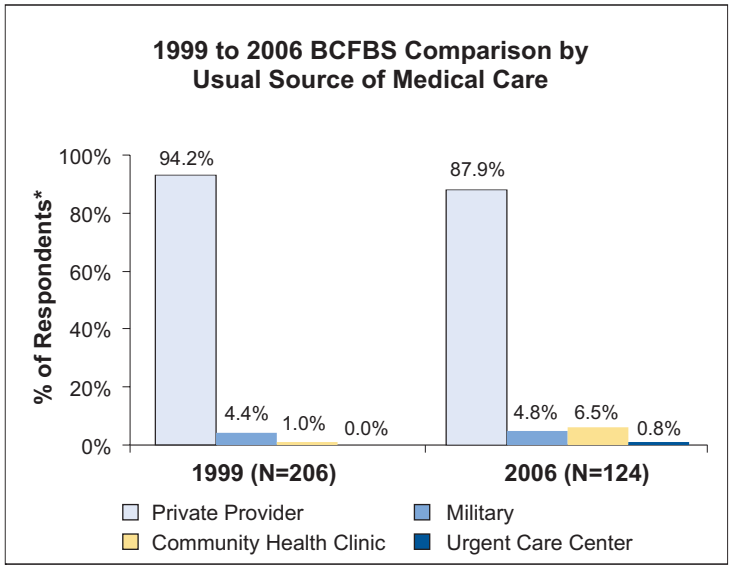


Figure 12.



*** Respondents could indicate more than one response.**

in both years, only one respondent indicated that her child did not have any type of insurance coverage. The participants were asked to identify all types of insurance coverage applicable for their child. There were significantly more respondents who reported having Medicaid coverage for their children in 2006 (38.7%) than in 1999 (28.2%) (Figure 13).

Out of the 124 respondents in 2006, 5 said their child had not received any immunizations and one respondent did not know if the child had been given immunizations, for a total of 6 without any immunization information. In 1999, 2 respondents indicated their child had not received any immunizations.

Respondents were asked to identify all the health facilities where the children had received immunizations. The majority of respondents in both years reported their children received immunizations at a private provider's office. The percentage reporting their child received a vaccination at the hospital at birth decreased considerably between 1999 and 2006. A smaller percentage of respondents in 2006 reported receiving immunizations at the Spokane Regional Health District than in 1999, while a greater percentage of 2006 respondents reported receiving immunizations from a community health clinic (Figure 14).

Immunization Experiences of Respondents

Awareness

A smaller percentage of respondents in 2006 (86.3%) knew when their child's immunizations were due than did respondents in the 1999 survey (93.2%) (Figure 15).

Figure 13.

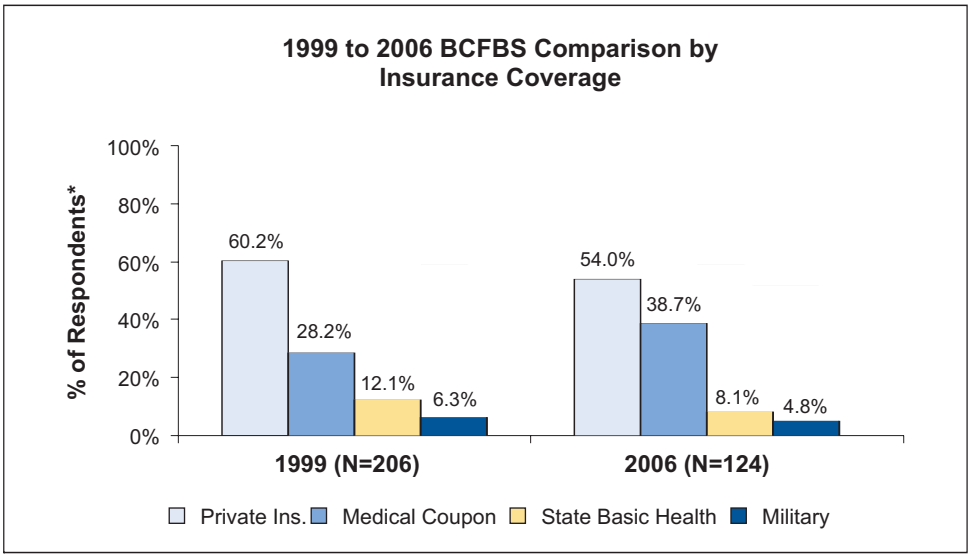


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Figure 14.

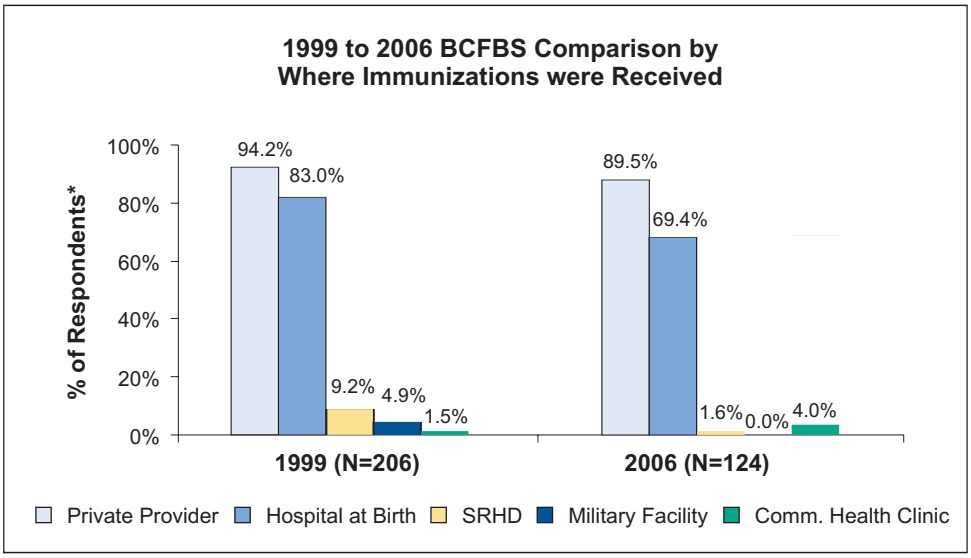

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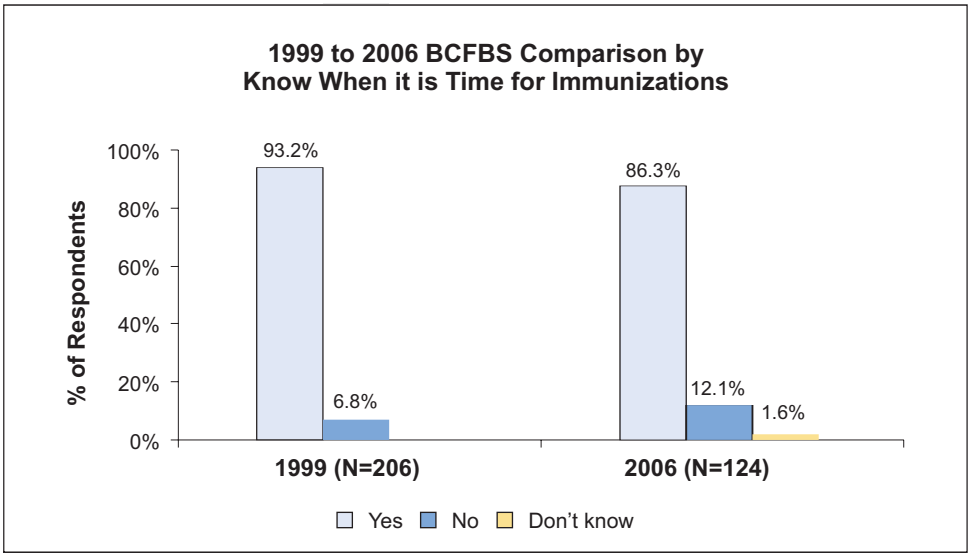
Figure 15.



In 1999, just over three-quarters of respondents (76.2%) reported they kept an immunization schedule at home; in 2006, this percentage dropped significantly to 50.8% (Figure 16).

It was expected that knowledge and utilization of the Children's Health Immunization Linkages & Development (CHILD) Profile registry would increase between 1999 to 2006. The Washington State registry was just getting started in 1999. Respondents in both survey years were asked if they received immunization information from CHILD Profile. There was a significant increase in the percentage of respondents who said "yes" in 2006 (Figure 17).

Additional questions were asked in 2006 that were not asked in 1999 to identify the source of the immunization information received. The greatest percentage (40.6%) reported they received this information from both the state and a doctor's office; 34.7% reported they received this information from the state only; 18.8% reported they received this information from a doctor's office only; 3.0% of the respondents did not know where the immunization information came from; and 3.0% reported receiving information from a health management organization (HMO) or the Women, Infants, and Children (WIC) Program.

The percentage of respondents who reported they had received a mail or telephone reminder to keep an immunization appointment was very similar in 1999 and 2006 (Figure 18).

Figure 16.

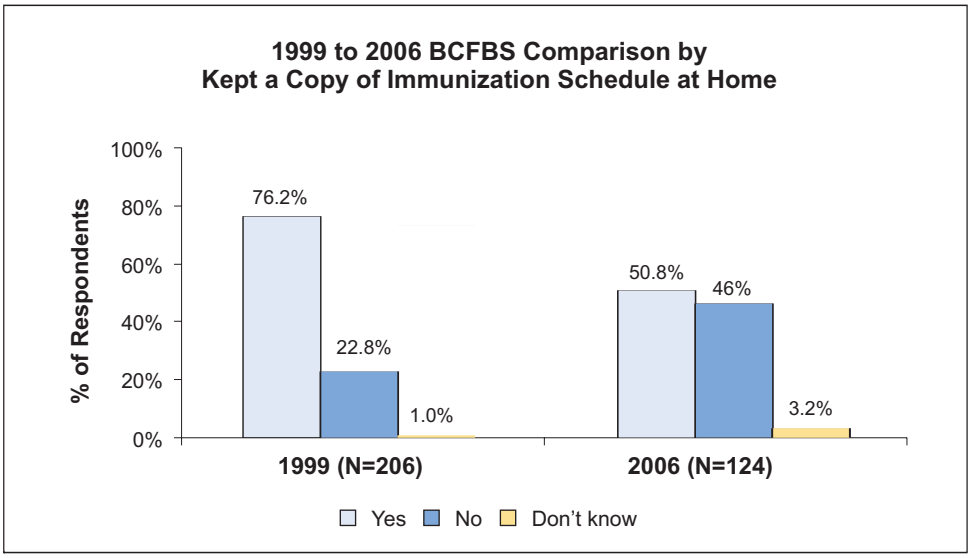


Figure 17.

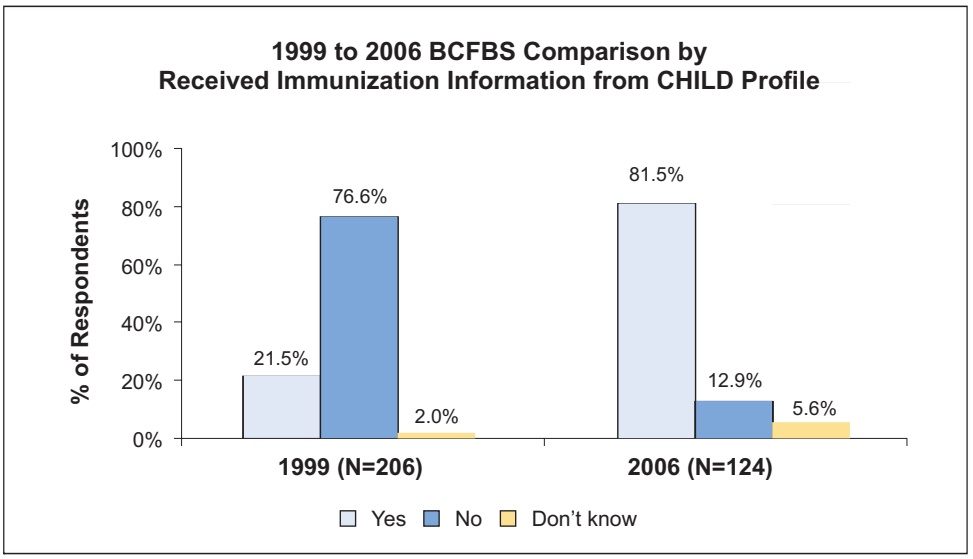
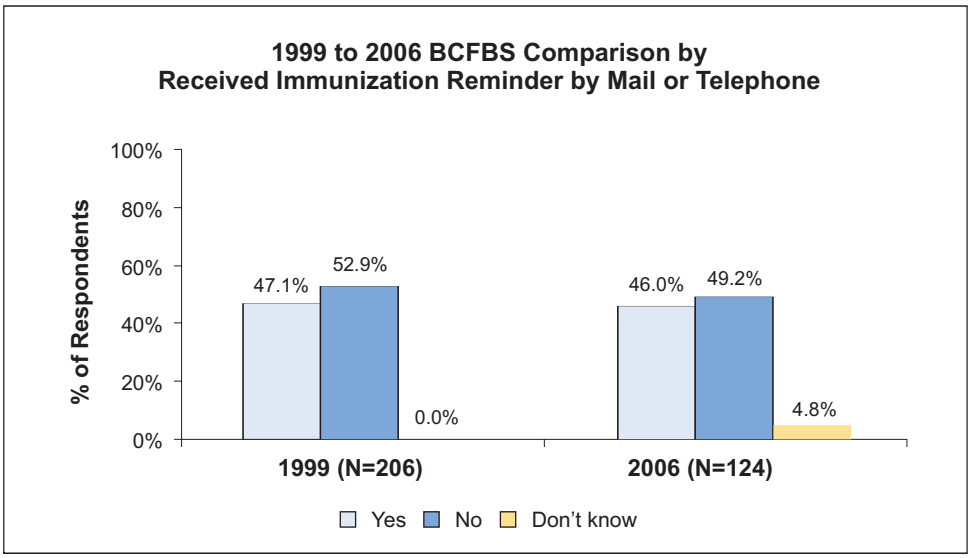


Figure 18.



Questions Addressing Barriers to Immunizations

The most frequently reported barrier to getting a child immunized in both 1999 and 2006 was the need to take time off from work. A very small number of respondents indicated they had experienced difficulty scheduling an appointment to get their child immunized. Likewise, very few respondents indicated they had difficulty getting their child immunized due to clinic hours or because of the cost of immunizations (3.2%).

Washington State Department of Health (DOH) participates in the Vaccines for Children program which is designed to alleviate the barrier of cost of immunizations to parents. DOH allocates funds to purchase vaccines and distributes them to public and private providers and clinics. This program assists children and families who are unable to afford vaccines due to lack of insurance or being underinsured. However, providers can require a well-baby visit in order to receive an immunization, which produces an office visit fee.

In 1999, a total of 29 (14.5%) participants reported one or more barriers to getting their child immunized, such as cost of immunizations, doctor and clinic hours, transportation problems, or scheduling problems. In 2006, a total of 11 (8.9%) participants reported one or more barriers.

Fewer respondents noted transportation difficulties as a barrier in 2006 (1.6%) than in 1999 (6.4%).

The percentage of respondents who reported they had to take time off from work to get their child immunized increased from 36.3% in 1999 (N=74) to 41.1% in 2006 (N=51). In 2006, respondents who stated they had to take time off from work to get their child immunized were asked additional questions. Of those who reported they had to take time off work, 12 (23.1%) reported it was difficult to obtain the time off (Figure 19). Those who reported difficulty were asked how it was difficult to obtain the time off of work and how that barrier could be remedied. The general theme of the responses indicated difficulties with their employers. Most of the problems stemmed from the tedious process of asking for permission, the fact that the employer was left short staffed, and the employer's requirement of having to take personal/vacation time, or not having paid time off. When asked how these problems could be remedied, the respondents reported doctor's offices and clinics should be open on weekends or in the evening or revisions to employer's policies regarding taking time off should be made.

In 2006, a significantly greater percentage of respondents reported being required to schedule a well-baby visit in order to have their child immunized than in 1999 (X2=10.9,

Figure 19.

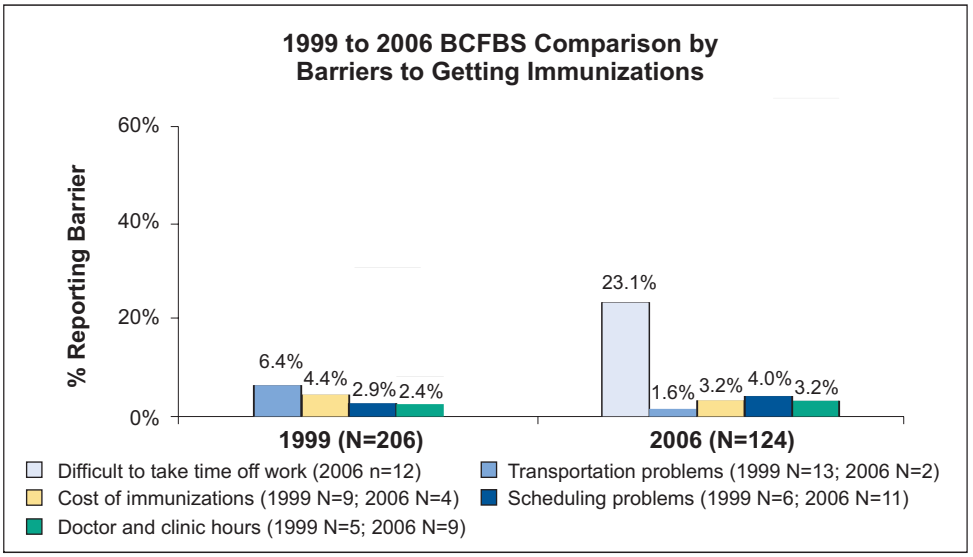
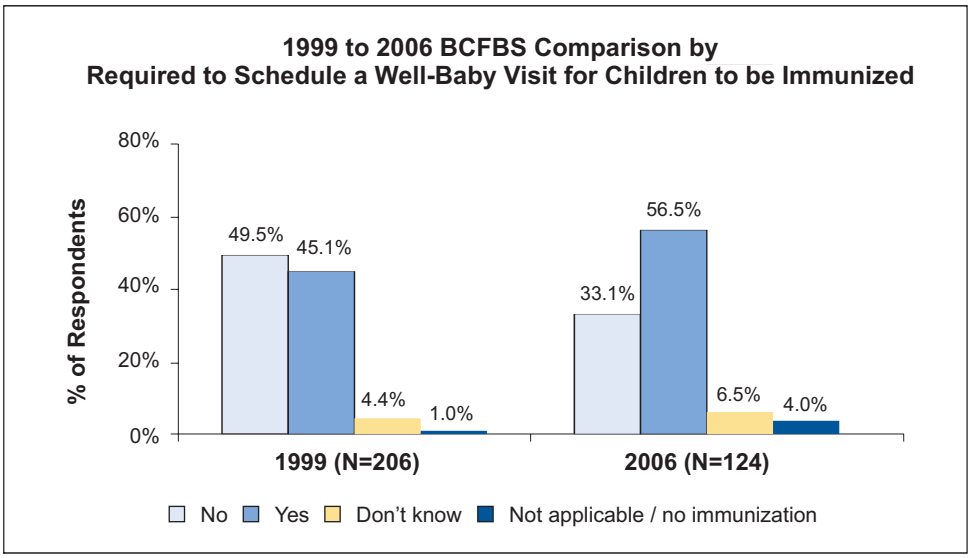


Figure 20.



Missed Opportunities

In both 1999 and 2006, approximately one in five respondents said their child had not received an immunization when an immunization had been expected (Figure 21).

Of the 21.8% of respondents in 1999 who said their child had not received an immunization when they had expected him or her to, the main reason was "the child was too sick." In 2006, the main reason was "some other reason," such as the parent decided not to have their child vaccinated due to illness, anticipation of additional shots, and/or extension of the time between shots (Figure 22).

In 2006, fewer respondents (62.9%) than in 1999 (83.0%) indicated that a primary care physician had recommended giving their child immunizations. However, in 2006, 31.5% of the respondents stated the doctor had not recommended immunizations, nor did they request immunizations during a doctor visit. In 1999, respondents were not given this response option. Best practice literature states that any type of health education and discussion by a provider helps increase immunization status in children. Additionally, the literature states that eliminating missed opportunities could increase coverage rates by up to 20% (Figure 23).[9]

Additional missed opportunities may exist that were not measured in this study. Additional studies could explore such opportunities in greater detail.

Figure 21.

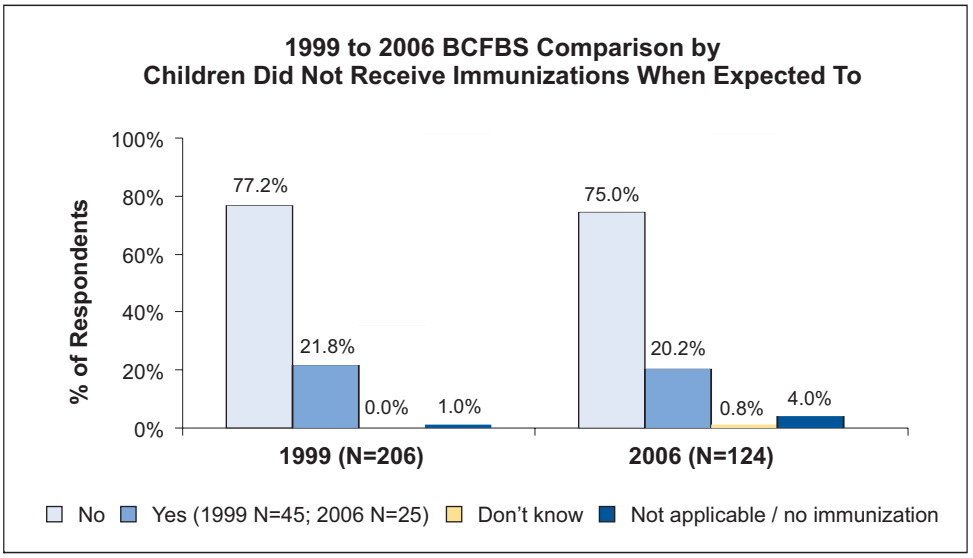


Figure 22.

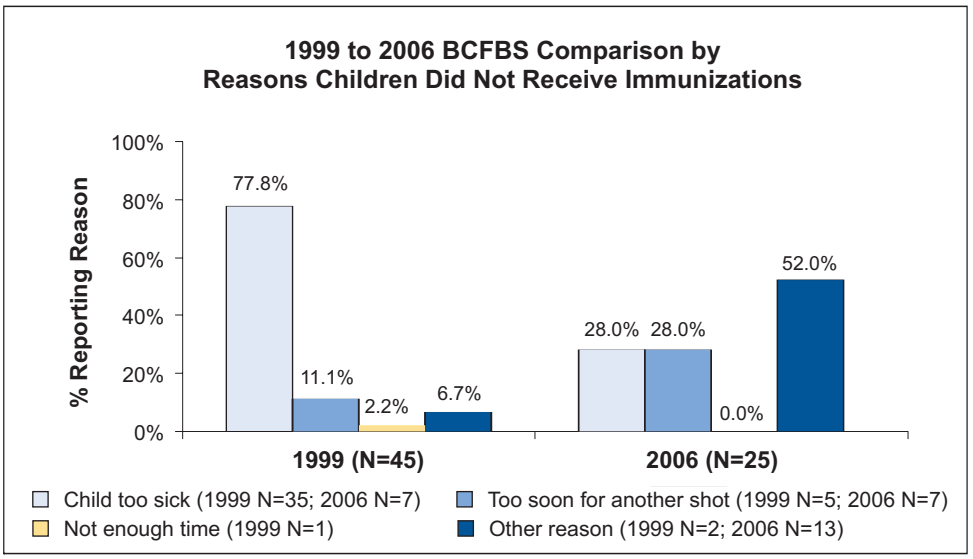
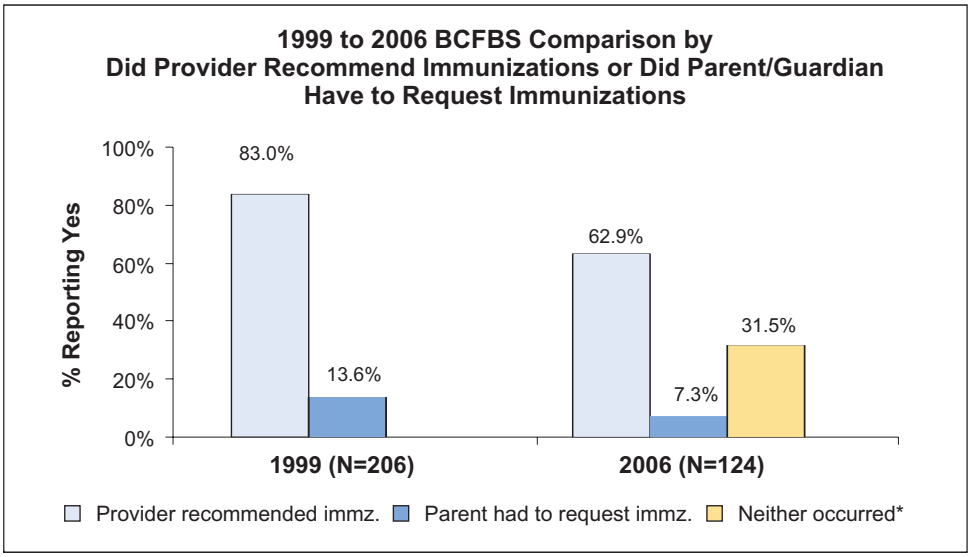


Figure 23.



*"Neither occurred" was not a response option in 1999.

Other Problems

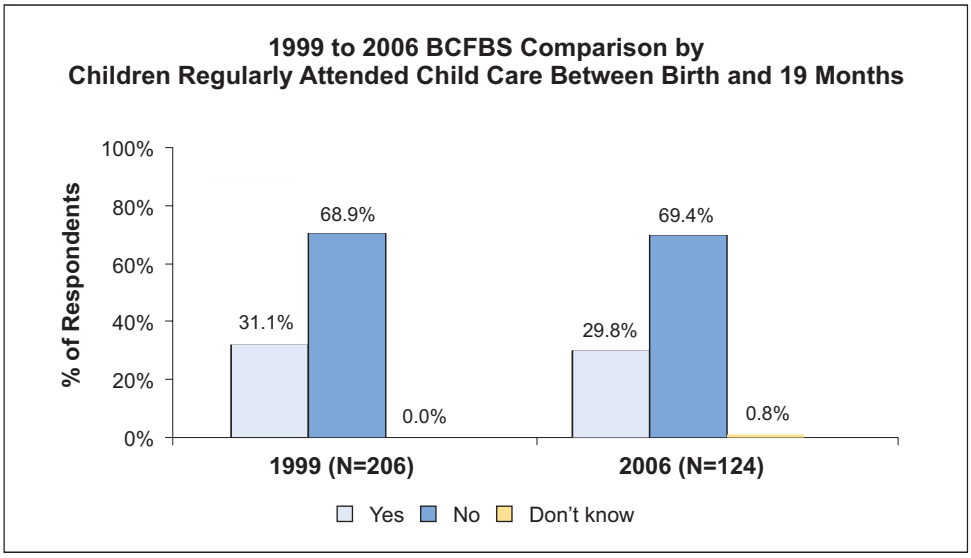
In 2006, six respondents reported additional problems in obtaining immunizations for their child. Problems included the provider not having a particular shot in inventory, differing immunization schedules, and incorrect documentation on the immunization record due to switching providers.

Personal, Philosophical, or Religious Exemptions

In 1999, respondents were asked if they had personal, philosophical, or religious reasons for not obtaining immunizations. In 2006, respondents were asked if they had signed a personal, philosophical, or religious exemption for their child. If the respondent stated they had, they were asked to identify which vaccine the exemption applied to and the reason, or reasons, for signing the exemption.

In 1999, 18 of the 206 respondents indicated they had personal, philosophical, or religious reasons against immunizations. The varicella vaccine was the immunization most frequently objected to.

Figure 24.



In 2006, one respondent reported s/he had signed an exemption based on personal, philosophical, or religious reasons. However, when asked which immunization s/he had signed the exemption for, the respondent did not know. When asked for the reason the exemption had been signed, the respondent replied "the doctor asked what religion we were, but I don't know." Several of the respondents were emphatic regarding not giving their child immunizations due to reasons other than personal, philosophical, or religious ones. These reasons included fear of allergic reactions, beliefs that vaccines cause health problems, and unpleasant experiences after the shot was given to the child. These individuals had not signed a vaccine exemption.

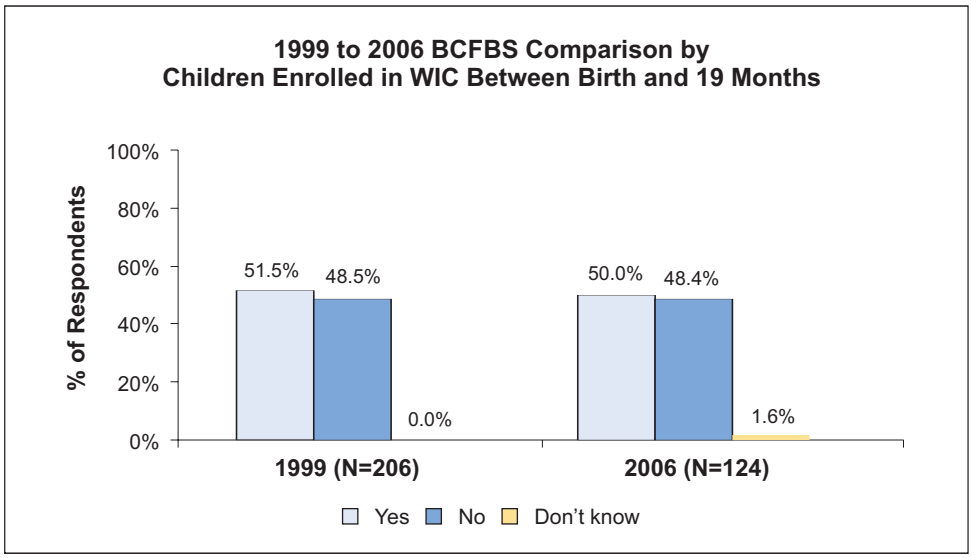
Child Care

In both 1999 and 2006, during the sample children's first year-and-a-half of life, 69% of the respondents indicated their child had not attended child care regularly (Figure 24). None of the respondents in either year reported that their child had been excluded from child care due to lack of immunizations. In 2006, however, several respondents reported their child's child care center was helpful in providing reminders for their child's immunizations.

WIC and AFDC/TANF

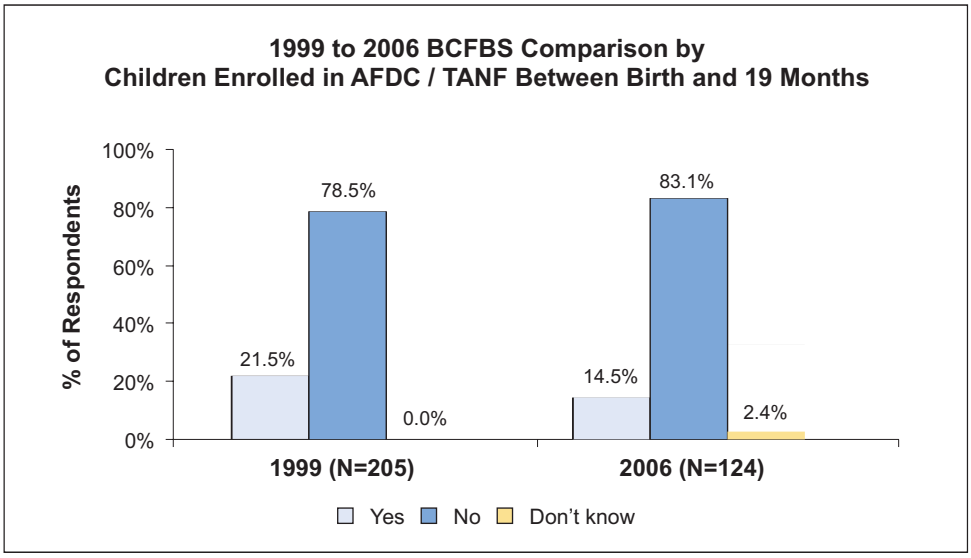
In both survey years, 50% of the respondents said their child had received commodities through the WIC program (Figure 25). This percentage is reflective of the general population in Spokane County.

Figure 25.



In 2006, a significantly lower percentage of respondents (14.5%) reported their child had been enrolled in the Aid to Families with Dependent Children (AFDC) program or the Temporary Aid to Needy Families (TANF) program than in 1999 (21.5%) (Figure 26).

Figure 26.



Immunization Coverage of Sample Children

The immunization coverage of sample children was examined from a number of viewpoints. The data gathered for this study consisted of immunization information from respondents (shot records) and the health care providers who administered the immunizations.

The up-to-date (UTD) status of immunizations is reported as 4:3:1:3:3 or 4 Diphtheria/Tetanus/Pertussis (DTP), 3 Polio, 1 Measles/Mumps/Rubella (MMR), 3 Haemophilus Influenza Type b (HIB) and 3 Hepatitis B doses. If a child is missing even one shot in any category, they have the status of not up-to-date (not UTD). Children for whom no immunization information was available were given the status of "could not be determined." Varicella immunization status is reported separately.

Results indicate a 2.4% increase in children who were reported as up-to-date in their immunizations. However, it is important to remember that respondents to the 2006 survey were more likely to be married and more likely to have a higher education than participants in the 1999 survey. Both of these factors have been found to be associated with higher immunization levels.[10]

The 2004 National Immunization Survey (NIS) found 80.9% of preschool children in the U.S. and 76.4% of Washington State's preschool children were 4:3:1:3:3 up-to-date.[11] In 2006, Spokane County survey results show 72.6% of preschool children are 4:3:1:3:3 up-to-date (Figure 27).

Table 1 (on page 4), provides approximate estimates of the required population vaccination levels for eradication of certain diseases. The immunization results from both 1999 and 2006 for Spokane County fall short of these levels.

All the vaccines listed (Figure 28) in the surveys from 1999 and 2006 were below the desired level of coverage.

Figure 27.

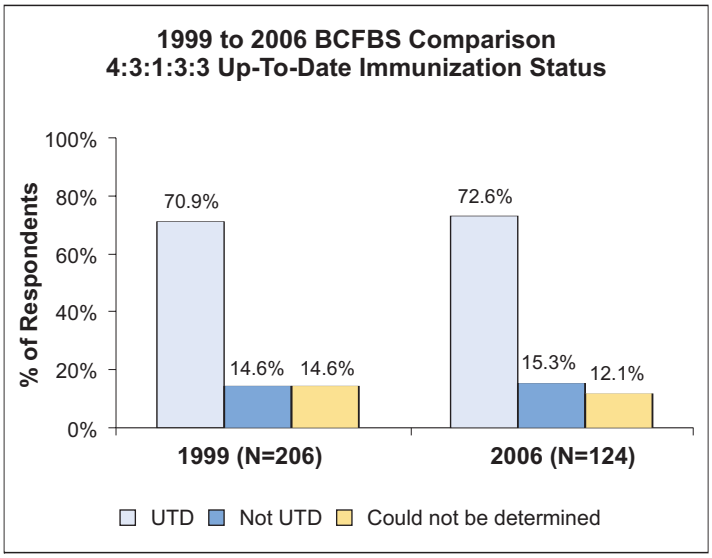
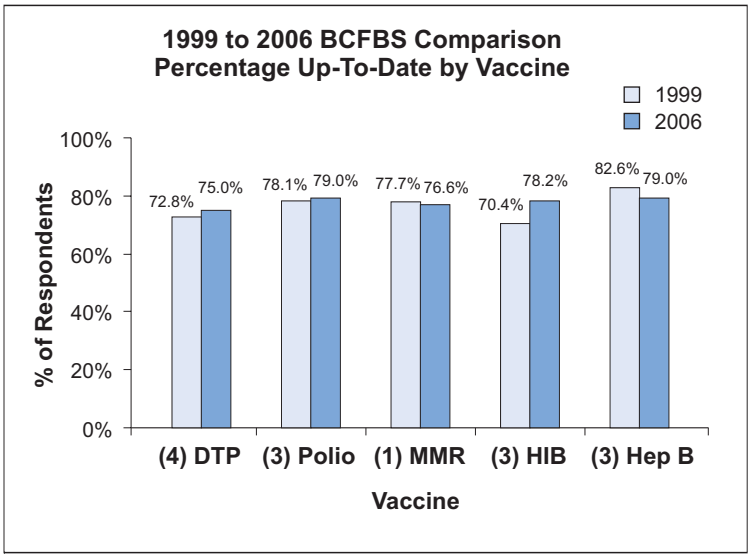


Figure 28.

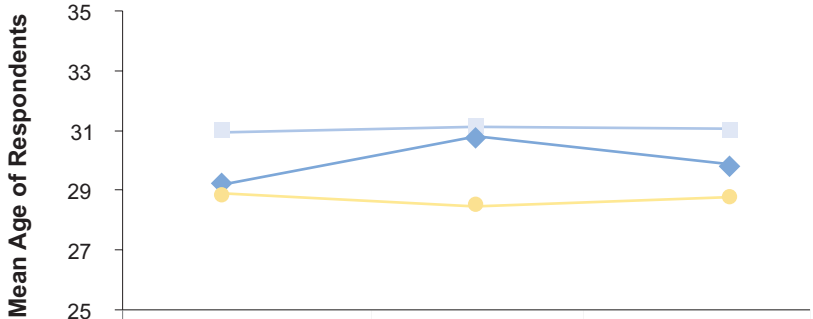


Age of Respondent and Immunization Status

The age of the primary care giver was compared between the groups of UTD, not UTD, and could not be determined. There was not a significant difference between groups in the mean age of the respondents ($F(2, 327) = 2.92$, $p > .05$) (Figure 29).

Figure 29

Immunization Status by Mean Age in 1999, 2006 and Both Years Combined



	1999	2006	Combined
UTD	31.2	31.4	31.3
Not UTD	29.5	31.2	30.2
CNBD*	29.2	28.7	29.0

*CNBD = could not be determined.

Percentage Up-to-Date (UTD)

The percentage of UTD children in the 1999 and 2006 surveys was compared to identify factors that may affect immunization status, effectiveness of best practices, and what affect barriers to accessing immunizations have on UTD status. These analyses focus on percentage of children UTD in relation to:

(a) marital status of respondent,
(b) educational level of respondent,
(c) number of residence moves since birth of sample child,
(d) household income during first year of sample child's life,
(e) WIC or AFDC recipient,
(f) insurance coverage,
(g) questions addressing barriers to obtaining immunizations, and
(h) additional factors.

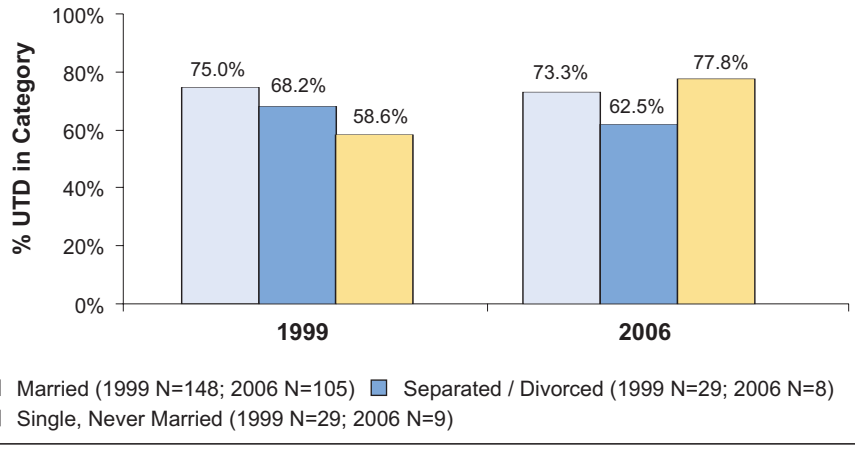
In Figures 30-44, each bar represents the percentage of children in that category who were found to be up-to-date in immunizations. The number of respondents in each category is provided in the legend.

Marital Status of Respondents and UTD Status

In both 1999 and 2006, the majority of survey respondents reported being married. The small number of divorced/ separated and single/never married respondents in both 1999 and 2006 should be taken into consideration when looking at UTD status in these categories (Figure 30).

Figure 30

1999 to 2006 BCFBS Comparison
Percentage 4:3:1:3:3 Up-To-Date by Marital Status of Parent / Guardian Respondents



Educational Level of Respondents and UTD Status

Previous studies have shown that as education level of the parent/s increases, so does the likelihood that the child will be fully immunized.[10] Respondents who reported having a college degree were the most likely in both 1999 and 2006 to report their child was up-to-date in immunizations (Figure 31).

Number of Residence Moves Since Birth by UTD Status

In both 1999 and 2006, children were less likely to be UTD if their parent/guardian reported moving residences two or more times since the child had been born (Figure 32).

Child Care Use and UTD Status

In both 1999 and 2006, children who attended child care regularly between birth and 19 months were more likely to be UTD than children who had not regularly attended child care (Figure 33).

Figure 31.

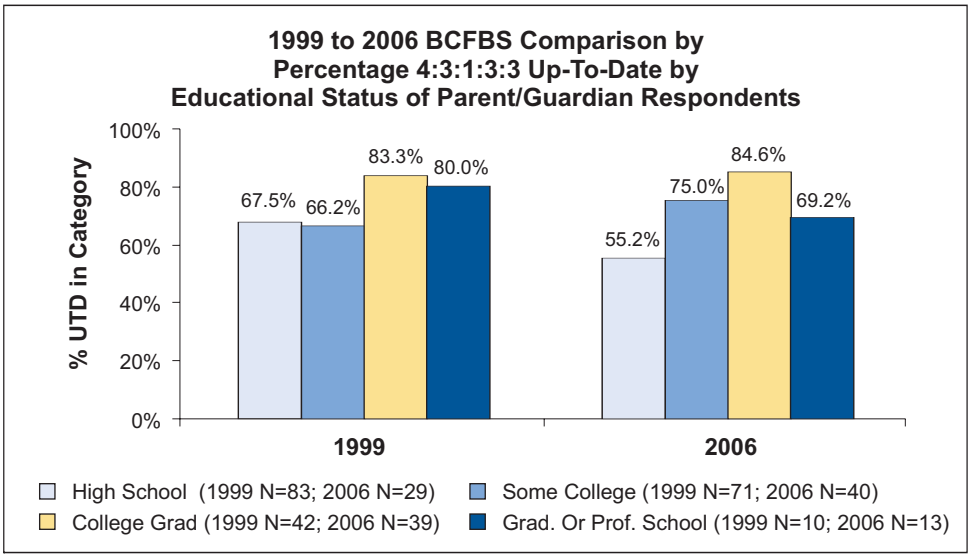


Figure 32.

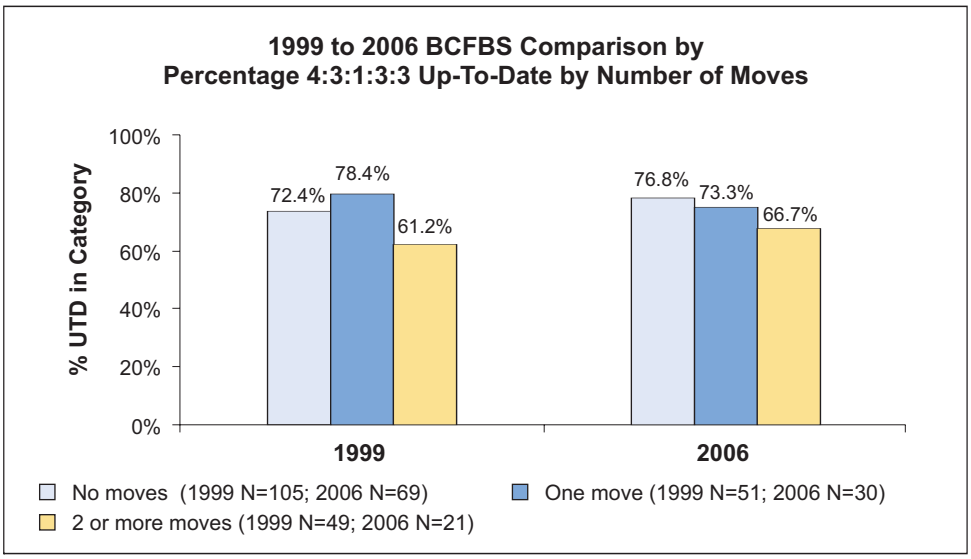


Figure 33.

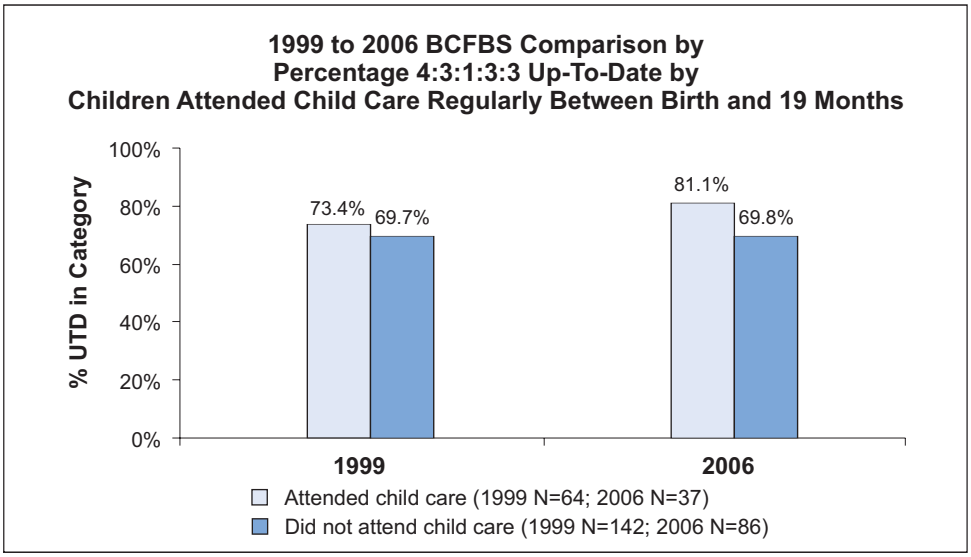


Figure 34.

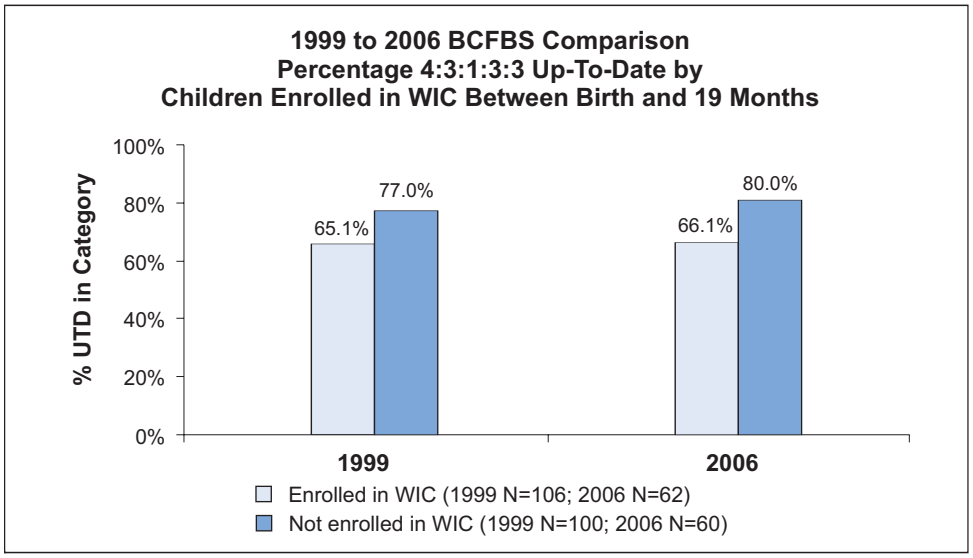


Figure 35.

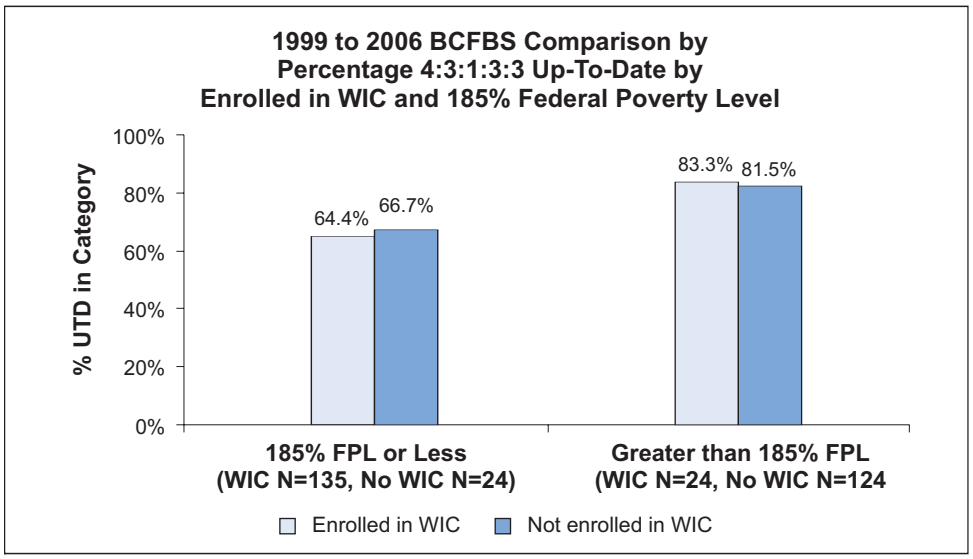
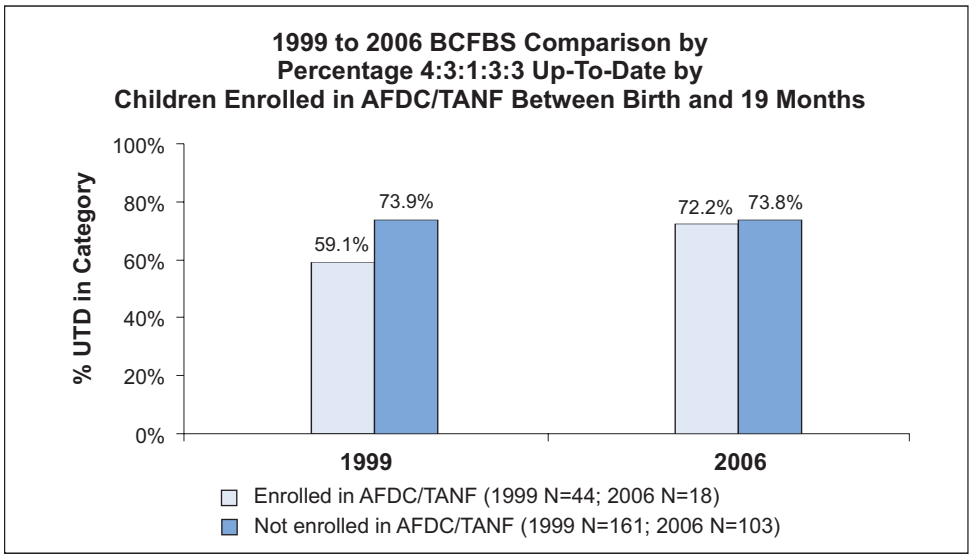


Figure 36.



WIC Enrollment and UTD Status

In both 1999 and 2006, nearly 50% of the sample children were enrolled in WIC during the first year and a half of life. In both 1999 and 2006, respondents who reported enrollment in WIC were less likely to have a child that was up-to-date with immunizations (Figure 34). WIC participation is based on income level and requires that WIC recipients have an income below the 185% FPL. A low income level has been shown to be related to low immunization rates.[10] Therefore, additional analysis was conducted to evaluate UTD status by income and WIC participation.

The additional analysis showed that regardless of WIC enrollment, participants in the 185% FPL or less income level were less likely to have a child who was UTD in his/her immunizations then were participants reporting an income greater than 185% FPL (Figure 35).

AFDC/TANF Recipients and UTD Status

In the 1999 study, respondents who reported their child had been enrolled in AFDC/TANF between birth and 19 months old were less likely to have a child who was UTD. However, in 2006 there was no difference between these categories (Figure 36).

Insurance Coverage of Respondents and UTD Status

In both 1999 and 2006, respondents who reported having private insurance were more likely to report their child was UTD on immunizations. The difference between insurance carriers and the percentage with up-to-date status was greater in 2006 than in 1999 (Figure 37).

Had to Take Time Off From Work by UTD Status

The only barrier to accessing immunizations with enough respondents to compare between survey years was "Having to take time off from work." In 1999, respondents who reported having to take time off from work were more likely to report their child was UTD in immunizations. In 2006, respondents having to take time off work were less likely to have a child who was UTD in immunizations (Figure 38).

Immunization Reminders and UTD Status

In both 1999 and 2006, respondents who reported receiving an immunization reminder by mail or telephone were more likely to report their child was UTD in his or her immunizations (Figure 39).

Figure 37.

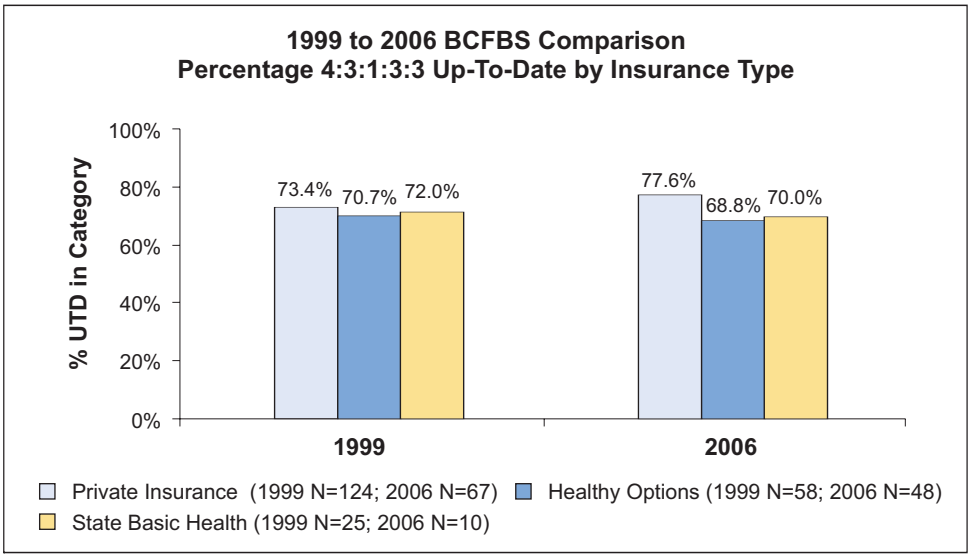


Figure 38.

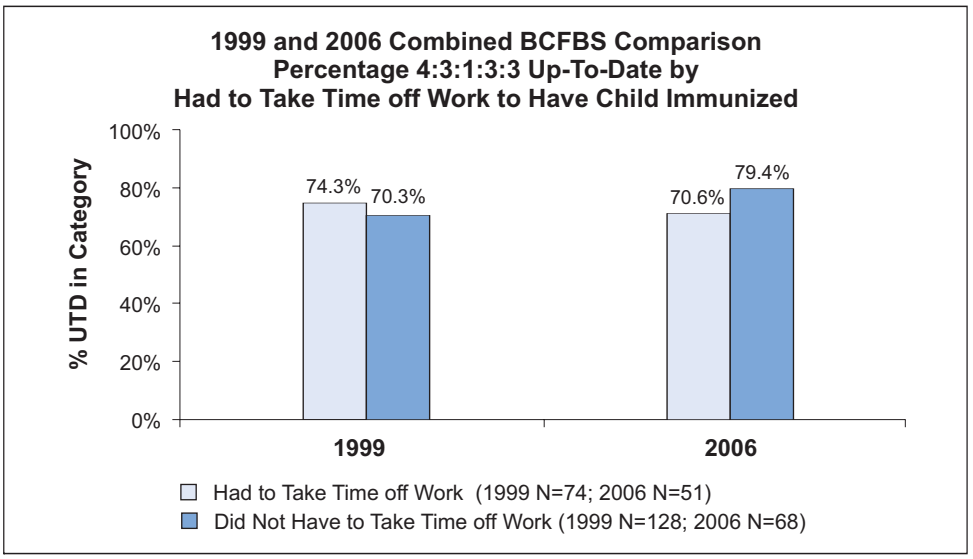


Figure 39.

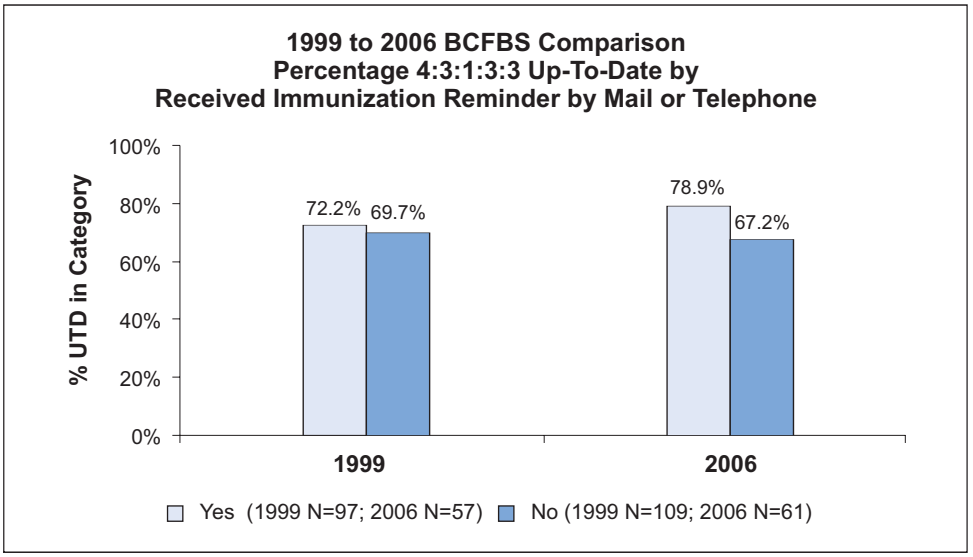


Figure 40

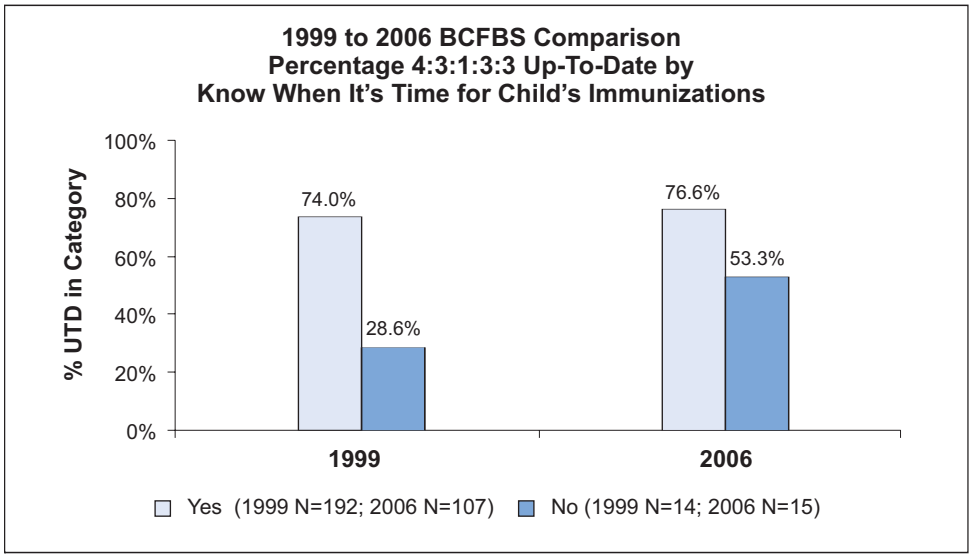


Figure 41

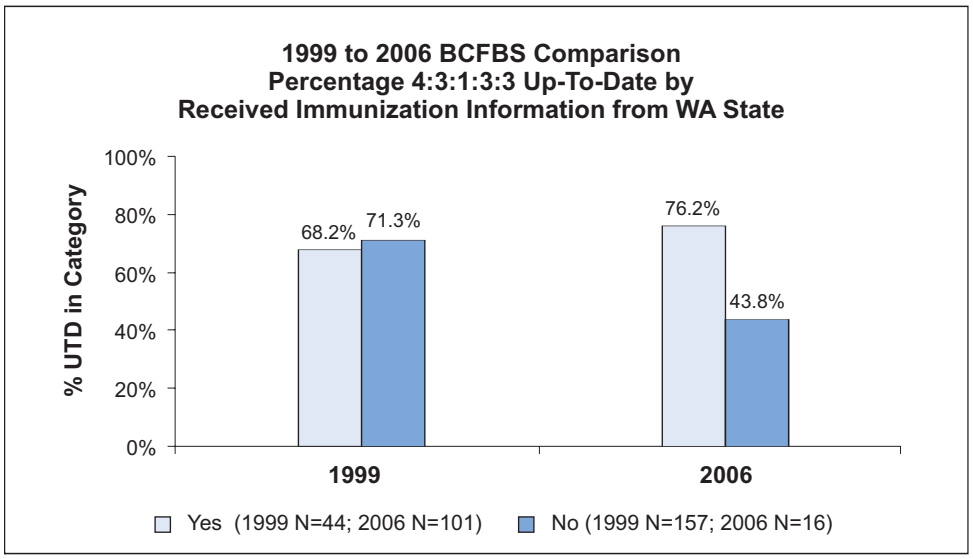
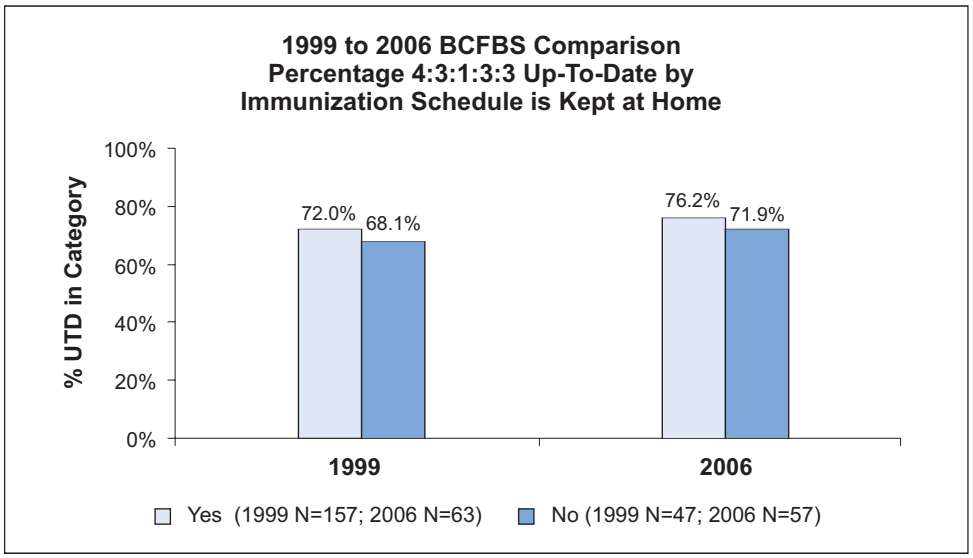


Figure 42



Knowing When Immunizations Were Due and UTD Status

Some parents do not seek immunizations for their children because they believe their children's immunizations are up-to-date or they may be unaware an immunization is due.[12] If the parent/guardian reported knowing when it was time for the child's immunizations, s/he was considerably more likely to have a child who was UTD then respondents who did not know. This was found in both 1999 and 2006 (Figure 40).

Received Immunization Information from CHILD Profile and UTD Status

Since 1999, CHILD Profile has continued its efforts to provide every parent of a child born in Washington State with information on immunizations and child development. As shown previously, the percentage of respondents receiving this information has grown significantly over the 6 years between surveys. In 2006, only 16 respondents who indicated they had not received immunization information from CHILD Profile. Fewer than half of the children whose parent/guardian reported NOT receiving information were UTD in immunizations (Figure 41).

Immunization Schedule and UTD Status

In both 1999 and 2006, respondents who reported keeping an immunization schedule in the home were more likely to report having a child who was UTD in her or his immunizations (Figure 42).

Well Child Check-ups and UTD Status

Respondents who reported they were required to schedule a well-baby visit in order to have their child immunized were more likely to have a child who was UTD in his or her immunizations (Figure 43).

Varicella Immunization Status

In 1999, the varicella vaccine was still new and very few survey respondents had a child who had been immunized against the chicken pox virus (22.3%). The 2006 results indicated a large increase in the percentage of children who had received the varicella vaccine. As of July 1, 2006, children under 13 years of age who are admitted to school or child care centers must be immunized against chicken pox with the varicella vaccine, have had the disease, or show evidence of immunity through serological testing (Figure 44).[13]

Figure 43

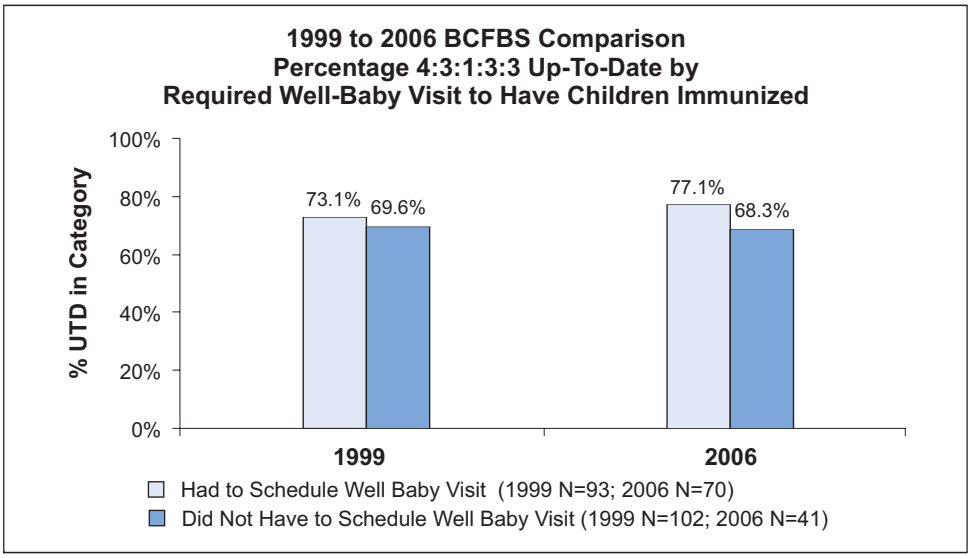
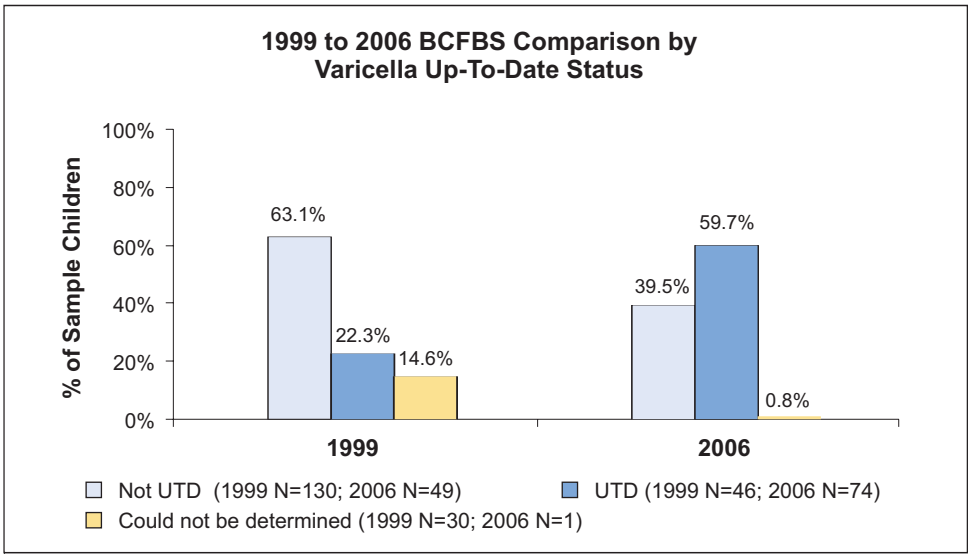


Figure 44



Strengths, Weaknesses and Limitations

The 2006 BCFBS was non-invasive and responses to the questions did not elicit many refusals. Overall, the survey had a refusal rate of 3.66% (n=9). However, some of the respondents who participated were extremely hesitant to release copies of the sample child's immunization record. Furthermore, several respondents requested confirmation that the parent or child's social security number would not be released.

The response rate for the 2006 BCFBS was 50.4% and was not generalizable to Spokane County. In order to generalize to the population, an 80% or higher response rate was needed.

Several methods were used to obtain valid contact information for the participants. This included searches of the WIC and DSHS databases, internet searches, phone book searches, and numerous telephone and postcard reminders. These additional searches increased the response rate, but were time intensive. The contact information received from the Washington State Department of Health was 2 to 3 years old. Contacting participant candidates was extremely difficult due to invalid contact information. The prevalent use of cellular phones and lack of a telephone directory for cell phone users was an obstacle.

Another obstacle was the wide variety of immunization record-keeping methods by providers in Spokane County. This lack of consistency made the provider verification aspect of the project extremely difficult to confirm. Some records were hand-written, with only a faxed copy sent to SRHD, which made deciphering the dates of the individual vaccine doses extremely difficult. Some of the immunization records were computer-generated reports, which clearly stated each dose for each vaccination. However, each report was structured differently. This created some confusion in data entry, but was remedied with extreme attention to details.

Recommendations for Revisions in Policy and Project Structure

Employers

The 2006 BCFBS indicates that employer policies regarding employee leave may need to be revised. Several parents stated that either they did not have paid time off to take their children for immunizations or the employer made it difficult to take the time off. To promote the public health and safety of the community, employers should encourage their employees to take time off for well-baby and immunization appointments. At the very least, employers should minimize the difficulties that are incurred by parents in asking for time away from work for such matters.

Modern Technology & Cultural Concerns

Phone contact was crucial in eliciting response of the selected survey participant. With today's emphasis on technology, it is speculated that cell phones are used by most households. Considering that there is no database available for published cell phone numbers, this made locating a potential participant's phone number extremely difficult.

In addition to the technological barriers, other factors affected study recruitment. There was concern regarding identity theft and a great concern for privacy. Even though the survey questions were non-invasive, participants seemed reluctant to sign the consent for release of medical records or discuss any medical information regarding their child.

Healthy People 2010 goals emphasize that 90% of immunization providers undergo assessments of childhood immunization coverage rates every 2 years. Through a centralized tracking system, parents could be easily contacted for consent to access medical records to evaluate the child's immunization status. This would protect the confidentiality of the child's medical records and provide an accurate and reliable immunization status for each child. CHILD Profile contains provider-given and provider-entered immunization information directly from the child's medical history. These records are easily accessed by

internet access and provide a consistent and clear method for record keeping.

Lastly, apathy regarding the survey seemed commonplace. The information presented to the public, in particular to the selected participants, emphasized the importance of the project to the community. Most of the information packets mailed were not returned as "undeliverable", indicating the packets had been received by the intended recipient. There was a resounding lack of response to multiple pleas for participation and which appeared to be ignored.

Methodology

Due to the evolving nature of today's society, the BCFBS methodology is outdated. Assessing the immunization coverage rates for any county or state could be completed with a higher rate of response, accuracy, and ease if there was an available, centralized system for tracking immunizations and contact information. CHILD Profile is a centralized system and is being used in Washington State.

When children are born in a Washington State hospital they are given their first Hepatitis B immunization. The hospital creates a record for the child and enters this immunization into CHILD Profile. The child is then taken to his or her primary care physician who may or may not be utilizing CHILD Profile. Therefore, the percentage of children with an up-to-date immunization status in CHILD Profile is currently not reflective of the immunization rate in Spokane County or Washington State. In order to reflect the true immunization status of our pre-school children, all providers of immunizations would need to be actively using the CHILD Profile system.

As of April 30, 2006, CHILD Profile contained data for 89% of the children born in Washington State between the ages of 0 and 23 months. These records contain at least one or more immunizations in the database. Furthermore, CHILD Profile contains information on 63% of 0-23 month olds who have two or more immunizations. Spokane County has records for 23% of its 19-35 month olds in the CHILD Profile registry. This percentage is low when compared to other counties in our area; for example, Adams County (61%), Chelan County (55%) and Cowlitz County (55%) are higher.

CHILD Profile records indicate that 39% of children aged 19 to 35 months in Washington State are 4:3:1 UTD with 31% 4:3:1:3:3 UTD. According to CHILD Profile, Spokane County children in this age group are 28% in 4:3:1 UTD status and 26% having 4:3:1:3:3 UTD status.

According to the CDC, routine assessment and feedback of vaccination rates is one of the most effective strategies for achieving high, sustainable vaccine coverage rates.[9] Immunization and health promotion information is distributed to parents in accordance with their child's birthday and developmental milestones. The majority (81.5%) of participants in the 2006 BCFBS for Spokane County stated they received immunization information from the State of Washington. CHILD Profile has been well-received by parents and the community.

Reminder/Recall Programs

Costs to providers are a possible barrier when implementing reminder/recall systems and centralized tracking systems. These systems do not have to be elaborate or expensive to be effective. According to a study conducted by the CDC National Immunization Program (NIP), reminder/recall telephone calls and letters resulted in a 14% increase in immunization coverage, at a cost of $5.37/child, after implementation costs. Furthermore, studies have shown that reminder/recall messages reestablish children in the public health delivery system,[10] which increases screening tuberculosis, lead, and anemia. These preventive measures create lower costs overall and increase the cost-benefit ratio of providing these services. Additional studies could be easily completed using this methodology if more emphasis was placed on this system.

Appendices

Appendix A - Introductory Letter to Parents

January 27, 2006

<<MOM FIRST>> <<MOM LAST>> & <<DAD FIRST>> <<DAD LAST>>
<<STREET ADDRESS>>
<<CITY>>, <<WA>> <<ZIP CODE>>

Dear Parent(s) of <<CHILD FIRST>> ,

Your child, <<CHILD FIRST>>, has been selected to participate in an important survey about preschool immunization status called the Birth Certificate Follow Back Survey. <<CHILD FIRST>> was randomly chosen from 6,315 births in Spokane County that occurred between May 1, 2003 and June 30, 2004.

This same survey was conducted in 1999 and at that time 71.8% of pre-school children were up-to-date in their immunizations. Since 1999, Spokane County has experienced a sharp increase in the number of pertussis (whooping cough) cases it has each year. Approximately, 27% of these cases occurred in children who had not yet turned three years old. The results of the survey will help us to identify if immunization rates may be a factor in the increase in pertussis cases.

In the next few weeks, a representative of the Health District will be calling you to conduct a brief, 10-15 minute interview about your child's shot record. Your participation in this study is completely voluntary and all information will be kept confidential. You can withdraw from the study at any time and you may choose not to answer any question you would prefer not to answer. With your permission, we will verify <<CHILD FIRST>>'s shot record information by contacting your health care provider. <<CHILD FIRST>>'s immunization information is the ONLY health information we will ask to receive from your health care provider.

To show our appreciation for your participation in the study, you will be eligible to enter a drawing for one of ten $25 gift certificates to Fred Meyer. The drawing will be held on April 29, 2006.

ISAAC is one of only 250 children chosen to be a part of this study. **It is very important for every child chosen to participate.** ***Due to the nature of the study, we cannot replace <<CHILD FIRST>>'s place with anyone else.*** The information you provide will be very helpful as we work to improve the health of all children. If you would like to set up an appointment for your interview or if you have any questions or concerns, please contact Elizabeth Shorter at (509) 324-1694 (Toll free-1-888-535-0597, ext. 1694) or via email at eshorter@spokanecounty.org.

Kim Marie Thorburn, MD, MPH
Health Officer

Note: The Health District representative will ask about <<CHILD FIRST>>'s shot record; it will be helpful if you have it available when we call.

Appendix B - Letter Sent with Survey Packet

March 24, 2006

<<MOM FIRST>> <<MOM LAST>> & <<DAD FIRST>> <<DAD LAST>>
<<STREEET ADDRESS>>
<<CITY>>, <<WA>> <<ZIP CODE>>

Dear <<MOM FIRST>> & <<DAD FIRST>>,

Your child, <<CHILD FIRST>>, has been selected to participate in an important survey about preschool immunization status called the Birth Certificate Follow Back Survey. <<CHILD FIRST>> was randomly chosen from 6,315 births in Spokane County that occurred between May 1, 2003 and June 30, 2004.

In order for this project to tell us Spokane County's immunization status, we must have a response rate of 80%. Due to my unsuccessful attempts to reach you via telephone, I am sending you the survey to fill out at your earliest convenience. **It is very important to the community that everyone who is selected for this survey participate.** ***We cannot replace <<CHILD FIRST>>'s place with anyone else.*** The deadline for returned surveys and entry forms is April 22, 2006.

With this letter, I have enclosed the survey, consent for release of information, an entry form for a drawing and a postage-paid envelope. Please complete the survey as fully and accurately as possible using <<CHILD FIRST>>'s immunization record. Participation is voluntary and **ALL** information will remain confidential. You are under no obligation to answer any question you are not comfortable answering.

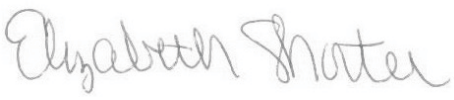
Then, fill out the consent form for release of information to allow us access to <<CHILD FIRST>>'s immunization record **ONLY**. This is to confirm <<CHILD FIRST>>'s immunization status.

Next, fill out the entry form for a chance to win one of TEN $25 gift certificates to Fred Meyer. To be eligible for the drawing, we **MUST** receive the consent form but it does not have to be signed. The drawing will be held on April 29, 2006.

Lastly, enclose all of the documents in the self address stamped envelope and drop it in a mailbox for pickup.

If you have any questions about the study, the survey or would rather participate in the study via telephone, please contact me at the Spokane Regional Health District. I can be reached at (509) 324-1694 (Toll Free 1-888-535-0597, ext. 1694) or via email at eshorter@spokanecounty.org.

Your participation is greatly appreciated!



Elizabeth Shorter, MSW
Immunization Study Coordinator

Appendix C-Survey Questionnaire - Page 1

Today's Date: ☐☐ / ☐☐ / ☐☐ Child ID: ☐☐☐

SECTION I. CHILD INFORMATION	
1. What is your child's name?	
2. Is (CHILD'S NAME) a boy or a girl?	○ boy ○ girl
3. What is (CHILD'S NAME)'s date of birth?	☐☐/☐☐/☐☐☐☐
4. How many times has (CHILD'S NAME) moved since birth?	☐☐

Next, I'd like to ask about (CHILD'S NAME)'s health care and immunizations.

SECTION II. HEALTH CARE AND IMMUNIZATIONS — Specify Here

5. At the time of (CHILD'S NAME)'s birth, did you have a health care provider selected for (HIM/HER)?
○ Yes ○ No ○ Don't Know ○ Refused

6. At this time, does (CHILD'S NAME) have a regular health care provider?
○ Yes ○ No ○ Don't know ○ Refused

7. Where does (CHILD'S NAME) usually get (HIS/HER) medical care? Mark ONE

○ Spokane Regional Health District	○ Hospital Emergency Room	○ Don't know
○ IHS/Tribal Health Clinic	○ Urgent Care Center	○ Refused
○ Community Health Clinic, e.g., Community Health Association of Spokane	○ Military	○ Other (Specify)
	○ Private Provider/Clinic	

8. Between birth and 19 months of age - that's the first year-and-a-half of life, what type of medical insurance did (CHILD'S NAME) have? Mark ALL That Apply

○ State Basic Health Plan	○ Indian Health Service (IHS)	○ Don't know
○ Military/CHAMPUS/TriCare	○ Healthy Options, Medical Coupon, or Medicaid	○ Refused
○ Private insurance, e.g. Group Health Plan		○ Other (Specify)
		○ None

9. Has (CHILD'S NAME) ever been given any immunizations?
○ Yes ○ No (Skip to Section IV) ○ Don't know (Skip to Section IV) ○ Refused

10. I am going to read you a list of places where children get immunizations. Please tell me if (CHILD'S NAME) got immunizations at any of these. Mark ALL That Apply

○ Hospital Emergency Room	○ Spokane Regional Health District	○ Military
○ Community Health Clinic e.g. Community Health Association of Spokane	○ Hospital at Birth	○ Don't know
	○ Urgent Care Center	○ Refused
○ IHS/Tribal Health Clinic	○ Private Provider/ Clinic	○ Other (Specify)

11. Have you ever been given a card or record of the immunizations that (CHILD'S NAME) has received?
○ Yes ○ No (Skip to Section IV) ○ Don't know (Skip to Section IV) ○ Refused

12. The next section is to record the dates listed on the cards. Will you please get all of (CHILD'S NAME)'s immunization records or cards? ○ Yes ○ No (Skip to Section IV) ○ Don't know (Skip to Section IV) ○ Refused (Skip to Section IV)

SECTION III. IMMUNIZATION HISTORY				
Vaccine	(RECORD DATE AS MM/DD/YY)			
	A. Dose 1	B. Dose 2	C. Dose 3	D. Dose 4
13. Diphtheria/Tetanus/Pertussis (DTP) may be listed as: DT, DTaP, ACEL-IMUNE, Tripedia, Infanrix, Tetramune	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
14. Oral Polio Vaccine/Inactivated Polio Vaccine (OPV/IPV) may be listed as: Orimune, IPOL, eIPV, TOPV	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
15. Measles/Mumps/Rubella (MMR)	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
16. Haemophilus Influenza Type b (HIB) may also be listed as: PedvaxHIB, HibTiter; ActHib, COMVAX	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
17. Hepatitis B (HEP B) may also be listed as: Recombivax, Engerix-B, COMVAX	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
18. Varicella may also be listed as: Chickenpox, Varivax	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
19. Other (Specify)	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐
20. Other (Specify)	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐	☐☐/☐☐/☐☐

Next, I have questions about experiences you had getting (CHILD'S NAME) immunized.

SECTION IV. IMMUNIZATION EXPERIENCES	Specify Here
21. Do you usually know when it is time for (CHILD'S NAME) to go for immunizations? ○ Yes ○ No ○ Don't know ○ Refused	
22. Do you keep a copy of the recommended immunization schedule at home? ○ Yes ○ No ○ Don't know ○ Refused	
23. Have you ever received immunization information from the state of Washington? e.g. CHILD Profile ○ Yes ○ No (Skip to Q25) ○ Don't know (Skip to Q25) ○ Refused	
24. From where did you receive the materials? Mark ALL that apply ○ Doctor's office ○ State Immunization Information ○ Both Doctor's Office and the state of Washington ○ Don't know ○ Refused ○ Other (Specify)	
25. Since (CHILD'S NAME) was born, have you ever received a mail or telephone reminder to schedule or to keep any of (HIS/HER) "well baby" or immunization appointments? ○ Yes ○ No ○ Don't know ○ Refused	
26. Have you had problems scheduling an appointment for (CHILD'S NAME)'s immunizations? ○ Yes ○ No ○ Don't know ○ Refused	
27. Have you had problems getting (CHILD'S NAME)'s immunizations due to doctor or clinic hours? ○ Yes ○ No ○ Don't know ○ Refused	
28. Have you ever had transportation problems getting (CHILD'S NAME) to the doctor or clinic for shots? ○ Yes ○ No ○ Don't know ○ Refused	
29. Did you or someone else have to take time off from work to go to the doctor or clinic for (CHILD'S NAME)'s shots? ○ Yes ○ No (Skip to Q33) ○ Don't know (Skip to Q33) ○ Refused	
30. Was it difficult for you or them to obtain time off from work? ○ Yes ○ No ○ Don't know ○ Refused	

SECTION IV. IMMUNIZATION EXPERIENCES CONTINUED	SPECIFY HERE
31. How was getting off of work a problem?	
32. How could this be fixed to make it easier for you to take your child to be immunized?	
33. Was the cost of obtaining immunizations ever a problem? ○ Yes ○ No ○ Don't know ○ Refused	
34. Has a doctor or health care provider ever sent you somewhere else for (CHILD'S NAME)'s immunizations? ○ Yes ○ No (Skip to Q36) ○ Don't know (Skip to Q36) ○ Refused	
35. Where did the doctor or health care provider send you? Mark ALL that apply ○ Hospital Emergency Room ○ Hospital at Birth ○ Other (Specify) ○ Spokane Regional Health District ○ Urgent Care Center ○ Don't know ○ Community Health Clinic ○ Private Provider/Clinic ○ Refused ○ IHS/Tribal Health Clinic ○ Military	
36. Did you need to schedule a "well baby" visit in order for (CHILD'S NAME) to be immunized? ○ Yes ○ No ○ Don't know ○ Refused	
37. During any of (CHILD'S NAME)'s doctor or clinic visits, did (HE/SHE) not get immunized when you expected (HIM/HER) to be? ○ Yes ○ No (Skip to Q39) ○ Don't know (Skip to Q39) ○ Refused	
38. [IF YES] Why weren't those vaccines given during any of those visits? Mark ALL that apply ○ The health care provider thought (HE/SHE) was too sick ○ Other (Specify) ○ It was too soon for another vaccination ○ Don't know ○ Not enough time during the visit ○ Refused	
39. During doctor or clinic visits, did any of the following occur? Mark ALL that apply ○ The health care provider recommended immunizations for (CHILD'S NAME)? ○ Don't know ○ You needed to request immunizations for (CHILD'S NAME)? ○ Refused ○ Neither of these occurred ○ Other (Specify)	
40. Did you have any other problems in getting (CHILD'S NAME) immunizations that we have not already asked about? ○ Yes [Specify] ○ No ○ Don't know ○ Refused	
41. Have you signed a personal, philosophical or religious exemption for (CHILD'S NAME)? ○ Yes [Specify for which vaccine(s)] ○ No (Skip to Q43) ○ Don't know (Skip to Q43) ○ Refused	
42. For what reason(s) did you sign the exemption?	
43. Between birth and age 19 months - that's during the first year-and-a-half of life, did (CHILD'S NAME) regularly attend childcare/daycare? ○ Yes ○ No ○ Don't know ○ Refused	
44. Has (CHILD'S NAME) ever been excluded from childcare/daycare for lack of immunizations? ○ Yes ○ No ○ Don't know ○ Refused	
45. Between birth and age 19 months - that's during the first year-and-a-half of life, was (CHILD'S NAME) ever enrolled in the Women, Infants, and Children, or WIC program? ○ Yes ○ No ○ Don't know ○ Refused	
46. Between birth and age 19 months - that's during the first year-and-a-half of life, was (CHILD'S NAME) ever enrolled in the Aid to Families with Dependent Children, AFDC, or Temporary Assistance for Needy Families, TANF, programs? ○ Yes ○ No ○ Don't know ○ Refused	

Thank you, we are almost done. The next questions relate to (YOU/THE CHILD'S PRIMARY

SECTION V. DEMOGRAPHIC INFORMATION	Specify Here
47. What is (YOUR/HER/HIS) date of birth? ○ Refused ○ Don't know	☐☐/☐☐/☐☐
48. What is the highest grade or level of school (YOU HAVE/SHE HAS/HE HAS) completed? ○ None ○ High school grad./GED ○ Grad./Professional School ○ Don't know ○ 1st - 8th grade ○ Some college ○ Technical/Vocational School ○ Refused ○ 9th - 12th grade ○ College graduate ○ Other (Specify)	
49. What is (YOUR/HER/HIS) marital status? ○ Single, never married ○ Live-in partner ○ Widowed ○ Refused ○ Married ○ Separated/Divorced ○ Don't know ○ Other (Specify)	
50. Here is a list of employment categories. Which categories best describe (YOUR/HER/HIS) employment status during (CHILD'S NAME)'s first year-and-a-half of life? Mark ALL that apply ○ Employed full-time ○ Seasonal employment ○ Retired ○ Other (Specify) ○ Employed part-time ○ Student ○ Don't know ○ Self-employed ○ Not employed ○ Refused	
51. Are (YOU/IS SHE/IS HE) of Hispanic origin? ○ Yes, Puerto Rican ○ No ○ Yes, other Spanish/Hispanic/Latino (Specify) ○ Yes, Cuban ○ Don't know ○ Yes, Mexican, Mexican Am., Chicano ○ Refused	
52. What race (DO YOU/DOES SHE/DOES HE) consider (YOURSELF/HERSELF/HIMSELF)? Mark one or more ○ White ○ Other Asian (Specify) ○ Black, African Am., or Negro ○ Native Hawaiian ○ American Indian or Alaska Native (Specify Tribe) ○ Guamanian or Chamorro ○ Asian Indian ○ Samoan ○ Chinese ○ Other Pacific Islander (Specify) ○ Filipino ○ Some other race (Specify) ○ Japanese ○ Don't know ○ Korean ○ Refused ○ Vietnamese	AI/AN Tribe Other Asian Spec Other Pac Island Other race
53. What is the primary language spoken in your household? ○ English ○ Laotian ○ Don't know ○ Spanish ○ Russian ○ Refused ○ Cambodian ○ Ukrainian ○ Other (Specify)	
54. Including all of the adults and all of the children, how many people live in your household?	☐☐
55. Here is a list of income categories. Which category best describes the annual combined household income, before taxes, during (CHILD'S NAME)'s first year of life? Mark ONE ○ <$10,000 ○ $20,000 - $24,999 ○ $35,000 - $39,999 ○ $50,000 - $54,999 ○ Don't know ○ $10,000 - $14,999 ○ $25,000 - $29,999 ○ $40,000 - $44,999 ○ $55,000-$59,999 ○ Refused ○ $15,000 - $19,999 ○ $30,000 - $34,999 ○ $45,000 - $49,999 ○ >$60,000	
56. We would like your permission to obtain copies of your child's immunization records from the places where (HIS/HER) shots were given. Would you sign a consent form for this? ○ Yes (Skip to consent form) ○ No	
57. [IF NO] Is there any particular reason why you would prefer that I not get this information from your doctor?	

This completes the interview. Thank you very much for answering these questions. Please feel free to contact the Health District if you have any questions or comments concerning our survey (324-1694).

This completes the interview. Thank you very much for answering the questions. Please feel free to contact the health district if you have any questions or comments concerning our survey.

Page ____ of __2__ Child ID: __ __ __

Spokane Regional Health District
Disease Prevention and Response
1101 West College, Spokane, WA 99201-2095

Consent for Release of Medical Records

I understand that I am being asked to sign this authorization form as part of an assessment regarding immunization of children in Washington State. I understand that any information obtained about me or my child during this assessment will be kept strictly confidential, and that my child's records will be protected within the limits of the law. I understand that the data obtained during this assessment could be used in reports, presentations and publications, but that my child and I will not be individually identified. I understand that I have the right to refuse to sign this form and the right to refuse to participate in this assessment.

Knowing this, I hereby authorize and request the following health care provider(s) to release copies of the complete immunization record of my child:

Child's Name_____ **Child's DOB** _____/_____/_____
Last, First Middle **mm dd yyyy**

1. _____**Name of Health Care Facility**
Doctor's Name _____
Address_____
Telephone _____
Patient Subscriber's Number/SSN _____

2. _____**Name of Health Care Facility**
Doctor's Name _____
Address_____
Telephone _____
Patient Subscriber's Number/SSN _____

Print Parent/Guardian Name here _____

Parent/Guardian Signature (Required)_____Date _____

Relationship to Child _____

Parent/Guardian/Subscriber SSN _____

Sponsor's Number (Military) _____

This authorization shall remain valid for 90 days and may be revoked at any time upon written notification, except to the extent that action has already been taken.

Spokane Regional Health District
Disease Prevention and Response
1101 West College, Spokane, WA 99201-2095

Consent for Release of Medical Records Continued

I hereby authorize and request the following health care providers to release copies of the complete immunization record of my child:

Child's Name_____Child's DOB _____/_____/_____
_____ Last, First Middle mm dd yyyy

3. _____Name of Health Care Facility
Doctor's Name _____
Address_____
Telephone_____
Patient Subscriber's Number/SSN _____

4. _____Name of Health Care Facility
Doctor's Name _____
Address_____
Telephone_____
Patient Subscriber's Number/SSN _____

5. _____Name of Health Care Facility
Doctor's Name _____
Address_____
Telephone_____
Patient Subscriber's Number/SSN _____

6. _____Name of Health Care Facility
Doctor's Name _____
Address_____
Telephone_____
Patient Subscriber's Number/SSN _____

Print Parent/Guardian Name here _____

Parent/Guardian Signature (Required)_____Date _____

Relationship to Child _____

Parent/Guardian/Subscriber SSN_____

Sponsor's Number (Military) _____

This authorization shall remain valid for 90 days and may be revoked at any time upon written notification, except to the extent that action has already been taken.

Appendix E - References

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