NORTH DAKOTA DEPARTMENT of HEALTH

Immunization Newsletter

Winter 2016

Influenza Vaccine Fall Pre-booking

It was that time again for providers to pre-book influenza vaccine for the 2017-2018 influenza season! Providers received an email when it was time to pre-book influenza vaccine for Vaccines For Children (VFC) eligible children. This email also included a pre-populated provider influenza estimate to assist in the pre-booking process. VFC Influenza Prebooking was due January 27, 2017. The North Dakota Department of Health (NDDoH) Immunization Program highly recommended that providers pre-book more than one brand and presentation, in case of influenza vaccine supply issues. As VFC influenza vaccine becomes available fall 2017, it will be equitably allocated to providers based on their prebook. If you have any questions, please contact the NDDoH at 701.328.3386 or toll-free at 800.472.2180.

2016 VFC Compliance Site Visits

In 2016, 95 enrolled providers received a VFC compliance site visits, and nine providers received an unannounced storage and handling visit.

The most common corrective actions that were issued during these visit were:

- Knowing the VFC eligibility screening criteria,
- Incomplete screening documentation, which includes the patient's date of birth, date of the immunization, and the correct VFC eligibility is documented and matches the insurance that the patient has on file for the day of the visit,
- Incomplete documentation, which includes address of clinic where vaccine was administered, name of the vaccine administered, date vaccine was administered, date Vaccine Information Statement (VIS) was

given, publication date of VIS, name of vaccine manufacturer, lot number, and name and person who administered the vaccine,

- Incomplete or missing Vaccine Management Plan,
- Not having the up-to-date VISs, or not knowing how to report adverse events to the Vaccine Adverse Event Reporting System (VAERS),
- Borrowing vaccine since the last VFC site visit, having all doses documented and replaced,
- "Do not disconnect" signs were not found on the plug and/or circuit breaker signs,
- Not having a backup data logger.

Since the 2017 VFC site visit season is now upon us, we will be contacting providers to schedule visits. If you have any questions either before or after your visit, please contact the NDDoH at 701.328.3386 or toll-free at 800.472.2180.

Vaccine Returns and Wastages for Quarter Four (October–December 2016)

Below is a chart showing the total vaccine dollars lost due to wasted or expired state-supplied vaccine during quarter four of 2016. Fourteen percent of the expired vaccine was influenza that had expired earlier in the year and was returned during the 4th quarter.

Reported Vaccine Returns and Wastage Data for North Dakota Providers for Quarter Four 2016

Wastage Reason	Total Vaccine Lost in Dollars
Expired Vaccine	$19,200.85
Failure to Store Properly Upon Receipt	$1,608.00
Refrigerator Too Cold, Too Warm or Mechanical Failure of the storage unit	$10,389.41
Spoiled in Transit	$379.60
Broken Vial or Syringe	$410.23
Open Vial and Not All Doses Administered	$903.12
Vaccine Drawn into Syringe but Not Administered	$3,310.94
Other (includes vaccine frozen in transit from distributor)	$37,748.08
Total	**$73,950.23**

There was twice as much vaccine wasted for inappropriate storage as compared to last quarter. Quarter four had 3.7 times as much wastage due to the storage unit being too cold, too warm or the unit failing when compared to the third quarter. These increases in loss, remind us of the importance of storing vaccine at the correct temperature, temperature monitoring and having reliable storage units.

1) Reliable storage units ensure that the vaccine will not be exposed to unacceptable temperature excursions. A temperature excursion may result in compromised vaccine which will need to be replaced and can be costly to replace.
2) Monitoring your daily recorded temperatures should alert you to an impending storage unit failure. Watch for temperatures that continue to get colder or warmer and call your repair company before the unit fails.
3) Transporting of vaccine requires special equipment to assure that the acceptable temperature is maintained during the transporting and storing of vaccine.
4) Purpose-built storage units may be more expensive than a household unit, but these units were built for storage of biologics (vaccines) and may be less costly in the long run if they prevent a vaccine loss.
5) Refer to the Vaccine Storage and Handling Toolkit for all of the CDC requirements and recommendations regarding storage units and best practices for storage of vaccine. https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/index.html

Additionally, to avoid vaccine expiration, providers are encouraged to rotate vaccine stock regularly in the refrigerator and to order a one to three month supply of vaccine at one time.

Vaccine Shipments: A Reminder to all Providers

Due to the extremely cold temperatures we have experienced across the state this winter, please remember that temperature indicators in vaccine shipments should always be reviewed once received.

With inclement weather, vaccine delays can happen. Check to make sure your vaccine has shipped in the allotted time, and the freeze indicator (for refrigerated) vaccines indicates that vaccine was maintained at the appropriate conditions.

Providers still need to accept all vaccine shipments, even if they are outside of the shipping window. The vaccine manufacturers will determine if the vaccine is still viable, and if not, the manufacturer will advise you of the appropriate next step. Providers should also notify the Immunization Program of the issues that have been encountered, as the NDDoH may need to supply further information to McKesson.

Once replacement vaccine has been sent to your practice, you must notify the Immunization Program of the new lot numbers and expiration dates, as this information is not available to the NDDoH on this type of shipment and won't automatically be entered into NDIIS inventories.

Response of North Dakota healthcare providers to the ACIP recommendation for Tdap vaccination during pregnancy

On October 24, 2012, the Advisory Committee on Immunization Practices (ACIP) voted to recommend that providers of prenatal care implement a Tdap immunization program for all pregnant women. A dose of Tdap should be administered during each pregnancy, regardless of the woman's prior history of receiving Tdap, to maximize the transfer of pertussis antibodies from mom to baby. Studies have shown that maternal antibodies transferred to baby during pregnancy provide protection against pertussis for infants who are too young to begin the DTaP vaccination series. Following the ACIP meeting, the CDC published new recommendations in February 2013, after which the NDDoH Immunization Program provided guidance on the ACIP recommendation to North Dakota healthcare providers. At this time, the Immunization Program also encouraged providers to implement this recommendation and to report the doses of Tdap vaccine administered to the North Dakota Immunization Information System (NDIIS). North Dakota Century Code requires that childhood immunizations be entered into the NDIIS within four weeks of administration. The reporting of adult immunizations is not required, however, the NDDoH encourages healthcare providers to report all immunizations to the NDIIS, regardless of the age of the patient receiving the vaccine. North Dakota does have high adult participation in the NDIIS, with approximately 87% of adults represented with at least one adult-administered immunization in the NDIIS.

Data from the NDIIS for all North Dakota infants born during calendar years 2013, 2014, and 2015 was evaluated for records with mother's first and last name complete to get the population of pregnant women for the total three-year period. These records were matched to NDIIS female records in order to find Tdap doses administered, and length of time between dose administration and the baby's birthdate. We looked specifically for Tdap vaccine doses administered between October 1, 2012, and January 7, 2016. Optimal timing for the administration of Tdap vaccine during pregnancy is between 27 and 36 weeks gestation. If Tdap is not administered during pregnancy, a dose should be administered immediately postpartum. The selected date range for the analysis assumes that babies are born at 40 weeks gestation and looks for doses administered 13 weeks prior to baby's birthdate to one week after baby's birthdate. Once the number of women who received Tdap vaccine during pregnancy was determined, the number of doses administered by type of healthcare provider were compared, focusing primarily on family practice providers and obstetrician/gynecologists (OB/GYN) as the primary providers of prenatal care to pregnant women. The goal of this evaluation was to use the NDIIS to evaluate the response of North Dakota healthcare providers to implementing the recommendations set forth by the ACIP to administer Tdap vaccine to pregnant women, and to evaluate this response by different types of healthcare providers.

Between 2013 and 2015, there were 36,766 newborn records in the NDIIS. Eighty-nine percent of those newborn records had mother's first and last name complete. Of those records with the mother's information complete, 20,316 (62.4%) had a matching NDIIS record for the mother (Table 1).

	2013	2014	2015	Total
Newborn records including mother's information	91.3%	91.3%	82.8%	88.5%
Newborn records matched to mother's record	59.8%	62.8%	64.9%	62.4%

Table 1. The percent of North Dakota newborn records in the NDIIS with mother's first and last name complete and matched to an NDIIS record for mom.

The percent of mothers who received Tdap during pregnancy increased from 31.5% in 2013 to 45.3% in 2014, and 51.9% in 2015, with a total 42.7% of mothers with a dose of Tdap vaccine administered during their pregnancy over the total three-year period. Of those mothers who received a dose of Tdap vaccine during pregnancy, 83% received the vaccine during the recommended interval of 27-36 weeks gestation. An additional 13.8% received the vaccine at 37-41 weeks, for a total of 96.8% receiving Tdap vaccine according to the guidance and recommendation from the ACIP (Table 2).

	2013	2014	2015	Total
% of mothers with dose of Tdap during pregnancy	31.5%	45.3%	51.9%	42.7%
Of mothers who received a dose of Tdap during pregnancy				
% of mothers with a dose at 27-36 weeks	71.4%	84.0%	89.7%	83.0%
% of mothers with a dose at 37-41 weeks	22.3%	13.6%	8.4%	13.8%

Table 2. The percent of mothers of North Dakota newborns with a dose of Tdap vaccine administered during their pregnancy according to the NDIIS.

When comparing doses of Tdap administered during pregnancy by the different types of providers, family practice and OB/GYN providers administered 33.8% and 38.9% of doses in 2013 respectively. The percent of doses administered by family practice providers actually decreased to 23.2% in 2014, and then to 17.9% in 2015, while the percent administered by OB/GYN providers increased to 56.2% in 2014, and 69.2% in 2015 (Figure 1).

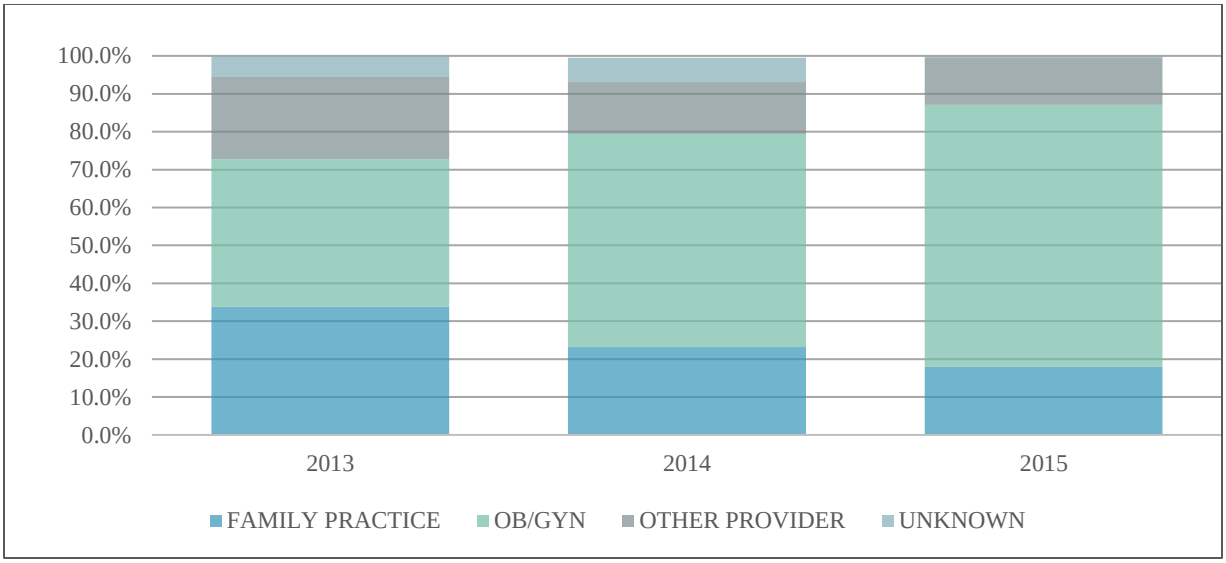

Fig. 1: The percent of Tdap doses administered during pregnancy by provider type.

With such high adult participation and data completeness, the NDIIS is an effective tool for looking at trends in immunization data. Using data from the NDIIS, we can see that North Dakota healthcare providers have responded positively to the recommendation of the ACIP to administer Tdap vaccination during each pregnancy. Since the recommendation was published in early 2013, the percent of mothers of newborns in North Dakota receiving Tdap vaccine during pregnancy increased by more than 20% from 2013 to 2015, and the percent of mothers receiving Tdap vaccine during the appropriate recommended interval increased by approximately 18%. Additionally, the response of OB/GYN providers to the recommendation has increased their administration of Tdap vaccine during pregnancy by more than 24% over the course of the three years evaluated.

Although we did see a significant increase in the administration of Tdap vaccine during pregnancy, this rate should be higher. To better protect infants from pertussis, more efforts are still needed to educate pregnant women and healthcare providers about the importance of Tdap vaccine during pregnancy.

Who Should Get Vaccinated Against Influenza?

During flu season, flu viruses circulate at elevated levels among the population. It is important for individuals, parents, and healthcare providers to be aware that influenza is more dangerous than the common cold for children, pregnant women, people with certain health conditions, and the elderly. Flu vaccination prevents the spread of flu among people in our communities and can reduce the risk of complications and hospitalizations among high-risk groups. The single best way for North Dakotans to protect themselves and their children from the flu is to get vaccinated every year.

Every person six months of age and older, without a contraindicating medical condition or precaution should be vaccinated each flu season. For children ages six months through eight years who are being vaccinated for the first time, or have received less than two total doses of flu vaccine before July 1, 2016, two doses of influenza vaccine separated by at least four weeks should be administered; otherwise, one dose should be given.

Children ages six months and older may receive the inactivated quadrivalent (IIV4) vaccine, and children age four and older may also receive inactivated trivalent vaccine (IIV3) or inactivated cell culture based (ccIIV4) vaccine. Adults should receive a dose of IIV3, IIV4, ccIIV4 or recombinant-trivalent (RIV3) influenza vaccine. Older adults, age 65 and above, may alternatively receive a single dose of high-dose IIV3 or adjuvanted (aIIV3) vaccine, both of which are designed to elicit a stronger immune response in this age group. The live attenuated quadrivalent (LAIV4) nasal mist vaccine is not recommended by ACIP for use in the 2016-2017 flu season.

Statewide Flu Vaccination Rates

According to the NDIIS, a slightly lower percentage of North Dakota children and adolescents have been fully vaccinated against the flu this year when compared to the same time last year (Figure 2). In contrast, a higher percentage of adults older than 19 years of age have been vaccinated against the flu during this season. Current vaccination rates for each age group fall between 22-26 percent for the flu season, which is comparable to previous years. The national Healthy People 2020 Goal is for 70 percent of all healthy persons to be fully vaccinated against seasonal influenza annually.

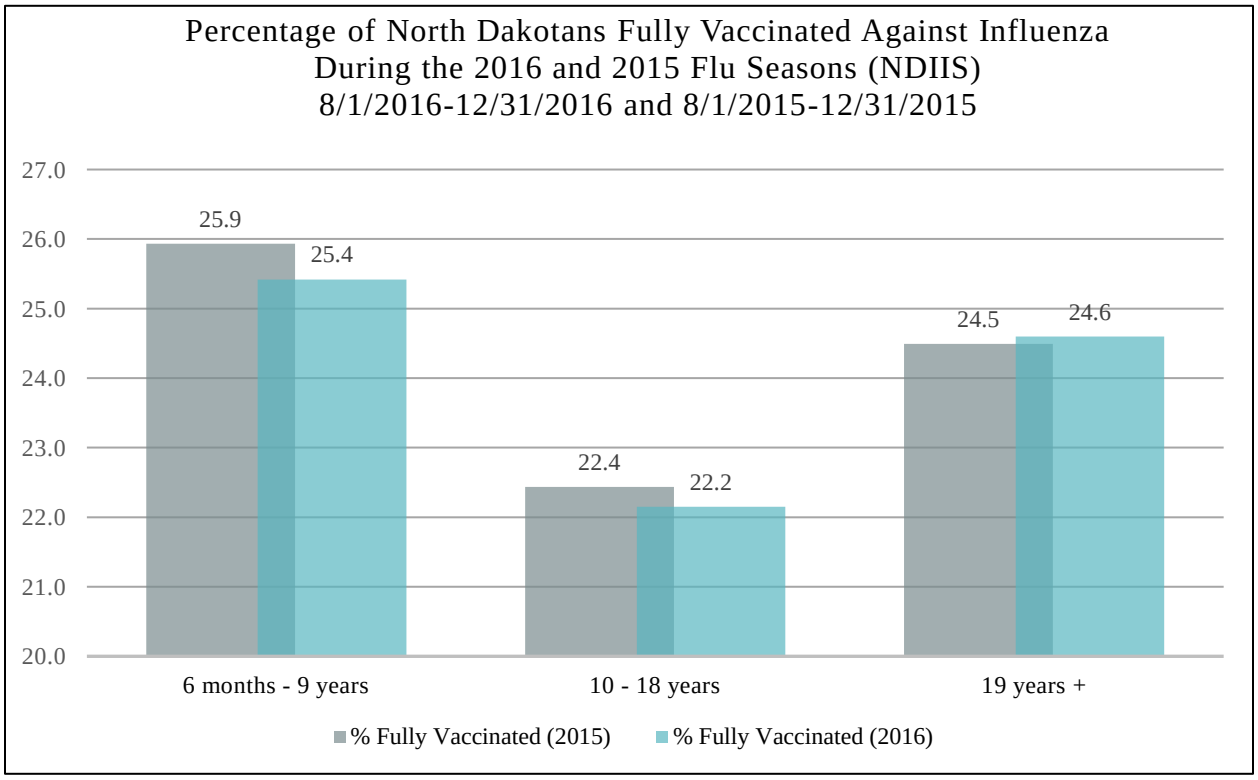

Fig. 2: Among North Dakota residents, six months – nine years and 10-18 years of age, influenza coverage rates are lower for the 2016-2017 flu season as compared to the 2015-2016 flu season. Influenza coverage rates for adults 19 years of age and older are higher in the 2016-2017 flu season.

Childhood Two-Dose Influenza Compliance Rates

For children who fall under the ACIP recommendation to receive two doses of seasonal influenza vaccine, the 2016-2017 flu season compliance rates are higher for six to 23-month-olds and five to eight-year-olds, and lower among 24 to 59-month-olds compared to the 2015-2016 flu season (Figure 3).

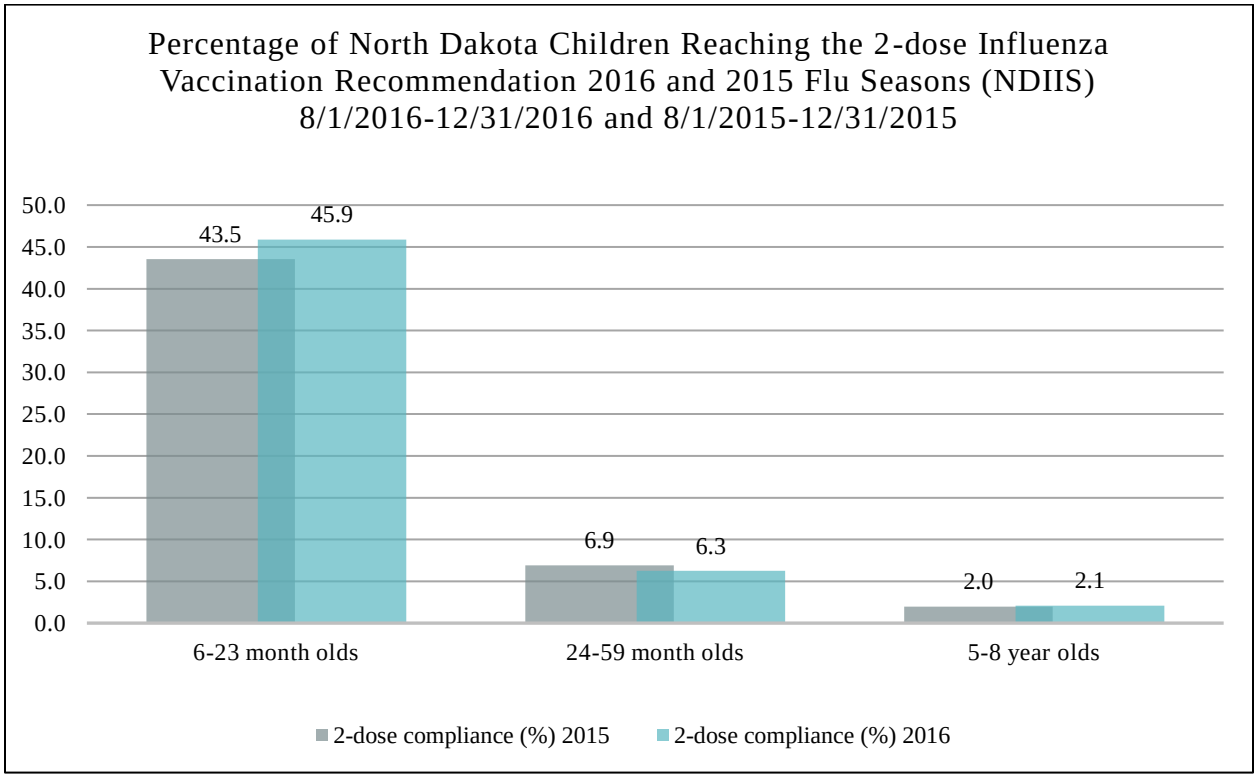

Fig. 3: Among North Dakota children in the six to 23-month-old and five to eight-year-old groups, two-dose influenza coverage rates are higher for the 2016-2017 flu season as compared to the 2015-2016 flu season. Among 24 to 59-month-olds, two-dose influenza coverage rates are lower.

Kindergarten Immunization Rates on the Rise in North Dakota

After years of declining kindergarten vaccination rates in North Dakota (Figure 4), the 2016-2017 immunization assessment has shown an increase in kindergarten immunization rates (Figure 5).

Students entering kindergarten in North Dakota are required to be up to date on five vaccines; MMR (measles, mumps, and rubella), polio, DTaP (diphtheria, tetanus, and pertussis), hepatitis B, and varicella (chickenpox) vaccines.

Schools in North Dakota are required to report immunization rates for these vaccines to the NDDoH every year. For the 2016-2017 school year, those rates reached over 93 percent for all required kindergarten vaccinations, an increase of three percent for most vaccines compared to last year's rates.

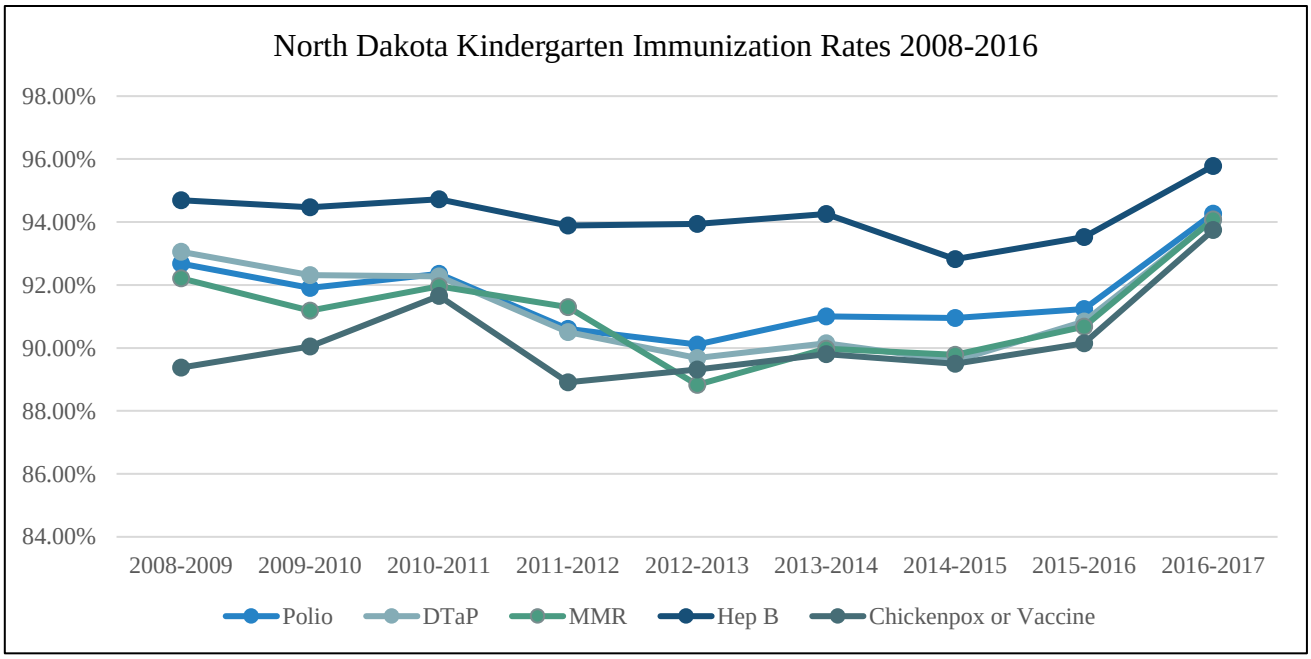

Fig. 4: North Dakota Kindergarten Immunization Rates 2008-2016 according to the annual school immunization survey.

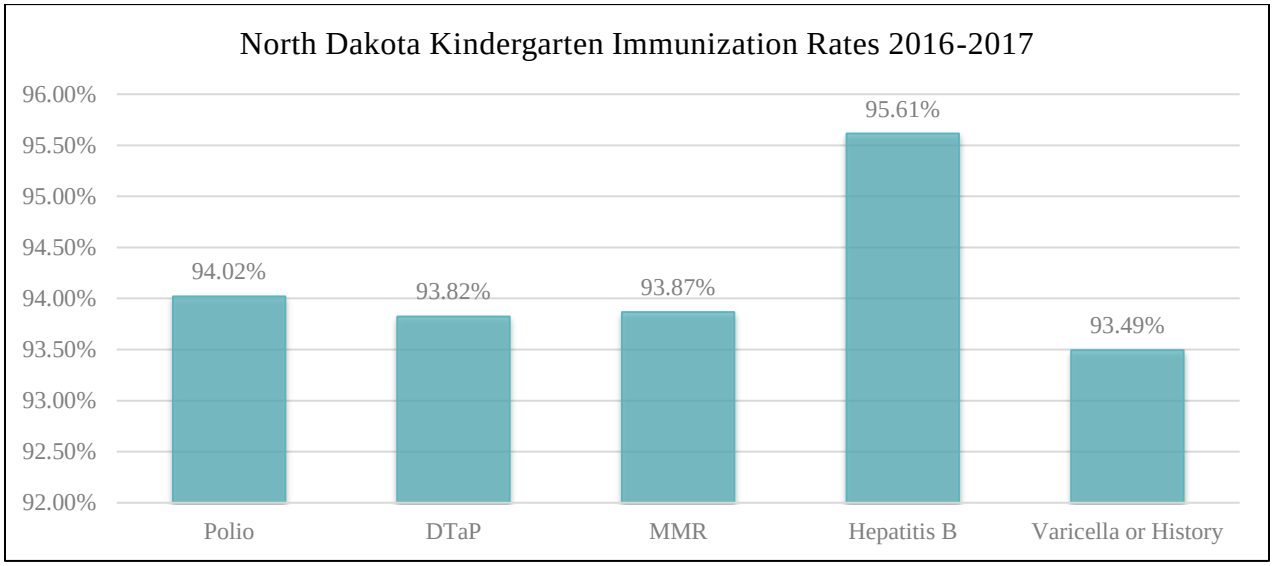

Fig. 5: North Dakota Kindergarten Immunization Rates for the 2016 – 2017 School Year.

Last year, North Dakota ranked in the bottom ten states for MMR, DTaP, and varicella vaccination coverage among kindergarteners. Because of these low immunization rates, the NDDoH contracted with North Dakota State University's Center for Immunization Research and Education to communicate with key stakeholders across the state to better understand the attitudes, opinions, practices, and policies surrounding school immunization requirements, and exemptions to those requirements in North Dakota. Results of the study are available at http://www.ndhealth.gov/Immunize/Documents/Schools/ImmunizationandExemptionPoliciesandPracticesinNorthDakota_20160615.pdf.

The study found that although exemption rates are increasing, there is a larger percentage of students

who are unaccounted for in the survey; they are not up to date, but also do not have an exemption on file. Personal belief and religious exemptions in the state did increase slightly this year, but the percentage of students who are unaccounted for declined, which resulted in an increase in vaccination rates.

Adult Immunization Recall Coming Soon!

The Immunization Program recently assessed county level adult pneumococcal and zoster immunization rates utilizing the NDIIS. Adult immunization rates range from 11 to 57 percent with statewide averages as follows:

Vaccine	NDIIS Adult Immunization Rate Quarter Four, 2016
PCV13 (pneumococcal conjugate vaccine) 65+ Years of Age	44.1%
PPSV23 (pneumococcal polysaccharide vaccine) 65+ Years of Age	41.1%
Zoster 60+ Years of Age	35.6%

As a strategy to increase adult immunization rates, the immunization program will begin piloting immunization recall letters and postcards to adults 60 years of age and older that are 30 or more days past due for PCV13, PPSV23, and zoster vaccines in a few counties. Recall messaging will request they contact their primary healthcare provider or local public health unit for the recommended immunizations.

In addition to general adult immunization reminders, the Immunization Program and the Ryan White Program are collaborating to conduct immunization recall of Ryan White (RW) Part B participants. This strategy will allow RW case managers to screen participant immunization records and provide immunization reminders for all participants during the enrollment and re-enrollment application process.

More information about adult immunization recall, including which counties will pilot recall and copies of postcards and letters will be distributed via email in the near future.

Adults who no longer wish to receive reminder/recall postcards should visit the Immunization Program website at www.ndhealth.gov/immunize and complete the Immunization Recall Exclusion Form. If your practice receives questions from individuals that do not understand the immunization recall letter or postcard, please review the NDIIS immunization forecaster. If you have further questions, please contact the Immunization Program.

Increase in Reported Mumps Cases in the United States and Canada

Mumps is a highly contagious, vaccine-preventable disease that is uncommon in the United States due to the Measles, Mumps, and Rubella (MMR) vaccine. Mumps cases in the United States range from year to year, from hundreds to thousands. Before the vaccine's introduction, there were likely more than 186,000 cases each year in the United States. As of December 2016, 5,311 cases were reported in the United States. This is the largest

number of mumps cases seen in the United States since 2006, when more than 6,500 cases were reported. Manitoba, Canada is also reporting increased mumps cases.

There are three states that have reported more than 300 cases during 2016. These states include Arkansas, Iowa, and Illinois. In Arkansas, a mumps outbreak that started in October is continuing to grow. As of January 12, 2017, the total number of suspect and confirmed cases has reached 2,524. In Iowa, from July of 2015 through April of 2016, there were 637 laboratory confirmed cases of mumps reported, with a large number occurring at the University of Iowa. Since this outbreak, cases of mumps have been rising again in Iowa, with 130 total cases reported from August 1, 2016, through December 11, 2016. Additionally, Oklahoma, Indiana, New York, and Massachusetts have all reported over 100 cases of mumps so far this year.

In North Dakota, an outbreak of mumps occurred this past spring, with 46 cases of mumps reported to the NDDoH. Of these cases, six were laboratory confirmed, four were probable, and 36 were suspect.

The mumps virus is found in fluids of the mouth and nose, and may be spread by coughing, sneezing, or talking. It may also be spread by sharing objects such as eating utensils. Outbreaks are more likely to occur in settings where people are in close contact such as classrooms, sports teams, or students living in dorms. The most recognizable symptom of mumps is parotitis (swelling under the ears or jaw on one or both sides of the face). Other symptoms include fever, headache, earache, muscle or joint pain, painful swelling of the testicles in men and swelling of the ovaries in women, causing abdominal pain.

If health care providers are suspecting mumps, a buccal swab should be collected for RT-PCR testing as soon as possible, ideally within three days and not more than eight days after parotitis onset. Tests for IgM are not reliable and tend to provide both false positives and false negatives, so PCR is the preferred method of testing.

Because of the MMR vaccine, mumps cases are not common in the United States, but the mumps vaccine can range in effectiveness from 66-95% for two doses and 49-92% for one dose. Although not 100% effective, the vaccine can limit mumps outbreaks and may also offer some amount of protection, even in those who still get mumps, which is why we do not see a large number of severe cases. Ensuring they are up to date with the MMR vaccine is the most important way for individuals to protect themselves against the disease. For more information on mumps cases in North Dakota, visit http://www.ndhealth.gov/Immunize/Disease/Mumps.aspx.

North Dakota Department of Health Reports an Increase in Pertussis Cases

The NDDoH is beginning to see a rise in pertussis cases in school-aged children in North Dakota. So far in 2017, five confirmed cases have been reported to the NDDoH. Pertussis incidence typically peaks every three to five years, and the last peak in North Dakota was in 2012 with 214 cases. The NDDoH is reminding providers that if pertussis is suspected, the patient should be treated and excluded from group activities until five days after the start of effective antimicrobial treatment. Providers should not wait for laboratory results to treat, and suspected pertussis cases must be reported immediately to the NDDoH at 701.328.2378.

Pertussis (also known as whooping cough) is a contagious disease that lasts for many weeks or months and can cause severe coughing with a “whooping” sound or coughing that leads to vomiting. The disease can be life-threatening for infants. Generally, the illness is less severe in those who are vaccinated and may present as just a prolonged cough.

The clinical criteria for pertussis is a cough lasting at least two weeks with at least one of the following symptoms:

- Paroxysms of coughing,
- Inspiratory whoop,
- Post-tussive vomiting, or
- Apnea (in infants < 1 year only)

The NDDoH recommends providers collect a nasopharyngeal swab for polymerase chain reaction (PCR) testing from all persons with suspected pertussis. The NDDoH also recommends that people suspected of having pertussis be treated and excluded from community activities, including school, extracurricular activities, child care, or work until five days of antibiotics have been completed. Do not wait for laboratory testing results to treat, and report the suspected case to the NDDoH immediately.

Patients are most infectious early in the illness, but communicability may persist for three weeks after onset of cough. Antimicrobial therapy decreases communicability and may limit the spread of disease. All household contacts of confirmed pertussis cases, regardless of symptoms, should be placed on the appropriate antibiotics. The NDDoH will determine if any other contacts need to receive prophylaxis and will refer them to their primary care provider for evaluation and treatment.

The incubation period for pertussis is usually seven to ten days but can range from four to 21 days. Symptomatic contacts to confirmed cases should be treated, reported to the NDDoH, and advised to exclude themselves from all activities until five days after the start of effective antimicrobial treatment or 21 days of cough have passed.

New NDSU AFIX Project Manager!

Greetings! My name is Danni Pinnick, and I am the AFIX Project Manager for the NDSU Center for Immunization Research and Education, in which we will visit clinics throughout ND and deliver education about human papillomavirus (HPV) vaccine to providers with the hope to increase HPV immunization rates. Prior to this job, I have worked as an instructor and teaching assistant at NDSU for research methods, communications, chemistry, and public health classes. I also worked previously on the NDSU CIRE school immunization project for the NDDoH, and I am very excited to continue in this partnership! I graduated in May with my Master of Public Health degree from NDSU, specializing in Management of Infectious Diseases. My undergraduate degree (also from NDSU) is in Chemistry and French.

I am a lifelong North Dakotan; I was born and raised in Minot, ND, and moved to Fargo in 2005, where I have lived ever since. My husband Derek and I have two dogs, Monomer and Guinness, two cats, Mirielle and Gunther, and a three-year-old daughter named Annette (Annie). As you would imagine, I spend most of my free-time with my family, but when I get a spare moment, I enjoy board games, cooking, playing music, and dancing.

Calendar of Events

Immunization Program Lunch & Learn
February 8, 2017

ACIP Meeting in Atlanta, Georgia
February 22 and 23, 2017

Immunization Program Lunch & Learn
March 8, 2017

Spring 2017 Clinical Vaccinology Course in Chicago, Illinois
March 10 – 12, 2017

Current Issues in Vaccine Webinar Series provided by the Vaccine Education Center at Children's Hospital of Philadelphia
March 22, 2107

American Immunization Registry Association Conference in Chicago, Illinois
April 11 – 13, 2017

Immunization Program Lunch & Learn
April 12, 2017

NORTH DAKOTA DEPARTMENT of HEALTH

Immunization Program

Molly Howell, MPH
Immunization Program Manager
mahowell@nd.gov

Abbi Berg, MPH
Vaccines for Children Manager
alberg@nd.gov

Miranda Baumgartner
VFC/AFIX Coordinator (West)
mlbaumgartner@nd.gov

Sherrie Meixner
VFC/AFIX Coordinator (East)
smeixner@nd.gov

Lexie Barber, MPH
Immunization Surveillance Coordinator
abarber@nd.gov

Andy Noble
CDC Public Health Advisor
anoble@nd.gov

Mary Woinarowicz, MA
NDIIS Sentinel Site Manager
mary.woinarowicz@nd.gov

Dominick Fitzsimmons
NDIIS Coordinator
dfitzsimmons@nd.gov

Kelsie Howes
Administrative Assistant
khowes@nd.gov

www.ndhealth.gov/immunize

www.facebook.com/NDImmunization

Kirby Kruger
Chief, Medical Services Section
Director, Disease Control

Tracy K. Miller
State Epidemiologist

Molly Howell
Immunization Program Manager
Assistant Director, Disease Control

Published by the North Dakota Department of Health Division of Disease Control,
2365 E. Main Ave., P.O. Box 5520, Bismarck, N.D. 58506-5520
Publication is available in alternative forms; for more information, contact Kelsie Howes, editor, *Immunization Newsletter*.
EQUAL OPPORTUNITY EMPLOYER