IMMUNIZE OUR KIDS

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A child care immunization project in Rural and Frontier Nevada

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We are highly indebted to Jo Malay, Health Program Manager, Nevada State Health Division, for her guidance and constant support. Without her intelligence and expectation of a brighter future for Nevada this project would not have been been possible. It is our hope that her vision came to life.

We would like to express our gratitude towards the Community Health Nurses and their administrative assistants for their donation of time and talent in order to make this project a success.

Many thanks and appreciations also go to all those who contributed to the development the IOK project and people who have willingly helped us out with their abilities.

Thank you for giving us this opportunity. It has been our greatest pleasure to fulfill this project from start to finish and ultimately make a true difference in the lives of Nevada's children.

With pleasure,

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Immunize Our Kids

A CHILD CARE IMMUNIZATION PROJECT IN RURAL AND FRONTIER NEVADA

About Immunize Our Kids

Nevada ranked 40th in the National Immunization Survey conducted by the Center for Disease Control (CDC) in 2011. The survey found only 65% of children ages 19-35 months are up-to-date on their immunizations (Vaccines & Immunizations). These are staggering numbers.

In response to consistently low-ranking statistics, Immunize Our Kids (IOK) was funded through a grant from the Nevada Attorney General's Office using United Healthcare Settlement dollars. The goal of IOK was to reduce vaccine-preventable disease in the State of Nevada through education and immunization. The focus of this project is children, ages six and under, attending licensed child care centers in the rural and frontier counties of Nevada. By Nevada State Law (NRS 432A.230, NRS 432A.235, NRS 432A.260, NAC 432A.500-432A.505), children who attend licensed child care centers in Nevada must be up-to-date on their childhood vaccinations, including measles, mumps, rubella, diphtheria, tetanus, pertussis, varicella (chicken pox), hepatitis B, hepatitis A, haemophilus influenza type b, and pneumococcal disease.

Numerous issues contribute to a lack of compliance to these laws. Tracking immunization records and requirements is challenging (Parents are not vigilant in keeping their children up-to-date on their vaccinations and lack knowledge of the Advisory Committee on Immunization Practices' (ACIP's) immunization schedule.). Physicians permit families to follow alternate vaccination schedules or immunize in multiple visits. The laws are not being enforced by the regulating agency. Nevada Web IZ usage is inconsistent throughout the state. It is a serious health threat to the people of Nevada and it needs to be addressed.

IOK assessed the immunization culture across rural and frontier Nevada. It is vital to understand these nuances to better address the disparities resulting from lack of access and vaccine understanding. IOK got its hands dirty. It built relationships with child care providers and parents across the state. The centers were visited numerous times to provide education and immunizations. Trust was built. Relationships were formed. Records were reviewed. Data was collected. Children were immunized. Not only did we find the problems, but we are solving them.

The Nevada Attorney General's Office provided the funding for IOK which resulted in a positive change to Nevada's health status. By eliminating the barriers of cost, access and a lack of vaccine understanding, immunization rates were increased. After all, Nevada's greatest resource, its children, are worth protecting.

Approach and Methodology

Funding of Immunize Our Kids was allocated to cover salaries of two Health Program Specialists (HPSs), travel expenses, cost of childhood vaccines and supplies. The project was executed in two phases: Identification and Immunization.

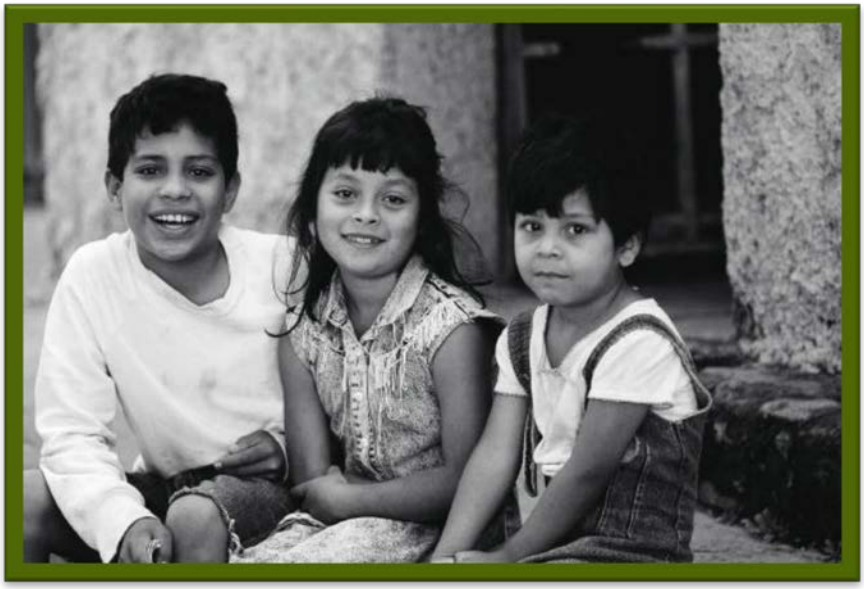
Phase One: Identification

- The HPSs were trained on the current immunization schedule recommended by the CDC and ACIP. Numerous meetings occurred with stakeholders in the "immunization community", such as "Immunize Nevada" and the Nevada State Immunization Program, including Nevada Web IZ, Nevada's computer-based immunization registry.

- Health Care Quality and Compliance (HCQC) generates a quarterly list of licensed child care centers in Nevada on the Health Division's website. This list was used to identify centers eligible to participate in the IOK project. The facilities were contacted via phone.
- Immunization records of those children, ages 6 and under, were reviewed. Participation by the centers was optional. An educational immunization binder was given to all participating and non-participating licensed child care centers in rural and frontier Nevada.
- Following the initial review, child care immunization records were compared to the children's records in the Nevada Web IZ registry. A list was compiled of those children in need of vaccinations. A personalized letter was sent to the parents of the children, informing parents of an upcoming immunization clinic to be held at the child's center, as well as, the vaccinations they need. Vaccines and supplies were ordered for the upcoming immunization clinics.

Phase Two: Immunization

- Consent forms were signed by parents. Web IZ was rechecked, along with additional records to ensure accurate administration of vaccines. Parental attendance was welcome, but not required.
- Immunization clinics were held at the child care facilities. Community Health Nurses administered vaccines to the participating children.



- Following the clinics, Web IZ records were updated and parents and centers were sent current records for the participating children. Parents were provided with a list of recommended future vaccines and their eligibility dates. A revised list of children needing vaccines was sent to the centers, providing a clear picture of what is expected of them to become 100% immunized and compliant.
- Relationships were formed between the Community Health Nurses and the community they serve.

What we found

The graph below (Figure 1) gives an overall picture of Nevada's licensed child care immunization status Twenty-one percent of the improvement in immunization rates came from our clinics. Five percent came from a "positive side-effect", or in other words, parents vaccinating their children within a two-week window of receiving our parent letters. Even though we improved the immunization rates of rural licensed child care centers reached by IOK by 26%, there is more room for improvement.

Nevada State Law mandates any child attending a licensed child care facility be up-to-date on all childhood immunizations. We are not meeting this requirement.

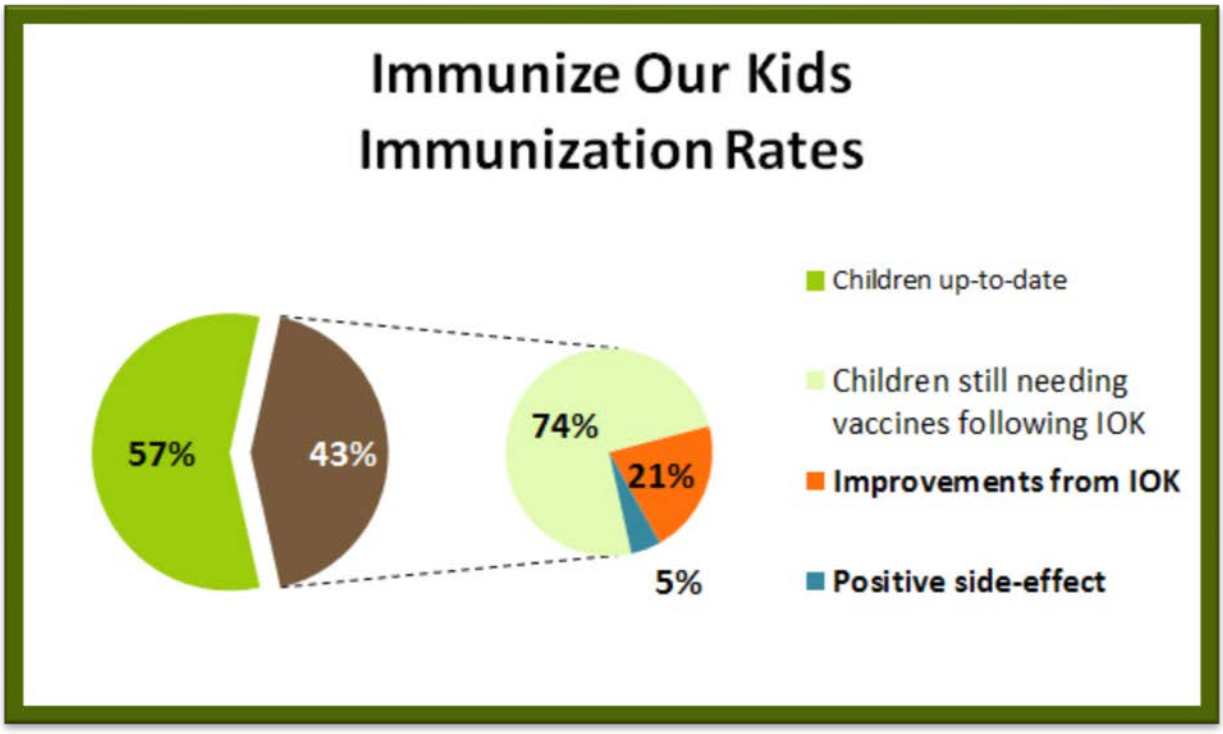


Figure 1. Immunization rates of Nevada's licensed child care centers, before and after IOK. The graph on the left indicates the percentage of children up-to-date on their vaccines vs. children in need of immunizations on initial immunization review. The graph on the right illustrates children positively affected by IOK, directly and indirectly, and children still needing vaccines. Positive side-effect refers to those children who received immunizations on their own after their parents were made aware of their immunization status. *IOK = Immunize Our Kids

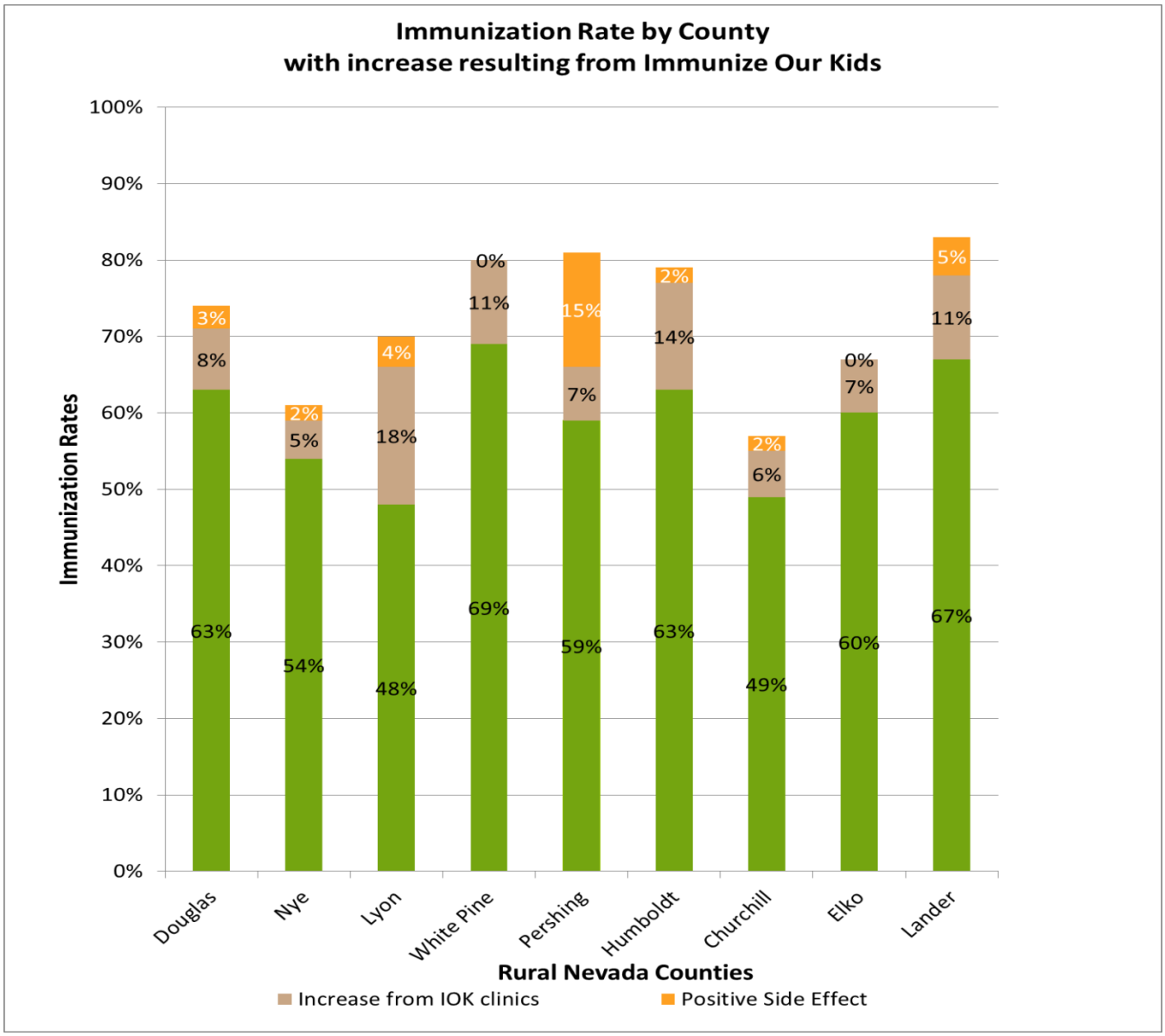
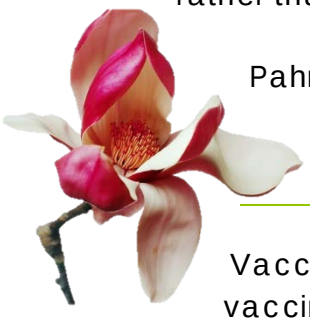


Figure 2. Pre- & Post-clinic immunization rates of licensed child care centers in rural Nevada by county. The above graph represents the immunization rates in children attending licensed child care centers in rural and frontier Nevada. The areas in green indicate current immunization rates in licensed child care centers by county. The tan represents the impact that Immunize Our Kids (IOK) made on the immunization rates by hosting immunization clinics. The top bar (orange) signifies the positive side effect brought on by IOK after parents were made aware of their child's immunization status. Many parents made appointments with their private provider to receive their inoculations.

As expressed in Figure 2 (above), the pre-clinic range of immunization rates among Nevada's counties was 48-69%. Following IOK Clinics, these counties improved increasing the rates to 55-80%. However, there is still room for improvement.

The counties with the two lowest immunization rates were: Nye and Churchill (see Figure 2). These counties face their own unique immunization challenges. Nye County includes the remote gold mining community of Round Mountain. Mine employees have health insurance, but the nearest vaccine provider that accepts their health insurance is located in Fallon, NV, a more than three-hour drive.

Pahrump (Nye County) and Fallon (Churchill County) are more of a mystery. One explanation may be poor Nevada Web IZ usage amongst their vaccine providers. Another may be the transient nature of both locations. Fallon has a Naval Air Station nearby. Because those service members are constantly being transferred, moving their families across the country, their immunization records could be difficult to locate. The federal government does not have a formal way of tracking vaccines, and they do not participate in state immunization databases. This may be a case of poor record keeping, rather than poor immunization rates.



Pahrump is close to Las Vegas, and may also have their transient tendencies, resulting in poor immunization rates and poor record keeping.

Vaccines for Children (VFC) is a federally-funded program that provides free vaccines for children who may not otherwise be vaccinated because of inability to pay (Center for Disease Control and Prevention, 2012). This may include children who are uninsured, underinsured, Medicaid or Nevada Checkup eligible, American Indian or Alaska Native. IOK used VFC as well as privately purchased vaccines during the project. Figure 3 (below) illustrates the percentage of audited children needing immunizations broken up into two groups: those qualified to receive VFC vaccines and those with private health insurance. There is a great difference in the funding source percentages in different counties. The orange line represents the percentage of participating children in our IOK clinics. The two counties with the greatest participation in the clinics, White Pine and Humboldt, are also the only counties with the highest percentage of children qualifying for VFC.

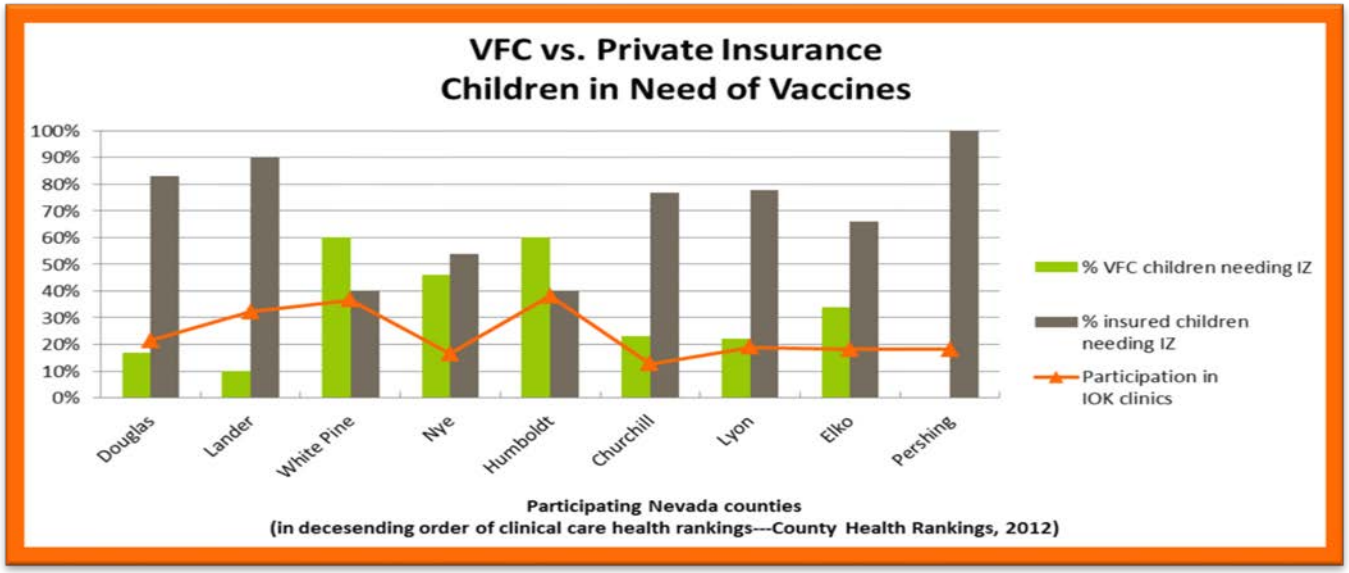


Figure 3. VFC vs. Private Insurance: Children in Need of Vaccines. This graph represents the VFC/privately insured children by county. The line across the bars signifies participation in Immunize Our Kids (IOK) clinics. Notice the highest participation occurred in White Pine and Humboldt counties, where they also had the highest percentage of VFC children.

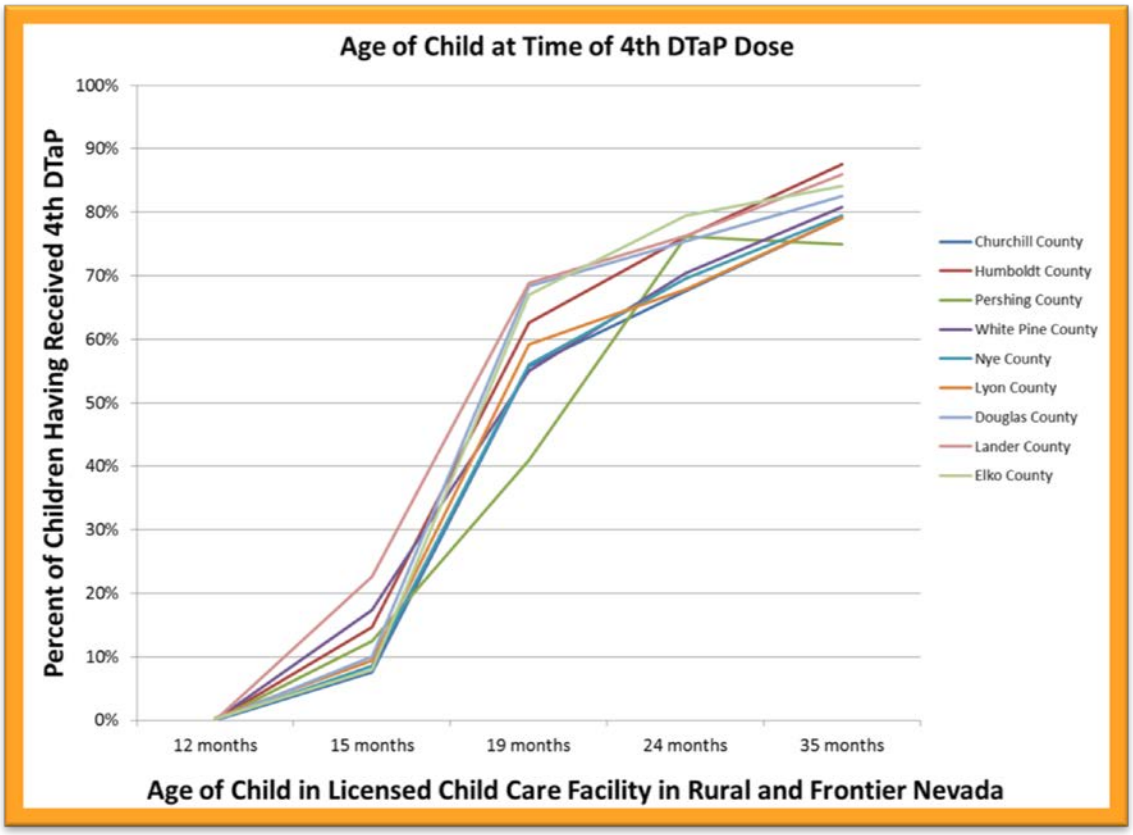


Figure 4. Age of Child at Time of 4th DTaP Dose. Each county has a trend line that stretches from 12 to 35 months of age, showing the percentage of children receiving vaccine at each time. The Advisory Committee on Immunization Practices (ACIP) recommends children are vaccinated at 2, 4, 6, and 12-15 months of age.

The fourth dose of DTaP is a frequently analyzed as an overall measure of immunization status. By assessing the age at which children in a community receive this dose, a picture is painted of immunization culture, compliance and awareness. It is recommended a child receive four doses of DTaP by 15 months of age. The trend revealed by the IOK audits suggests the majority of Nevada's children in licensed child care are not receiving this fourth dose on time (See figures 4 & 5). This poses a grave concern because, in recent years, outbreaks of Pertussis, or Whooping Cough, have increased around the country, including Nevada. Immunizations given at age-appropriate intervals provide the greatest degree of protection from vaccine-preventable disease.

Children that are in licensed child care facilities are at risk for vaccine-preventable diseases. We need to regulate, educate and empower these facilities to better understand what is expected of them in order to keep our children free from these preventable diseases. The expectation of public schools is to maintain compliance; the same should be expected of our licensed child care facilities.

Immunization Compliance Rate Analysis: 1 Month After Dose is Recommended				
	1st dose	2nd dose	3rd dose	4th dose
DTaP	88%	76%	63%	38%
Hib	83%	71%	51%	41%
Hepatitis A	41%	41%		
Hepatitis B	78%	60%	85%	
PCV	82%	71%	58%	62%
Polio	86%	74%	75%	
MMR	55%			
Varicella	54%			

Table 1. Immunization Compliance Rate Analysis: 1 Month After Dose is Recommended. This table represents each Advisory Committee on Immunization Practices (ACIP) recommended vaccine compliance rate one month after it is suggested to be received. DTaP, Hib, PCV are recommended at 2, 4, 6 and 12-15 months of age. Two doses of Hepatitis A are recommended between 1 and 2 years of age, at least 6 months apart. Polio is recommended at 2, 4 and 6 months of age. Hepatitis B is recommended at birth, 2, 4 and 6 months of age. MMR and Varicella are recommended at 12-15 months of age. Each dose was studied one month after the last recommended month, e.g. Hepatitis B birth dose was studied at 1 month.

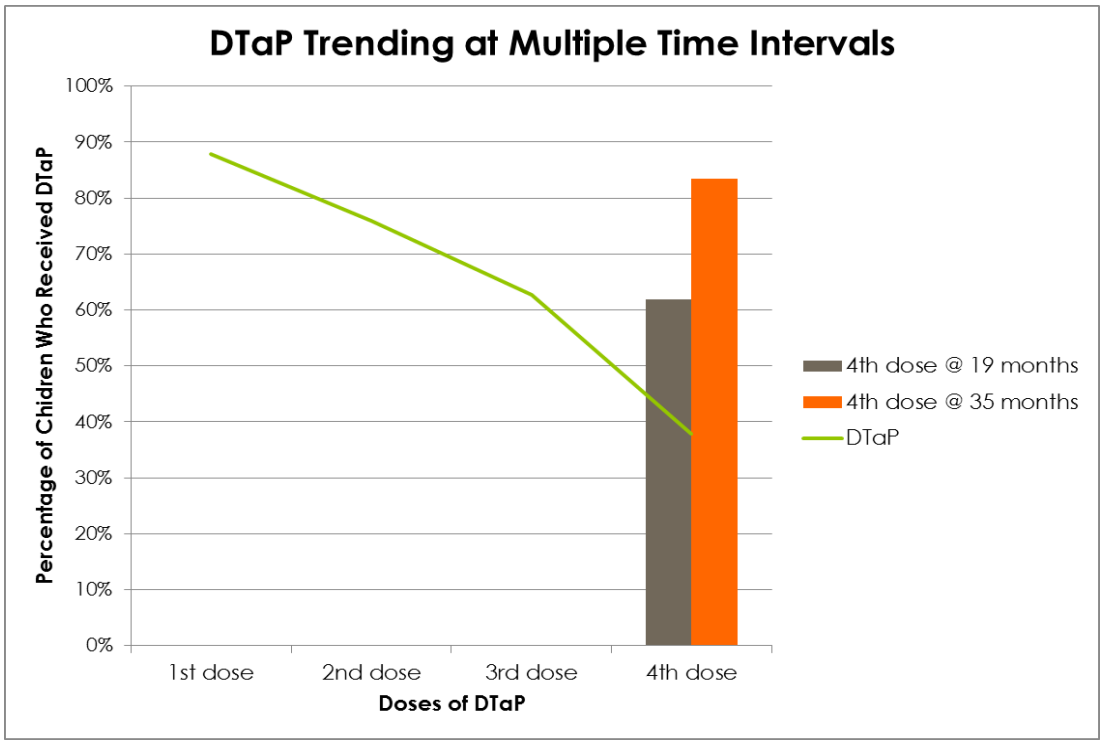


Figure 5. DTaP Rate Trends at Multiple Time Intervals. The line represents DTaP at doses 1 through 4, studied at one month after recommended immunization. As the child ages, their compliance rate decreases. The bars at the right of the graph represent the 4th dose of DTaP at 19 and 35 months. Children in licensed child care centers in Rural and Frontier Nevada are not up-to-date on their DTaP.

Figures 4 and 5 (above) show a clear trend where the older the child gets, the less likely they are to get their immunizations on time.

Recommendations: Let's make a brighter future for our children.

IOK increased vaccination rates in children across rural and frontier Nevada. The IOK model is an effective way to improve immunization rates because it eliminates barriers and promotes education. By extending this project, further gains can be achieved. Based on the knowledge acquired through the IOK project, the following recommendations are suggested:

- Create a Web IZ phone application. Parents and childcare providers currently have access to their children's Nevada Web IZ accounts via the Internet. Making this available as a smart phone application, as well, would make it even more accessible and convenient to identify the immunization statuses of their children. This would also promote parental ownership of their child's immunization status.

- Develop formatted immunization reminder letters in Nevada Web IZ to help childcare centers and schools inform parents of their children's vaccination needs.

- Encourage collaboration between bureaus within the Health Division. All of these bureaus have a stake in the health of the children in these rural communities. In addition, HCQC would benefit from a relationship with the Maternal and Child Health Coalition and Immunize Nevada.

- Enforce NAC 432A & NRS 432A. If there are no consequences, the laws will not be followed and this is unhealthy for our children.

- Ensure children are fully immunized at all times while attending licensed child care. Propose a law requiring that four-year olds attending these facilities get their four-year shots within a certain window of time (e.g. 60 days following their fourth birthday). Children should not wait to be immunized until right before they enter kindergarten. This includes the 5th DTaP, the 2nd MMR, the 2nd Varicella and the 4th Polio.

- Pursue private insurance contracts for Community Health Nursing. This is important because the Community Health Nurse may be the only provider in the area.

- Educate licensed child care centers on the topic of immunization by hosting classes and encouraging use of Nevada Web IZ. Mandate Nevada Web IZ courses for all licensed child care centers' directors.

- Generate a text reminder system individualized to each patient and inform parents of upcoming vaccine recommendations. This could be a texting program where you opt in through your provider's office and is linked through your Nevada Web IZ account.

- Establish an inviting online atmosphere for parents and child care providers to obtain information. For example, Connecticut's immunization web page has a link allowing parents to chat online with child care experts on the topics of immunization, licensing, etc. This site could also include an online Web IZ record request link.

- Expand Nevada's immunization website to include a link containing child care immunization requirements. Currently, it features school immunization requirements, but not licensed child care immunization requirements.

- Reduce the paperwork. Immunization clinics can require excessive paperwork including consent/screening forms, administration forms and billing forms. An electronic system would speed up the process.

Discussion

Many factors contribute to low immunization rates in licensed child care centers. If one element fails to be effective, it has a negative effect on the rates. If a center is not assertive in requiring up-to-date immunizations, the parents will likely not make an effort to maintain up-to-date immunizations for their children. If pediatricians and healthcare professionals do not strongly recommend on-time vaccinations, or allows an alternate or breaking up of vaccine schedules, is he or she putting the child's best interest first? If parents are reluctant to immunize their children either out of fear or misinformation, ultimately, they put their children at risk for diseases that are preventable. The solution is to empower and educate these groups.

We need to follow the lead of the public school system which does a better job at enforcing immunization laws. Because children receive the majority of their recommended vaccines prior to turning age one, licensed child care facilities are the logical place to begin.

Through Nevada Web IZ, licensed child care center employees can gain access to the immunization records of the children attending their centers. It also exposes them to the recommended immunization schedules so they better understand what the children

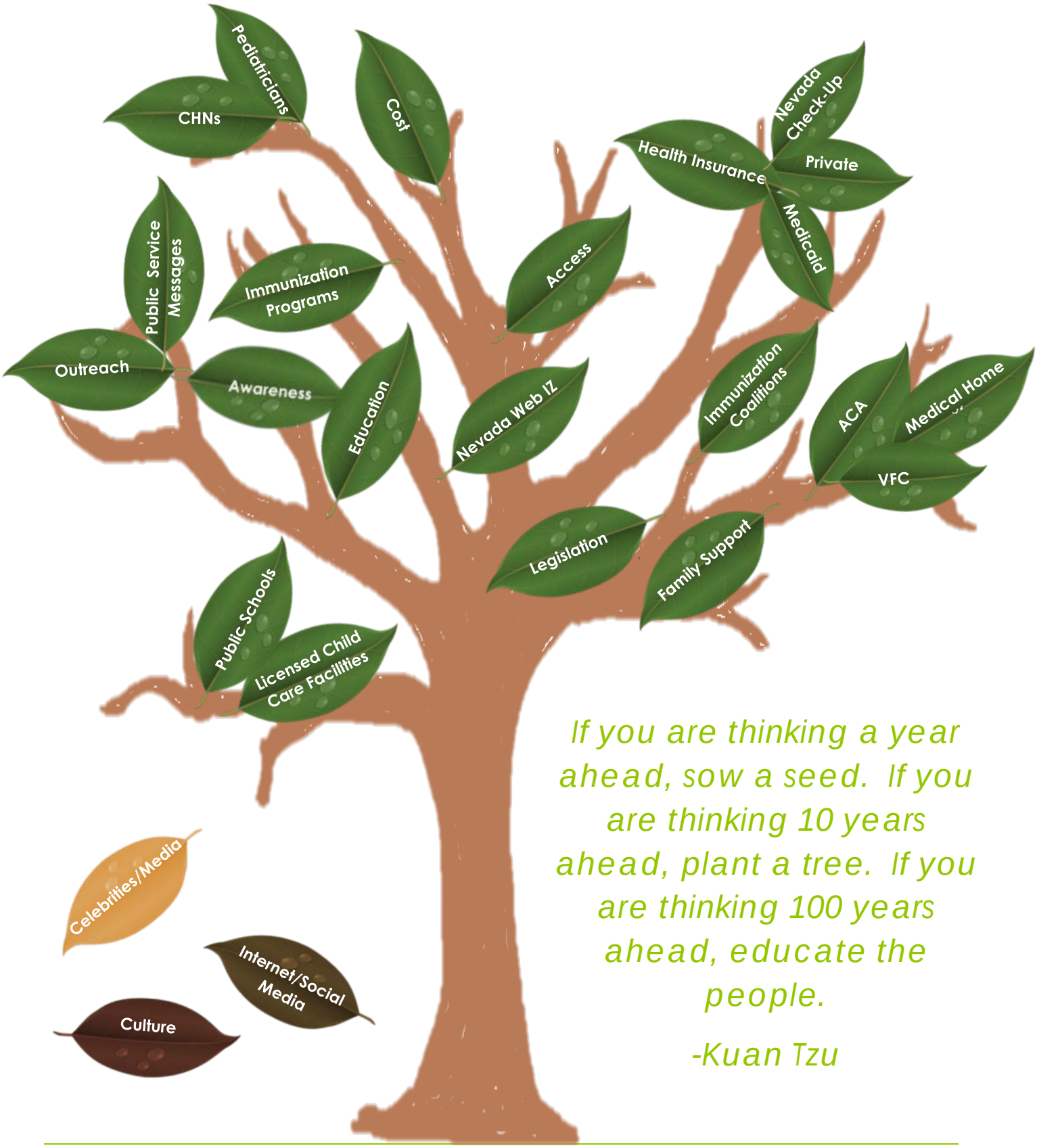
need. Parents want what is best for their children, but there is a lot of misinformation out there, especially on the Internet. Efforts made to educate parents and reduce this bad propaganda must be continued. Awareness of options must be increased. Vaccines for Children (VFC) provides no cost vaccines to qualifying children. Often cost is a barrier for families, but many parents are unaware of this program.

Health care professionals also need to be re-educated on the immunization requirements and the risks of under-immunization. Parents rely on them for accurate information. Children need advocates for accurate immunization schedules, not alternate ones which risk children's health.

Throughout this project, we found a variety of attitudes and understanding regarding vaccines. Some parents were happy to be able to get free immunizations because of a lack of health insurance. Some were more reluctant and participated only because their child's access to child care was dependent upon it. Child care centers expressed frustration at parents for not following the rules, jeopardizing their license. Some centers celebrated our arrival as a chance to enforce the rules in a way that presented a real solution to the problem.

Our hope is that the Affordable Care Act (ACA) enables all Americans to have access to vaccines. Ideally, those without health insurance coverage for vaccines would qualify for VFC vaccines. As the implementation of the ACA gets under way, we will learn more about the effects it has on immunization rates around the country.

Factors that affect a child's immunization rate



If you are thinking a year ahead, sow a seed. If you are thinking 10 years ahead, plant a tree. If you are thinking 100 years ahead, educate the people.

-Kuan Tzu

The most important goals of the IOK project, excluding increasing immunization rates, is to educate and empower. Our educational binders, the increase in Web IZ access and the increased awareness of VFC vaccines developed by this project, have certainly contributed to these objectives.

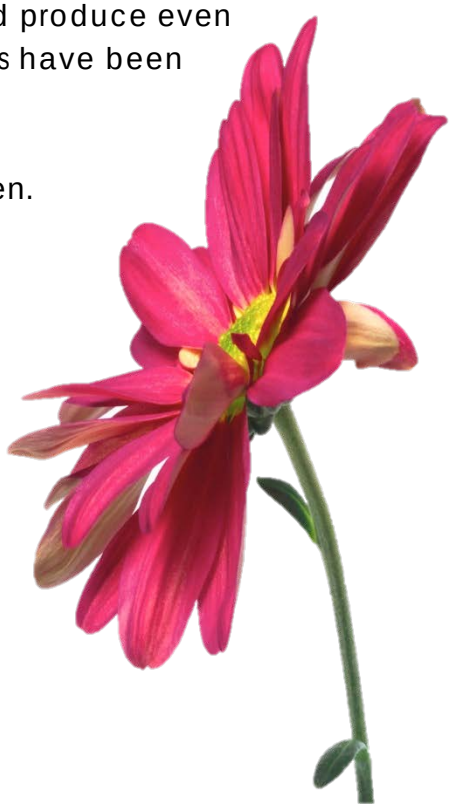
Conclusions

IOK improved immunization rates among children attending licensed child care centers in rural and frontier Nevada. IOK has increased immunization rates in these centers by over 11%. Our model is successful because it eliminates barriers and provides education. If this project continues, there will be more opportunities for growth and improvement of vaccine rates.

Positive unintended consequences have resulted from this project. This includes increased education and awareness of vaccine status. Some children have received immunizations from IOK clinics, whereas, others have chosen to visit their primary care providers for updates. It starts a conversation between child care providers, parents and health care providers.

The approach taken by IOK has been a careful one. The intention is not to regulate, but to educate. We want to empower child care facilities to make the best decisions for each child attending their centers. When these parties have the same goal, the child receives the best possible care.

Based upon the success of IOK, an extension of this project could produce even greater results. The framework has been set and the relationships have been forged. The IOK model has proven its viability as a solution to Nevada's immunization deficit. Moving forward, there are more opportunities to protect Nevada's most valuable asset, its children.



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