

PURPOSE

To assess provider behavior to develop effective interventions that quickly target non-compliant behavior according to Centers for Disease Control and Prevention (CDC) recommended standards.

BACKGROUND

VFC Program

Provides vaccine at no cost to health care practitioners to address financial barriers to childhood immunization in their medical home.

- Vaccine Cost for < 19 years of age: \$1,105 boys/ \$1,408 girls (Lindley et.al. 2008). Does not include Human Papillomavirus (HPV) vaccine in cost for boys.

New York State VFC Profile

- 2,000+ participating provider sites, 84% private sector.
- \$100 million in vaccines distributed annually.

Proper vaccine management has significant implications due to the high cost of vaccination and the risk of immunizing children with vaccine that is not effective.

VFC Site Visits

- Assess provider compliance with CDC standards.
- 58% received at least one site visit over the two year period 2009 and 2010.
 - 11% of providers were compliant in all high risk areas
 - 25% of providers were compliant in all high risk areas except for a “Do Not Disconnect” sign is on the circuit breaker and that VISs are used and current.

METHODS

Factors associated with providers who have stored vaccine in improper temperature conditions and those who were non-compliant in at least one high risk area as defined by the VFC Provider Site Visit Questionnaire were assessed.

- The results were used to identify non-compliant providers.
- The association between provider compliance with proper vaccine storage temperatures and the following factors were investigated :
 - [Number of Annual Doses Ordered.](#)
 - [Public or Private Sector Status.](#)
 - [Compliance with other High Risk Questions.](#)
 - [Receipt of Site Visit Within the Past Two Years.](#)

Data Sources and Software:

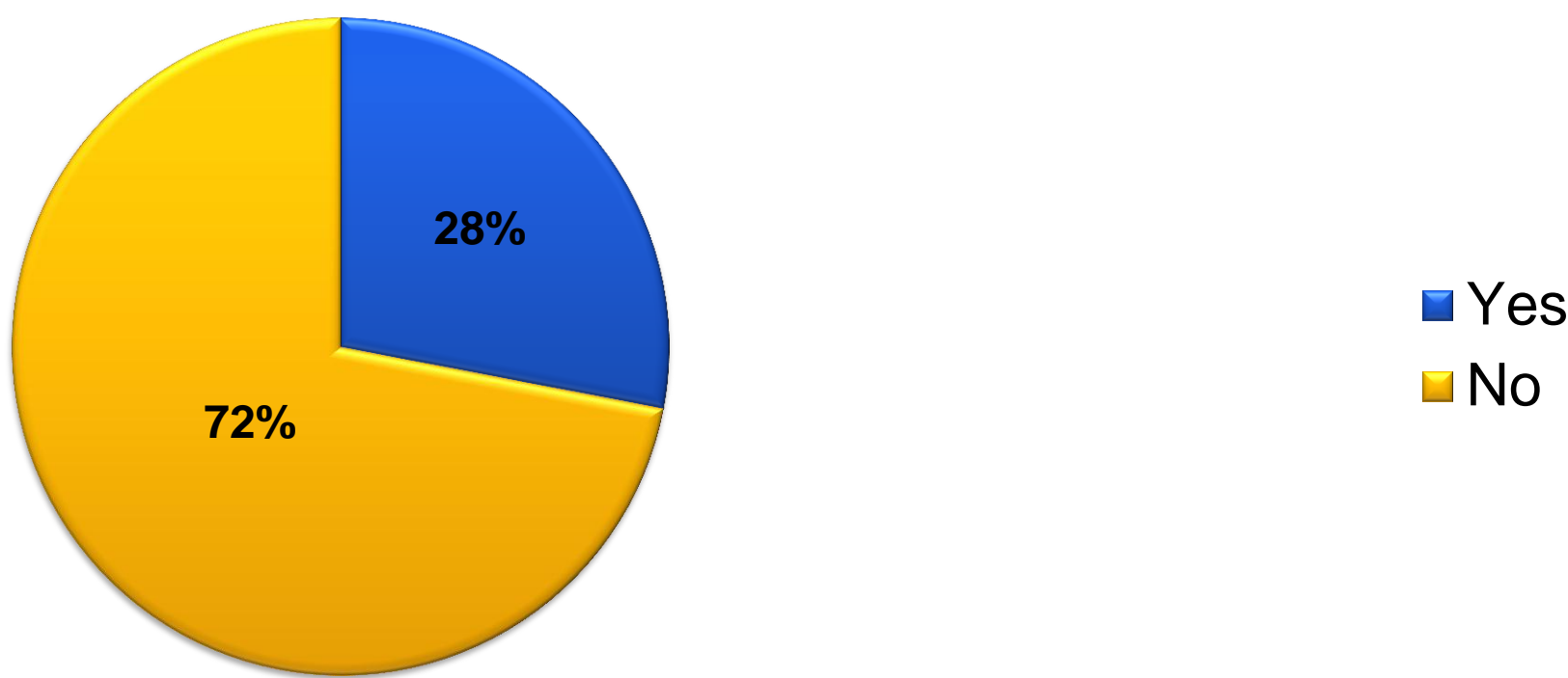
CoCASA, Vaccine Management System (VACMAN)
New York State Vaccine Order Management System (VOMS)
Statistical Analysis Software (SAS), Microsoft Access & Excel

New York State Vaccines for Children Program Factors Associated with Improper Vaccine Management in Provider Offices

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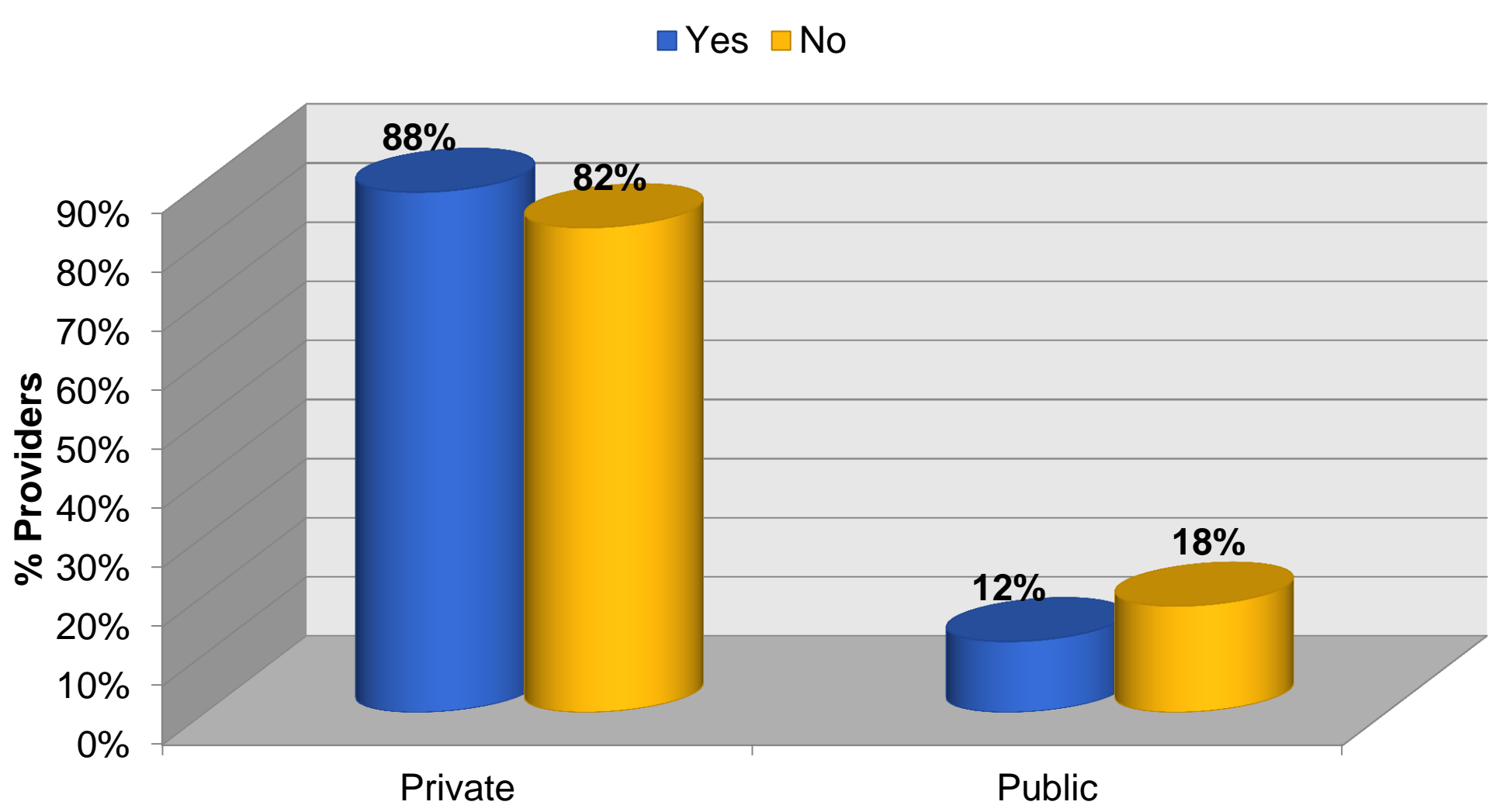
RESULTS

Percent of Providers With Vaccine Storage Temperature Irregularities 2009-2010



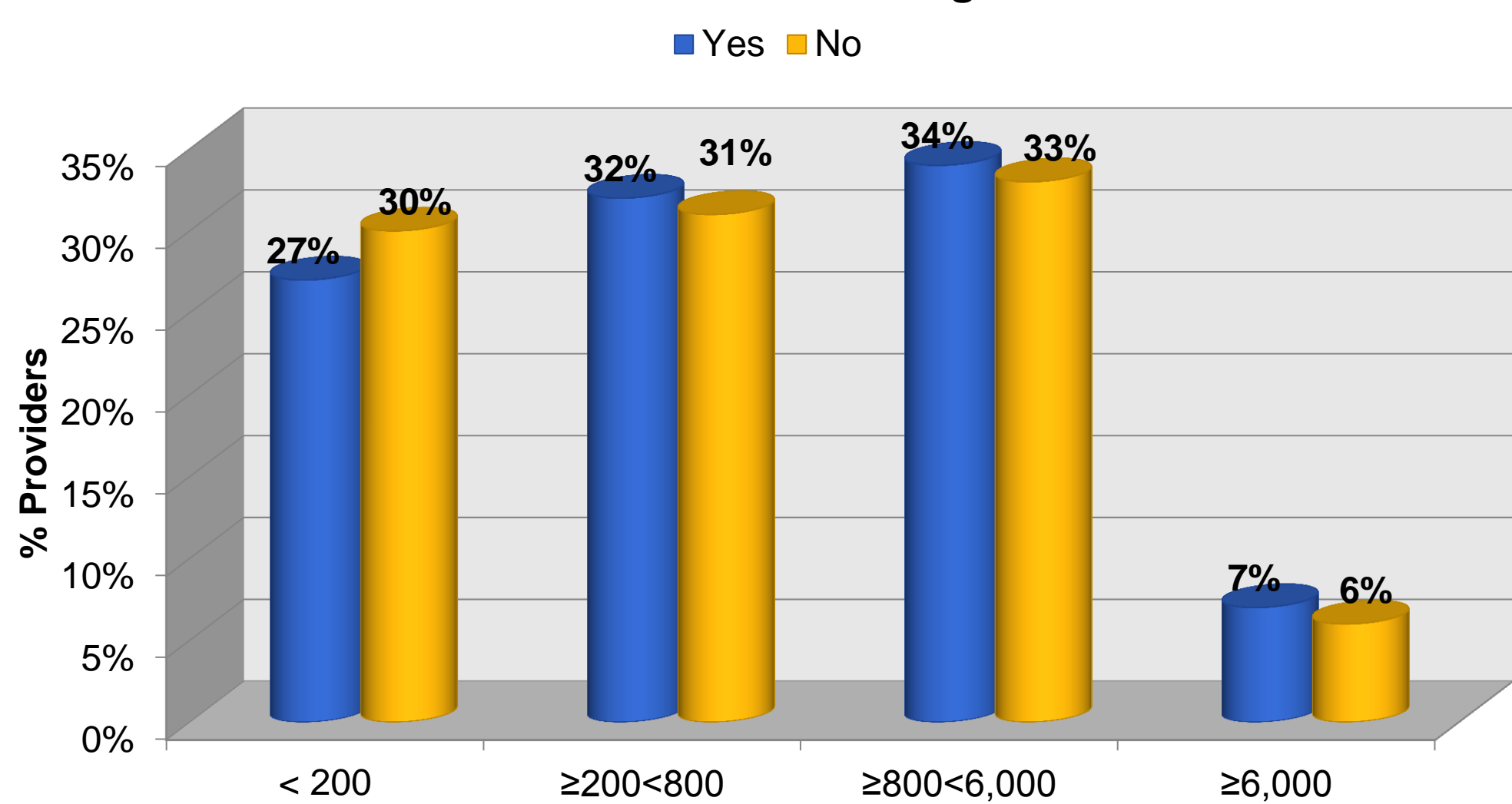
28% (310/1,116) of providers who received a VFC Site Visit in 2009 and 2010 had temperature irregularities in vaccine storage units .

Private and Public Sector Status vs. High Risk Status



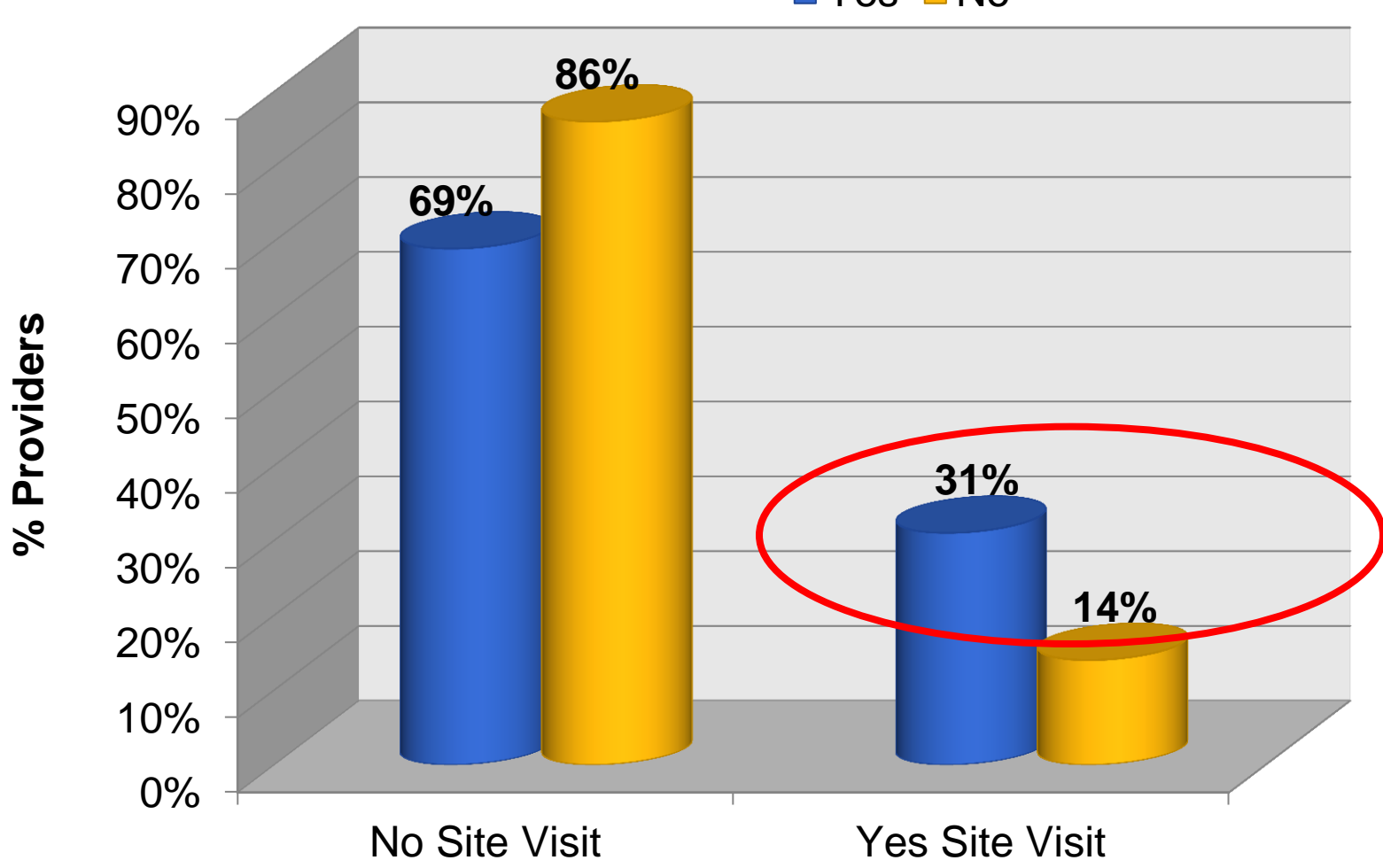
The private and public sector status of providers was marginally associated with temperature irregularities (Chi-Square p-value 0.01).

Number of Doses Ordered vs. High Risk Status



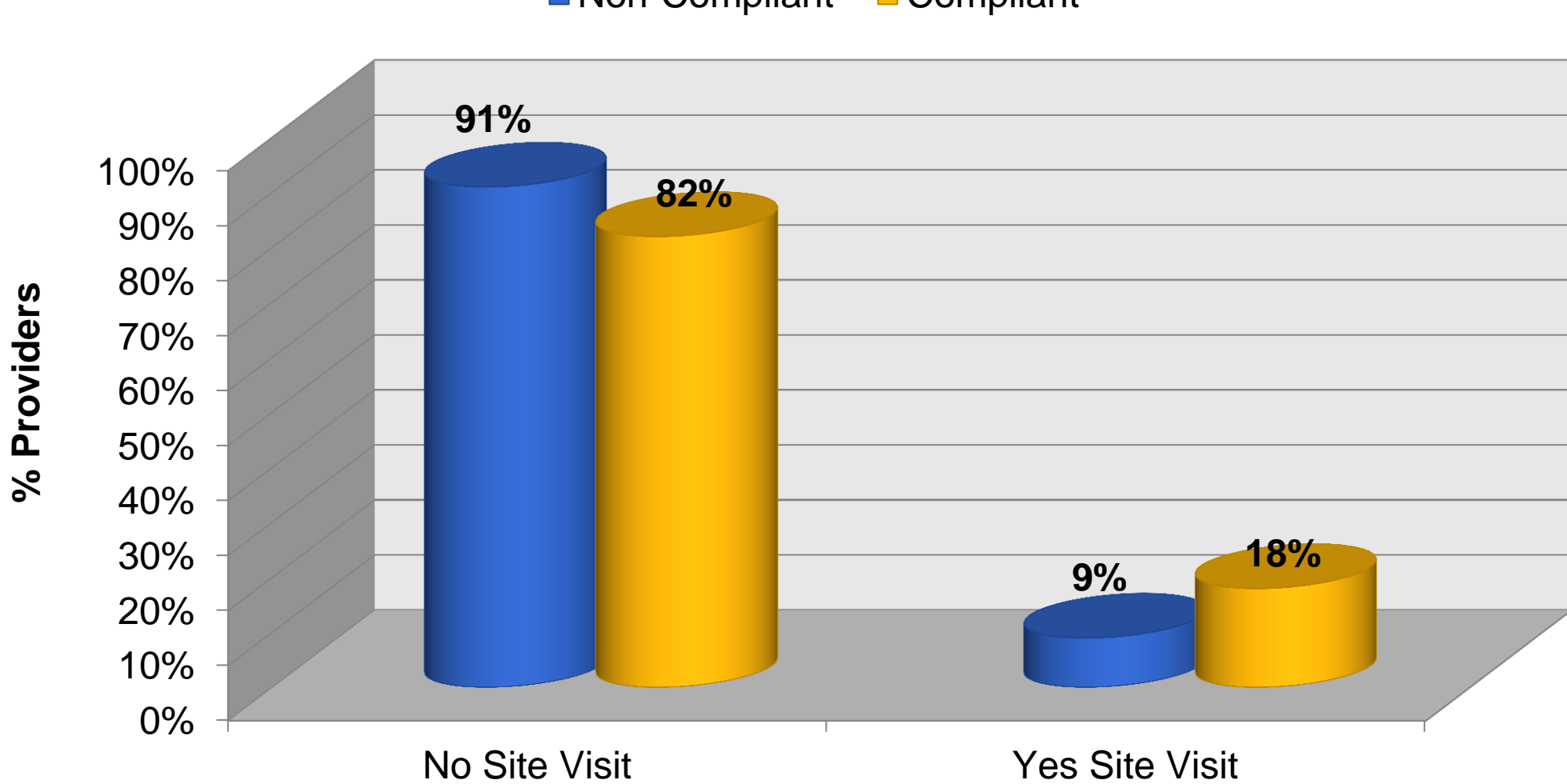
The number of doses ordered annually was not associated with temperature irregularities. (Chi-Square p-value 0.73).

Previous Site Visit Within Two Years of the Latest Visit vs. High Risk Status



Having a site visit within two years of the most recent site visit was associated with temperature irregularities. (Chi-Square p-value 0.0002).

Previous Site Visit Within Two Years of the Latest Visit vs. Full Compliance Rate



Having a site visit within two years of the most recent site visit was associated with compliance to all VFC high risk areas assessed during a site visit. (Chi-Square p-value <.0001).

Compliance rates to all the high risk questions in the VFC Provider Site Visit questionnaire were associated (Chi-square p-value <0.05) with temperature irregularities except for the following:

1. What is the vaccine administration fee charged to non-Medicaid VFC eligible patients?
6. When does the clinic/practice screen for VFC eligibility?
8. When does the clinic/practice prepare vaccine for administration to patients?
22. Is food stored with vaccines in the refrigerator or freezer?

CONCLUSIONS

- Providers in the public sector are less likely to have temperature irregularities than the private sector
- The number of vaccines a provider manages does not impact temperature irregularities.
- Site visits should be supplemented by other interventions.
 - Some providers who had a recent site visit had temperature irregularities.
- Non-compliance with other VFC requirements may be used as a tool to target providers at high risk for temperature irregularities.

To more efficiently and effectively educate and improve compliance rates among the 2000+ VFC provider population multiple methods should be used, including targeted:

- Desk Audits
- Education efforts
- Site visits.

Future studies will guide the development of targeted interventions that will balance the resources available and improve the effectiveness of quality assurance activities.

LIMITATIONS

- Most County Health Departments and Federally Qualified Health Centers were visited annually until 2011.
- Persons completing the VFC site visit questionnaire may have interpreted questions and responses differently leading to inconsistent results.
- Providers with identified vaccine storage and handling problems were more likely to receive site visits.

REFERENCES

- Bell, Karen N., Hogue, Carol J.R. et al. "Risk Factors for Improper Vaccine Storage and Handling in Private Provider Offices." Pediatrics 107:e100 (2001).
- Lindley, Megan C., et al. "Financing The Delivery of Vaccines to Children and Adolescents: Challenges to the Current System." Pediatrics 124 (2009): S548-S557.
- Zimmerman, Richard K, MD, Nowalk, Mary P, PhD, et al. "The Vaccines for Children Program: Policies, Satisfaction, and Vaccine Delivery." American Journal of Preventive Medicine 21.4 (2001): 243-249.