

# INCREASING IMMUNIZATION COMPLIANCE AMONG SCHOOLS AND DAYCARE CENTERS IN D.C.

*Using Tableau to design school-specific immunization compliance reports*



## Target a Priority Outcome

The National Vaccine Program Office in the U.S. Department of Health and Human Services collaborated with OES to identify low-cost,

behaviorally-informed program changes to improve immunization compliance through the application and evaluation of behavioral insights. The Centers for Disease Control and Prevention recommends vaccinations to protect children from sixteen vaccine-preventable diseases.<sup>1</sup>

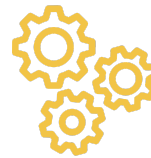


## Translate Evidence-Based Insights

Evidence suggests that report cards providing comparative information can be successful in increasing immunization rates: for

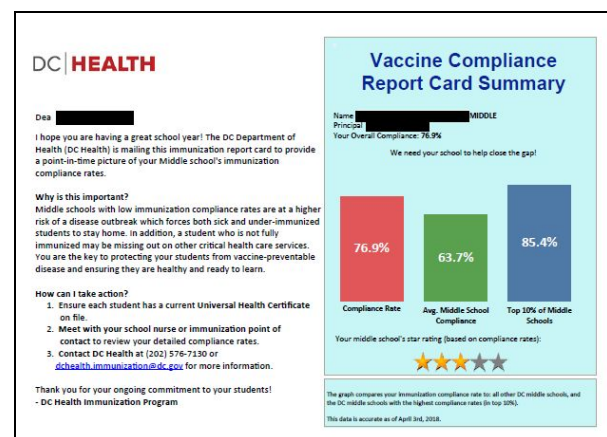
example, healthcare providers who received feedback that compared their performance to top physicians increased flu vaccinations from a rate of 40 percent to a rate of 58 percent.<sup>2</sup> OES and the District of Columbia Department of Health (DC Health) Immunization Program used Tableau data visualization software to design an immunization compliance report card for school leaders highlighting the school's immunization compliance rates compared to other similar schools. These report cards would target only school leadership, who would then use this information to contact parents and families. The comparison rates provided were calculated based on category averages (e.g., day care, elementary, middle, high, etc.), rates observed for the top 10% of schools in

each category, and the district target of 98% compliance. DC Health mailed up-to-date report cards to school leaders once each semester (November 2017 and April 2018).



**Embed Tests** Our sample included 304 schools and 396 Licensed Child Development Centers (LCDC). All education sites were randomly assigned to either

the control condition (status quo with no report card) or the report card treatment condition.



**DC HEALTH**

Become a ★★★★★ middle school!

Start with your greatest opportunity to move the needle.

Your least-compliant vaccine: Human Papillomavirus (80.3%)

Log in to the District of Columbia Immunization Information System (DCIIS) for more information on your compliance rates.

DC Health can provide the following technical assistance to you in your immunization efforts:

- Information on vaccine preventable diseases and immunization requirements
- Access to aggregate and student-level immunization data
- Best practices and tools for increasing rates

Contact the DC Health Immunization Program at (202) 576-7130

**Vaccine Compliance Report ..**

Name: [REDACTED] MIDDLE  
Principal: [REDACTED]  
Enrollment: 324  
Number of students out of compliance: 74

Vaccine	Your School's Compliance (Oct. 2017)	Your School's Compliance (April 2018)	District Target
DT	100.0%	100.0%	98%
DTaP	100.0%	100.0%	98%
Hepatitis A	98.5%	98.4%	98%
Hepatitis B	98.8%	98.8%	98%
Hib	100.0%	100.0%	98%
MMV/MenCV	100.0%	100.0%	98%
Human Papillomavirus	80.3%	80.4%	98%
IPV	99.3%	99.4%	98%
Measles	100.0%	100.0%	98%
Meningococcal	99.7%	99.4%	98%
MMR	99.1%	99.1%	98%
Mumps	100.0%	100.0%	98%
Pneumonia Conj 7	100.0%	100.0%	98%
Pneumonia Conj 13	100.0%	100.0%	98%
Rubella	100.0%	100.0%	98%
Tp	99.1%	99.4%	98%
Tdap	98.8%	97.2%	98%
Varicella	98.5%	98.4%	98%

<sup>1</sup> [Recommended Vaccines by Age](#), Centers for Disease Control and Prevention. Accessed August 2018.

<sup>2</sup> Kiefe, Catarina I., et al. "Improving quality improvement using achievable benchmarks for physician feedback: a randomized controlled trial." *Jama* 285.22 (2001): 2871-2879.

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## Analyze Using Existing Data

DC Health uses the District of Columbia Immunization Information Registry System (DOCIIS) to centrally store immunization records for children

and adults in the District, track immunization compliance and provide immunization data and reports, and provide online access to trainings to immunization histories. We used DOCIIS data to populate report cards for each school and to measure the ultimate impact of the report cards.

information from the report cards to improve targeted technical assistance and develop strategic interventions to improve school compliance rates. We have demonstrated that state, district, and educational policymakers could use an IIS to automate the creation of personalized non-academic report cards.



## Reanalyzed Results

The results suggest that there was no significant difference in compliance rates between treatment and control schools six months post-report card

treatment. Immunization compliance was 76.3% among schools that received the report cards and 76.2% among school that did not ( $p = 0.836$ , 95% CI[-2.30, 2.84]). The same null results hold among day care, elementary, middle, and high schools, and for each vaccine type. This result is consistent with the hypothesis that report cards in the absence of incentives for school leaders are a relatively weak mechanism for stimulating change, a conclusion that is consistent with existing evidence around interventions targeting principals.



## Build Evidence

This study illustrates how state immunization information systems (IIS) can provide school-level data on immunization rates to school

leaders as well as comparative immunization rates across a set of peer schools: The report card template in Tableau is a standalone product available upon request. DC Health has used the