Using Immunization Information System Provider Level Data to Guide VFC Flu Prebooking

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Background

The Vaccines for Children (VFC) program is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of an inability to pay. In Michigan there were 1,222 active providers enrolled in the VFC program, with almost 500,000 children eligible for VFC vaccines as of October 2016.

Using the Michigan Care Improvement Registry (MCIR), Michigan's Immunization Information System (IIS), providers enrolled in the VFC program prebook flu vaccine for the upcoming flu season. On average, Michigan VFC providers only prebooked enough flu vaccine to cover 66% of their VFC population during the 2016-17 flu season. This is problematic as the VFC provider should be ensuring that all of the VFC children enrolled at their office are receiving all recommended vaccines.

In response to this trend, the Division of Immunization created a tool for local health departments to use to share data with VFC providers that showed possible gaps in the number of flu vaccines ordered for their VFC population, and a target number of flu vaccine doses they would need to vaccinate 70% and 100% of their VFC population. There were three objectives for this project:

1) Increase the number of flu vaccine doses prebooked by VFC providers
2) Increase flu vaccination coverage among children ages 6 months to 17 years of age
3) Educate VFC providers and local health departments on the gaps in flu vaccination coverage among their VFC populations

Flu Prebooking Tool Methods

- Discussions were held via conference call to determine what data would be most helpful for VFC providers making decisions during the flu prebooking process
- Variables were chosen at the request of the Immunization coordinators and Immunization leads at local health departments
- Focus was to create a tool that was straightforward for the end users (immunization coordinators, local health department staff, and VFC providers)
- Tool consisted of VFC provider level data broken down by county
- Each column had a title heading and a description of exactly what data were provided. Columns in the tool included:

VFC Pin Number	Targets for 2017-18 Prebooking
VFC Provider Site Name	2015-16 Doses Prebooked
VFC Provider County	2015-16 % of VFC Pop. Covered*
VFC Provider Population	2015-16 Doses Administered
2016-17 Flu Doses Prebooked	2015-16 % of Prebooked Used
2016-17 % of VFC Pop. Covered*	2015-16 VFC Pop Coverage

*Percent of population covered is defined as the percent of a provider's VFC population that could be covered if all prebooked flu doses were administered

Methods

- Data from the MCIR were analyzed to determine provider level data:
  - VFC Population
  - Flu vaccine doses administered by VFC providers during the 2015-16 flu season (July 1, 2015 – June 30, 2016)
  - Flu vaccine doses prebooked by VFC providers for the 2015-16 flu season and the 2016-17 flu season (July 1, 2016 – June 30, 2017)
- Further analysis was done to compile data in a spreadsheet which also included:
  - Percent of population covered (if all doses prebooked for a season were administered) for the 2015-16 and 2016-17 flu seasons
  - Target prebooking (70% and 100%) for the 2017-18 flu season (July 1, 2017 – June 30, 2018)
  - 2015-16 percent of prebooked doses that were used
  - 2015-16 VFC population coverage
- The tool was distributed in January 2017 to local health departments to assist VFC providers' prebooking for the 2017-18 flu season
- Once 2017-18 flu prebooking was closed, a paired-samples t-test was conducted to compare the number of flu vaccines prebooked for the 2016-17 season and the number of flu vaccines prebooked for the 2017-18 flu season
- A paired-samples t-test was also conducted to compare the percent of VFC population that could be covered if all prebooked flu doses were administered in the 2017-18 flu season and the percent of VFC population that could be covered if all prebooked flu doses were administered in 2016-17 flu season
- A one question survey was distributed to all local health departments during a statewide Immunization Coordinators meeting, which asked, "How did you use the Flu Prebooking Tool to guide your VFC providers during the flu prebooking process"?
  - Distributed the Flu Prebooking Tool directly to Providers
  - Reached out to individual providers to discuss the Flu Prebooking Tool
  - Combination of Both

	A	B	C	D	E	F	G	H
1	VFC Pin	Provider Site Name	County	VFC Population	2016-2017 Flu Doses Prebooked	2016-2017% Population Covered	Target for 2017-2018 Prebooking - 70% (rounded to nearest 10)	Target for 2017-2018 Prebooking - 100% (rounded to nearest 10)
2				This is a providers VFC population in MCIR as of October 2016.	This is the number of flu doses that were prebooked for the 2016-2017 flu season (a blank cell is 0 doses ordered).	This number is the % of VFC population that would be covered if all of the prebooked flu doses were used.	This is how many doses you would need to prebook for the 2017-2018 season to cover 70% of your VFC population, rounded to the nearest 10 as that is how you order doses.	This is how many doses you would need to prebook for the 2017-1208 season to cover 100% of your VFC population, rounded to the nearest 10 as that is how you order doses.
3			Alcona	2	20	1000.0%	10	10
4			Alcona	176	120	68.2%	130	180
5			Alcona	75	110	146.7%	60	80
6			Alcona	187	140	74.9%	140	190

	A	J	K	L	M	N	O
1	VFC Pin	HISTORICAL DATA:	2015-2016 Doses Ordered	2015-2016 % Population Covered (if all doses used)	2015-2016 Doses Administered	2015-2016% of Order Used	2015-2016 VFC Population Coverage
2			This is how many doses were prebooked for the 2015-2016 season.	This number is the % of VFC population that would be covered if all of the prebooked flu doses were used.	This is the number of doses that were administered and recorded in MCIR as VFC doses.	This is the % of ordered VFC doses that were used (2015-2016 doses administered divided by 2015-2016 doses ordered).	This is the percent of your VFC population that was given a flu shot during the 2015-2016 season.
3				0.0%	11	0.0%	550.0%
4			220	125.0%	104	47.3%	59.1%
5			100	133.3%	47	47.0%	62.7%
6			140	74.9%	142	101.4%	75.9%

*VFC Pin and Provider Site Name have been blocked out for confidentiality purposes

Results of the Local Health Department Survey

The survey was given to all local health departments that attended the MDHHS Spring 2017 Immunization Coordinators meeting. Responses were collected from 29 local health departments, out of 45 total local health departments in Michigan. Results indicate that most local health departments used a combination of both distributing the tool to providers, and also having conversations with individual providers. The two local health departments that answered "other" said that they used the tool to review provider's flu prebooking orders to ensure enough doses were prebooked.

Distribute to Providers Directly	46%
Discuss with Providers Individually	21%
Combination of Both	25%
Other	7%

Results

There were 1,222 providers enrolled in the VFC program that reported a VFC population in October 2016. The average VFC provider population was 404, ranging from 1 to 6,006. For the 2016-17 flu season, an average of 205 doses were prebooked, ranging from 0 to 3,350. In comparison, the 2017-18 flu season, following the distribution of the Flu Prebooking Tool, the average number of flu doses prebooked was 230, with a range from 0 to 3,610.

There was a statistically significant increase in the number of flu vaccines doses prebooked for the 2017-18 flu season (M=229.8, SD=361.5) compared to the 2016-17 flu season (M=204.6, SD=330.2); t(1221)=5.49, p<.0001.

There was also a statistically significant increase in the percent of VFC population that each provider could cover, if they administered all of the flu vaccine that they prebooked for the 2017-18 flu season (M=0.74, SD=2.0) compared to the 2016-17 flu season (M=0.66, SD=1.8); t(1221)=2.66, p=.008.

These results suggest that the use of the Flu Prebooking Tool increased the number of flu vaccine doses that were prebooked by Michigan VFC providers, and increased the percent of VFC population a VFC provider could cover if all of the prebooked doses were administered from 66% to 74%.

Discussion

The use of the Flu Prebooking Tool led to an increase in the number of flu vaccine doses that were prebooked for the 2017-18 flu season, and an increase in the percent of VFC population a VFC provider could cover if all of the prebooked doses were administered. The tool was designed to provide a target prebook amount to encourage providers to prebook enough flu vaccine to cover at least 70% of their VFC population. While it is not guaranteed that providers will use these doses, the goal of Flu Prebooking Tool was achieved. Results of the survey showed that the majority of local health departments used the information provided to help guide their VFC providers during the prebooking process. Based on feedback, the Flu Prebooking Tool will be disseminated earlier in the prebooking process so that local health departments have sufficient time to work with VFC providers in their counties. Moving forward, analysis will be done on the number of doses administered in comparison to how many were prebooked to determine if VFC providers are making use of the increased number of flu vaccine doses they receive.

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