

The IQIP site visit begins with a high-level walk-through of the provider’s vaccination workflow. The IQIP consultant and provider then review the provider’s initial coverage data. Specifically, they:

- Identify vaccines to target for coverage improvement,
- Set coverage goals to work toward throughout the yearlong IQIP process,
- Choose two or more quality improvement (QI) strategies to increase vaccine uptake, and
- Create a Strategy Implementation Plan of action items assigned to appropriate personnel that are necessary for the successful implementation of the QI strategies chosen.

The IQIP 2- and 6-month check-ins and 12-month follow-up focus on reviewing implementation progress and updating the Strategy Implementation Plan with new or revised action items. The 12-month follow-up also includes review and interpretation of year-over-year (YOY) coverage data.

This document focuses on the interpretation of coverage data for five example providers who begin the IQIP process with identical coverage but end up with different 12-month coverage outcomes.

## Initial Assessment

**Providers 1–5** start out with identical coverage (table on the right). The following points emerge after reviewing their initial assessments.

- All providers have room to improve overall vaccine uptake since coverage for all vaccines assessed is well below 100%.
- Some providers cite poor immunization information system (IIS) data quality and claim their actual coverage is higher.
- Nonetheless, opportunities for improvement exist—even if the providers are right that the IIS source data are imperfect.
- For instance, Vaccine B coverage is well below that of Vaccines A and C. Providers should aim to increase Vaccine B uptake.

Data quality issues *can* influence coverage calculations, *usually* affecting results for all vaccines to a similar degree (rather than causing substantially lower coverage for just one or a few vaccines).

**Providers 1–5.** All have identical initial coverage.

Variable	Initial assessment
<b>Assessment info</b>	
“As of” date	8/8/2019
<b>Coverage</b>	
Vaccine A	83%
Vaccine B	64%
Vaccine C	85%

Consultants can often draw meaningful insights from imperfect vaccination data. The intent of the initial assessment is to work with available data to reveal overall patterns and to identify outliers. Consultants may find the following points helpful when talking to providers with IIS data concerns:

- If the provider is right that their actual coverage is higher than the assessment indicates, they may select the “leverage IIS” strategy and work through the IQIP year to improve data quality. This will improve coverage assessment accuracy at the 12-month follow-up and beyond.

- The “leverage IIS” strategy is not an option when (a) the IIS is not yet functional, or (b) the provider is not interested in IIS-focused QI. In these cases, the provider and consultant may opt to review EHR-based coverage data instead, as long as the provider’s EHR has the capacity to generate coverage data and the provider (not the consultant) runs the reports.

## 12-Month Follow-Up

Data for the five providers diverged after 12 months, leaving varying outcomes to evaluate. Interpretation of coverage data for **Provider 1** (on the right) is straightforward. The cohort size (that is, the denominator) started and ended the IQIP year at 114 age-eligible patients. The provider’s coverage did not change, either. Provider 1, therefore, shows no evidence of increased uptake of the vaccines assessed. **Provider 2** and **Provider 3** would each receive credit for impressive YOY progress if reviewing only coverage (top, black numbers for each vaccine in the tables below). Both posted 8 and 9 percentage point (ppt) increases for Vaccines A and C, respectively, and a huge 18 ppt increase for Vaccine B. But the similarities end when considering coverage with denominator data. **Provider 2** had a steady cohort size for the year (114 patients). Thus, Provider 2’s coverage increases reflect increases in patients vaccinated (bottom, blue numbers below; equal to coverage multiplied by denominator). In one year, Provider 2 increased uptake of Vaccines A, B, and C by 9%, 27%, and 10%, respectively. Provider 3, meanwhile, administered Vaccines A, B, and C to fewer patients during the year (-20%, -7%, and -20%, respectively). Their vaccination coverage increases stem largely from a 27% denominator decrease after inactivating patients from the IIS, with one exception—Vaccine B. While the numbers of patients who received Vaccines A and C dropped steeply (-20% each), Provider 3 mostly negated this trend for Vaccine B (-7%), an indication of meaningful progress. Provider 2 also deserves praise for Vaccine B progress, which far exceeded their already impressive Vaccine A and C results.

**Provider 1.** No change in denominator or coverage.

Variable	Initial assessment	12-month follow-up	YOY change
<b>Assessment info</b>			
“As of” date	8/8/2019	8/11/2020	12.1 mo.
No. age-eligible patients total	114	114	0%
<b>Coverage</b>			
Vaccine A	83%	83%	0 ppt
Vaccine B	64%	64%	0 ppt
Vaccine C	85%	85%	0 ppt

**Provider 2.** No change in denominator or coverage.

Variable	Initial assessment	12-month follow-up	YOY change
<b>Assessment info</b>			
“As of” date	8/8/2019	8/11/2020	12.1 mo.
No. age-eligible patients total	114	114	0%
<b>Coverage</b>			
<b>No. patients vaccinated</b>			
Vaccine A	83% 95	91% 104	+8 ppt +9%
Vaccine B	64% 73	82% 93	+18 ppt +27%
Vaccine C	85% 97	94% 107	+9 ppt +10%

**Provider 3.** Decrease in denominator and increase in coverage.

Variable	Initial assessment	12-month follow-up	YOY change
<b>Assessment info</b>			
“As of” date	8/8/2019	8/11/2020	12.1 mo.
No. age-eligible patients total	114	83	-27%
<b>Coverage</b>			
<b>No. patients vaccinated</b>			
Vaccine A	83% 95	91% 76	+8 ppt -20%
Vaccine B	64% 73	82% 68	+18 ppt -7%
Vaccine C	85% 97	94% 78	+9 ppt -20%

**Provider 4** and **Provider 5** also ended the IQIP year with smaller denominators, each dropping 11% (see tables below). However, unlike Provider 3, these providers did not see a decrease in vaccinated patients (blue numbers below). Provider 4 held steady (0% YOY change) for all three vaccines, yet coverage increased by 8 ppt for Vaccine B and 10 ppt for Vaccines A and C. Interpretation of these results hinges on the reason for the drop from 114 to 102 patients. If the drop reflects a “natural” dip in population—that is, if 12 fewer patients aged into the assessment cohort during the year—then these results point to vaccination performance gains by Provider 4. This conclusion may change if the cohort size decreased because Provider 4 inactivated patients from the IIS. Evidence would still point to improved performance if coverage of inactivated patients was the same or similar to coverage of active patients (that is because YOY coverage increased with no “help” from the patient inactivation). On the other hand, if all or most of the inactivated patients were unvaccinated, then Provider 4’s coverage increases came primarily from a shrinking denominator, not improved performance.

The Provider 4 scenario is the most challenging to interpret, but evaluation of Provider 5 is easier. Provider 5 ended with a decreased denominator and increased coverage, just like Providers 3 and 4. Inactivating patients from the IIS shrinks the denominator and can sometimes cause an “artificial” increase in calculated coverage even if actual vaccine uptake did not increase (again, see Providers 3 and 4). But inactivating patients cannot cause the YOY increase in number of vaccinated patients seen for Provider 5. Provider 5 increased uptake of all vaccines despite its decrease in patient numbers.

**Provider 4.** Decrease in denominator and no change in number of patients vaccinated.

Variable	Initial assessment	12-month follow-up	YOY change
<b>Assessment info</b>			
“As of” date	8/8/2019	8/11/2020	12.1 mo.
No. age-eligible patients total	114	114	0%
<b>Coverage</b> <b>No. patients vaccinated</b>			
Vaccine A	83% <b>95</b>	91% <b>104</b>	+8 ppt <b>+9%</b>
Vaccine B	64% <b>73</b>	82% <b>93</b>	+18 ppt <b>+27%</b>

**Provider 5.** Decrease in denominator and increase in number of patients vaccinated.

Variable	Initial assessment	12-month follow-up	YOY change
<b>Assessment info</b>			
“As of” date	8/8/2019	8/11/2020	12.1 mo.
No. age-eligible patients total	114	83	-27%
<b>Coverage</b> <b>No. patients vaccinated</b>			
Vaccine A	83% <b>95</b>	91% <b>76</b>	+8 ppt <b>-20%</b>
Vaccine B	64% <b>73</b>	82% <b>68</b>	+18 ppt <b>-7%</b>

## Conclusion

Evaluation of YOY coverage data is generally uncomplicated when cohort sizes are relatively stable (see Providers 1 and 2), a common scenario among providers. Yet IQIP encourages providers to add upkeep of IIS data to their routine workflows, and that can result in fewer active patients and can complicate data interpretation. Still, consultants can usually share valuable insights with providers by interpreting coverage data and denominator data together, as reviewed here with Providers 1–5.