

# IIS-TIPS Summary Report

Quarter 3, 2017

Awardee: Site A

End of Reporting Period: 09/30/2017

File Submitted: 10/27/2017

Report Generated: 03/12/2018

---

## Contents

- Comments.....2
- Summary.....3
- Patient Participation in the IIS for Persons Aged <18 Years .....4
- Timeliness: Vaccination Record Reporting .....5
- Timeliness: Demographic Record Reporting .....6
- Vaccination Coverage Among Children Aged 19–35 Months.....7
- Vaccination Coverage Among Persons Aged 13–17 Years .....8
- HPV Vaccination Coverage Among Persons Aged 13–17 Years .....9
- Completeness: Vaccinations Administered to Children Born in the Current Quarter .....10
- Completeness: Vaccinations Administered to Persons Aged <18 Years .....10
- Accuracy: Invalid Demographic Data for Persons Aged <18 Years .....11
- Accuracy: Invalid Vaccination Data for Persons Aged <18 Years .....11
- Improbable Vaccinations.....12
- Dose Validity: Percentage of Invalid Doses among Persons Aged <18 Years.....13
- Appendix A: Summary Report Dates .....14
- Appendix B: Purpose, Definitions, Calculations, Usage .....15
- Appendix C: Additional References .....24

## Comments

| Section   | Comment |
|---|---------|
| Overall   |         |
| Summary   |         |
| Patient Participation in the IIS for Persons Aged <18 Years                     |         |
| Timeliness: Vaccination Record Reporting  |         |
| Timeliness: Demographic Record Reporting  |         |
| Vaccination Coverage Among Children Aged 19–35 Months                           |         |
| Vaccination Coverage Among Persons Aged 13–17 Years                             |         |
| HPV Vaccination Coverage Among Persons Aged 13–17 Years                         |         |
| Completeness: Vaccinations Administered to Children Born in the Current Quarter |         |
| Completeness: Vaccinations Administered to Persons Aged <18 Years               |         |
| Accuracy: Invalid Demographic Data for Persons Aged <18 Years                   |         |
| Accuracy: Invalid Vaccination Data for Persons Aged <18 Years                   |         |
| Improbable Vaccinations   |         |
| Dose Validity: Percentage of Invalid Doses among Persons Aged <18 Years         |         |

## Summary

Table 1: Summary Data — Current Quarter

|   | Quarter 3, 2017 |      |             |           |
|---|-----------------|------|-------------|-----------|
|   | A               |      | Other Sites |           |
| <b>Demographic Records</b>                              | n               | %    | %           | Min–Max % |
| Demographic Records Submitted                           | 223,577         | —    | —           | —         |
| ! Demographic Records Deleted Due to Error <sup>a</sup> | 5,300           | 2.37 | 0.02        | 0.00–0.12 |
| <b>Vaccination Records</b>                              | n               | %    | %           | Min–Max % |
| VAX Records Submitted                                   | 4,741,228       | —    | —           | —         |
| ! VAX Records Deleted Due to Error <sup>b</sup>         | 130,288         | 2.75 | 0.38        | 0.00–1.03 |
| Not-processed or NVP VAX Records                        | 373             | 0.01 | 0.15        | 0.08–0.19 |
| VAX Records Deleted Due to Deduplication                | 14,745          | 0.31 | 0.82        | 0.32–1.37 |

! Value is 0.1% larger than expected based on previous quarter data.

Table 2: Summary Data — Current and Previous Four Quarters for Awardee

| Site A  | Q3<br>2016<br>% | Q4<br>2016<br>% | Q1<br>2017<br>% | Q2<br>2017<br>% | Q3<br>2017<br>% |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Demographic Records</b>                            |                 |                 |                 |                 |                 |
| Demographic Records Deleted Due to Error <sup>a</sup> | 0.00            | 0.00            | 2.02            | 2.12            | 2.37            |
| <b>Vaccination Records</b>                            |                 |                 |                 |                 |                 |
| VAX Records Deleted Due to Error <sup>b</sup>         | 0.12            | 0.13            | 2.35            | 2.46            | 2.75            |
| Not-processed or NVP VAX Records                      | 0.01            | 0.01            | 0.01            | 0.01            | 0.01            |
| VAX Records Deleted Due to Deduplication              | 0.36            | 0.35            | 0.35            | 0.34            | 0.31            |

<sup>a</sup> Demographic records are deleted if they contain a missing or duplicate patient ID, missing or invalid date of birth, Duplicate Patient ID missing or invalid grantee, or missing region.

<sup>b</sup> Vaccination records are deleted if they report a non - administered or refused vaccination, contain a missing patient ID, missing or invalid vaccination date, missing or invalid CVX and CPT codes, if there is no associated demographic record, or the associated demographic record has been flagged for deletion based on the criteria above.

[Purpose, definitions, calculations](#)

### Patient Participation in the IIS for Persons Aged <18 Years

Table 3: Patient Participation in the IIS — Quarter 3, 2017

| Age Group     | A      |    | Other Sites |           |
|---------------|--------|----|-------------|-----------|
|               | n      | %  | %           | Min–Max % |
| 19 – 35 mos   | 14,219 | 89 | 98          | 96–104    |
| 4 mos – 5 yrs | 57,221 | 93 | 100         | 98–107    |
| 11 – 17 yrs   | 51,913 | 84 | 89          | 84–104    |

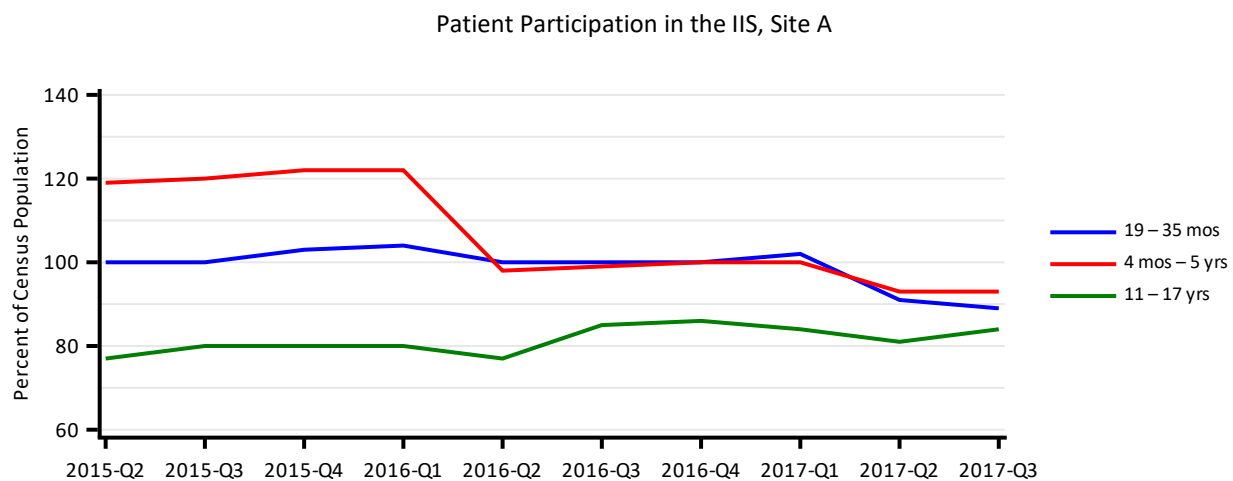


Figure 1: Patient Participation in the IIS — Current and Previous Quarters

[Purpose, definitions, calculations](#)

### Timeliness: Vaccination Record Reporting

Table 4: Timeliness of Vaccination Record Reporting — Children Born in Quarter 3, 2017

| Time from vaccine administration to entry into IIS | A      |    | Other Sites |           |
|--|--------|----|-------------|-----------|
|  | n      | %  | %           | Min–Max % |
| ≤1 day   | 54,667 | 89 | 87          | 80–95     |
| >1 day to ≤7 days                                  | 4,342  | 7  | 9           | 4–16      |
| >7 days to ≤14 days                                | 1,628  | 3  | 2           | 1–3       |
| >14 days to ≤30 days                               | 391    | 1  | 1           | 0–2       |
| >30 days   | 395    | 1  | 2           | 0–5       |

Timeliness of Vaccination Record Reporting, Site A

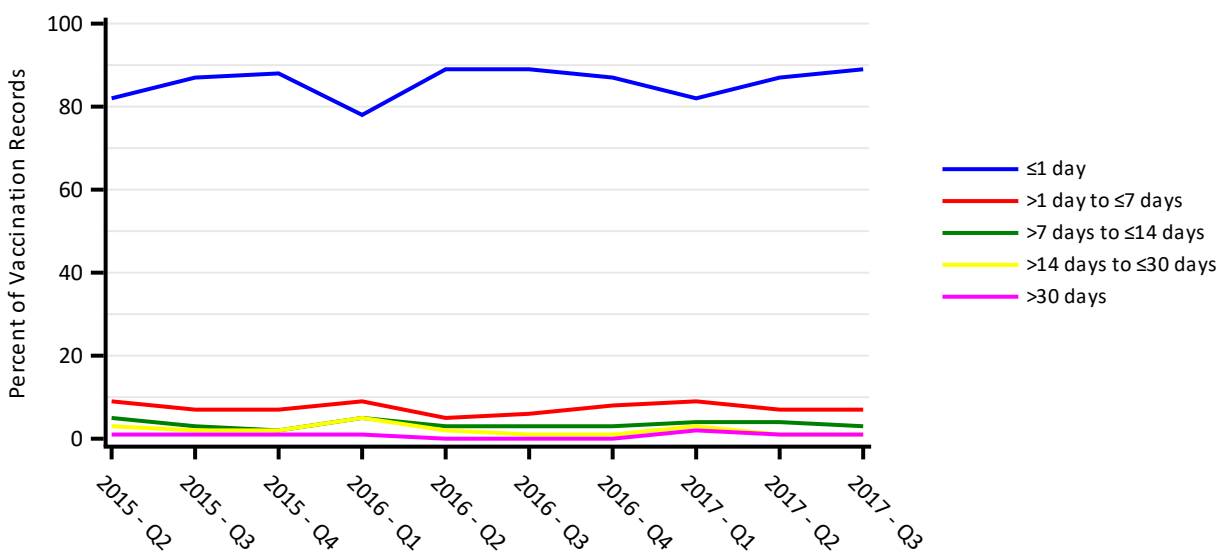


Figure 2: Timeliness of Vaccination Record Reporting — Children Born in Q3 2017<sup>a</sup> and Previous Quarters

<sup>a</sup> Data for Q3 2017 are not complete: no data for higher number of day ranges yet submitted.

[Purpose, definitions, calculations](#)

## Timeliness: Demographic Record Reporting

Table 5: Timeliness of Demographic Record Reporting — Children Born in Quarter 3, 2017

| Time from birth to establishment of an IIS demographic record | A     |    | Other Sites |           |
|---|-------|----|-------------|-----------|
|   | n     | %  | %           | Min–Max % |
| ≤ 1 day   | 204   | 7  | 16          | 3–41      |
| > 1 day to ≤ 7 days   | 1,028 | 36 | 42          | 27–60     |
| > 7 days to ≤ 14 days   | 1,068 | 38 | 28          | 21–37     |
| > 14 days to ≤ 30 days  | 335   | 12 | 8           | 5–12      |
| > 30 days to ≤ 45 days  | 36    | 1  | 2           | 1–5       |
| > 45 days   | 177   | 6  | 4           | 3–5       |

Timeliness of Demographic Record Reporting, Site A

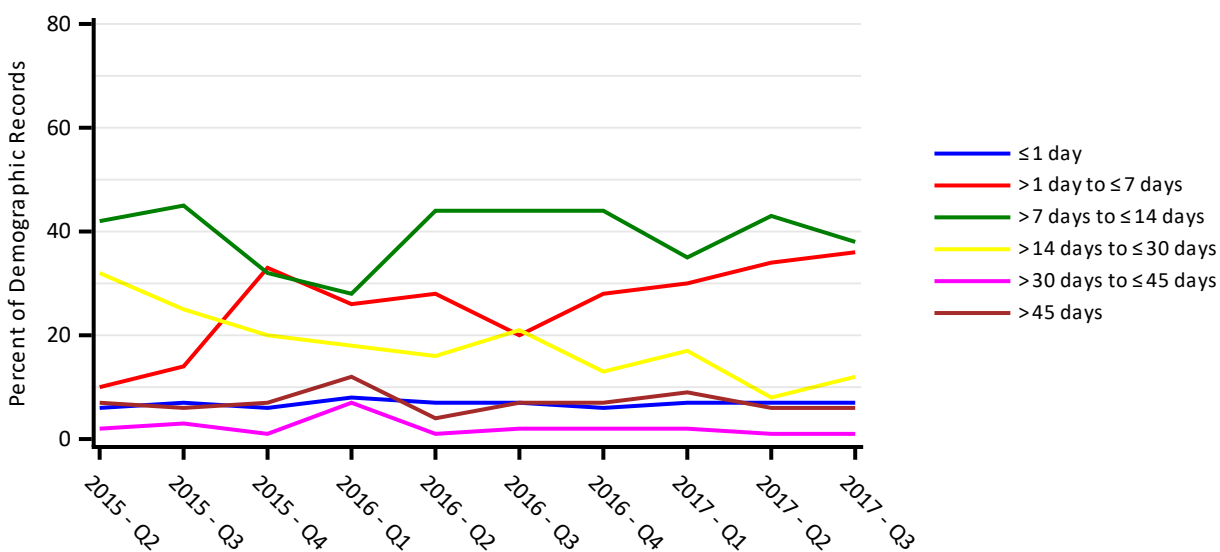


Figure 3: Timeliness of Demographic Record Reporting — Children Born in Q3 2017<sup>a</sup> and Previous Quarters

<sup>a</sup> Data for Q3 2017 are not complete: no data for higher number of day ranges yet submitted.

[Purpose, definitions, calculations](#)

## Vaccination Coverage Among Children Aged 19–35 Months

Table 6: Vaccination Coverage among Children Aged 19 – 35 Months

| Vaccine Doses              | Quarter 3, 2017 |      |             |           | 2016: NIS Data   |   |
|----------------------------|-----------------|------|-------------|-----------|------------------|---|
|                            | A               |      | Other Sites |           | NIS <sup>d</sup> |   |
|                            | n               | %    | %           | Min–Max % | %(95% CI)        |   |
| 3+DTaP                     | 13,366          | 83.5 | 90.5        | 88.7–93.1 | 90.9 (86.1–95.7) | ✗ |
| 4+DTaP                     | 11,787          | 73.6 | 78.2        | 75.6–81.7 | 82.4 (76.1–88.7) | ✗ |
| 3+ Polio                   | 13,273          | 82.9 | 88.5        | 85.8–90.7 | 90.0 (85.1–94.9) | ✗ |
| Hib UTD <sup>a</sup>       | 11,361          | 71.0 | 76.0        | 70.1–80.1 | 78.3 (71.5–85.1) | ✗ |
| 1+ HepB by Age 3 Days      | 12,869          | 80.4 | 77.3        | 73.4–84.6 | 83.4 (77.7–89.1) | ✓ |
| 3+ HepB                    | 13,363          | 83.5 | 88.3        | 83.4–90.6 | 89.3 (84.4–94.2) | ✗ |
| 3+ Pneumo                  | 13,247          | 82.7 | 88.7        | 86.6–90.5 | 87.1 (81.6–92.6) | ✓ |
| 4+ Pneumo                  | 11,982          | 74.8 | 76.3        | 73.4–80.8 | 81.0 (74.5–87.5) | ✓ |
| 1+ MMR                     | 13,052          | 81.5 | 87.5        | 85.1–89   | 89.2 (84–94.4)   | ✗ |
| 1+ VAR <sup>b</sup>        | 12,832          | 80.2 | 85.9        | 83.1–88.1 | 88.7 (83.5–93.9) | ✗ |
| Rotavirus UTD <sup>c</sup> | 11,268          | 70.4 | 72.5        | 69.7–76.4 | 74.6 (67.5–81.7) | ✓ |
| 2+ HepA                    | 9,569           | 59.8 | 57.5        | 51.5–59.7 | 65.7 (58.3–73.1) | ✓ |
| 4313314 Series             | 10,618          | 66.3 | 67.4        | 61.7–73.1 | 68.2 (60.6–75.8) | ✓ |

<sup>a</sup> At least 4 doses of Hib-containing vaccines or 2 doses of Hib-Merck followed by 1 dose of Hib of any type.

<sup>b</sup> Administered at or after 12 months of age.

<sup>c</sup> 2+ Rotarix or 3+ RotaTeq.

<sup>d</sup> Based on National Immunization Survey, 2016. Point estimate ± 95% confidence interval (CI). The checkmark indicates awardee site data are within the confidence interval of NIS data.

▼ or ▲ indicate at least 2% decrease or increase from the previous quarter (Q2 2017).

[Purpose, definitions, calculations](#)

## Vaccination Coverage Among Persons Aged 13–17 Years

Table 7: Vaccination Coverage among Persons Aged 13–17 Years of Age

| Vaccine Doses                       | Quarter 3, 2017 |       |             |            | 2016: NIS Data          |   |
|-------------------------------------|-----------------|-------|-------------|------------|-------------------------|---|
|                                     | A               |       | Other Sites |            | NIS - Teen <sup>a</sup> |   |
|                                     | n               | %     | %           | Min–Max %  | %(95% CI)               |   |
| 1+ Tdap                             | 38,926          | 90.1  | 96.1        | 90.7–107.4 | 92.0 (88.3–95.7)        | ✓ |
| History of Varicella Disease        | 2,277           | 5.3   | 2.5         | 1.4–3.6    | 20.4 (14.8–26)          | ✗ |
| 1+ VAR w/ no history of varicella   | 41,831          | 96.9  | 109.5       | 98.5–132.8 | 94.9 (91.7–98.1)        | ✓ |
| 2+ VAR w/ no history of varicella   | 38,187          | 88.4  | 91.9        | 82.3–102.2 | 91.7 (87.2–96.2)        | ✓ |
| 1+ VAR or with history of varicella | 44,108          | 102.1 | 112.1       | 99.9–135.3 | N/A                     | ✗ |
| 2+ VAR or with history of varicella | 40,464          | 93.7  | 94.5        | 83.7–104.7 | 93.4 (89.8–97)          | ✓ |
| 3+ HepB                             | 43,646          | 101.1 | 104.8       | 89.6–120.1 | 93.0 (89.6–96.4)        | ✗ |
| 2+ MMR                              | 41,775          | 96.7  | 99.4        | 88.2–111.7 | 92.7 (88.8–96.6)        | ✗ |
| 1+ HPV (Females only)               | 14,740          | 69.7  | 70.5        | 63.5–81.3  | 68.3 (58.8–77.8)        | ✓ |
| ▲ 1+ HPV (Males only)               | 14,052          | 63.8  | 63.9        | 57.2–77    | 66.9 (58.4–75.4)        | ✓ |
| ▲ 1+ HPV (Total)                    | 29,178          | 67.6  | 67.2        | 60.9–79.1  | 67.6 (61.3–73.9)        | ✓ |
| HPV UTD <sup>b</sup> – Females only | 11,431          | 54.1  | 48.3        | 40.6–59.7  | 60.2 (50.4–70)          | ✓ |
| HPV UTD <sup>b</sup> – Males only   | 10,144          | 46.0  | 40.5        | 30.7–53.7  | 45.5 (36.4–54.6)        | ✓ |
| HPV UTD <sup>b</sup> – Total        | 21,842          | 50.6  | 44.3        | 35.6–56.6  | 52.7 (46–59.4)          | ✓ |
| 1+ MenACWY                          | 38,423          | 89.0  | 89.9        | 82.7–102.8 | 92.0 (88.4–95.6)        | ✓ |

<sup>a</sup> Based on National Immunization Survey - Teen, 2016. Point estimate  $\pm$ 95% CL. The checkmark indicates awardee site data are within the confidence limits of NIS-Teen data.

<sup>b</sup> Two or three doses according to ACIP's recommendations.

▼ or ▲ indicate at least 2% decrease or increase from the previous quarter (Q2 2017).

[Purpose, definitions, calculations](#)

## HPV Vaccination Coverage Among Persons Aged 13–17 Years

<sup>a</sup> Error bars for other sites are the minimum and maximum coverage among the other sites.

[Purpose, definitions, calculations](#)

## Completeness: Vaccinations Administered to Children Born in the Current Quarter

Table 8: Vaccinations Administered in the Current Quarter to Children Born in the Current Quarter

| Data Element                       | Quarter 3, 2017 |             |           |
|------------------------------------|-----------------|-------------|-----------|
|                                    | A               | Other Sites |           |
| <b>Demographic Elements</b>        | %               | %           | Min–Max % |
| Sex                                | 100             | 100         | 100–100   |
| Race                               | 74              | 83          | 59–96     |
| Ethnicity                          | 65              | 52          | 2–89      |
| <b>Vaccine Elements</b>            | %               | %           | Min–Max % |
| Vaccine manufacturer               | 84              | 84          | 70–93     |
| Vaccine lot number                 | 100             | 94          | 85–97     |
| VFC eligibility of the vaccination | 100             | 83          | 58–96     |

## Completeness: Vaccinations Administered to Persons Aged &lt;18 Years

Table 9: All Vaccinations Administered in the Past to All Persons Aged &lt;18 Years

| Data Element                       | Quarter 3, 2017 |             |           |
|------------------------------------|-----------------|-------------|-----------|
|                                    | A               | Other Sites |           |
| <b>Demographic Elements</b>        | %               | %           | Min–Max % |
| Sex                                | 98              | 100         | 99–100    |
| Race                               | 78              | 71          | 50–89     |
| Ethnicity                          | 73              | 53          | 1–88      |
| <b>Vaccine Elements</b>            | %               | %           | Min–Max % |
| Vaccine manufacturer               | 66              | 47          | 36–57     |
| Vaccine lot number                 | 100             | 48          | 42–59     |
| VFC eligibility of the vaccination | 100             | 46          | 9–70      |

## Accuracy: Invalid Demographic Data for Persons Aged &lt;18 Years

Table 10: Accuracy: Invalid Demographic Data for Persons Aged &lt;18 Years — Current quarter

| Category                       | Quarter 3, 2017 |      |             |           |
|--------------------------------|-----------------|------|-------------|-----------|
|                                | A               |      | Other Sites |           |
|                                | n               | %    | %           | Min–Max % |
| Sex                            | 0               | 0.00 | 0.00        | 0–0       |
| Race                           | 0               | 0.00 | 0.00        | 0–0       |
| Ethnicity                      | 0               | 0.00 | 0.00        | 0–0       |
| Registry status (e.g. MOGE)    | 0               | 0.00 | 0.00        | 0–0       |
| VFC eligibility                | 0               | 0.00 | 0.00        | 0–0       |
| Demographic establishment date | 5               | 0.00 | 0.00        | 0–0.01    |

"—" indicates no data submitted

## Accuracy: Invalid Vaccination Data for Persons Aged &lt;18 Years

Table 11: Accuracy: Invalid Vaccination Data for Persons Aged &lt;18 Years — Current quarter

| Category  | Quarter 3, 2017 |      |             |           |
|---|-----------------|------|-------------|-----------|
|   | A               |      | Other Sites |           |
|   | n               | %    | %           | Min–Max % |
| Invalid MVX or MVX inconsistent with CVX                    | 56,518          | 1.28 | 1.54        | 0.9–2.15  |
| Invalid trade name code or trade name inconsistent with CVX | 0               | 0.00 | 0.16        | 0–0.76    |
| Invalid route or route inconsistent with CVX                | 0               | 0.00 | 0.29        | 0–0.62    |
| Invalid administrative site or site inconsistent with route | 0               | 0.00 | 2.74        | 0–5.27    |
| VFC eligibility   | 0               | 0.00 | 0.00        | 0–0       |
| Provider characteristic                                     | 0               | 0.00 | 0.00        | 0–0       |
| Vaccine entry date  | 947             | 0.02 | 0.01        | 0–0.01    |
| Record type (i.e. administered or historical)               | 0               | 0.00 | 0.00        | 0–0       |
| Vaccine completion  | 0               | 0.00 | 0.00        | 0–0       |
| Vaccine refusal   | 0               | 0.00 | 0.00        | 0–0       |

"—" indicates no data submitted

## Improbable Vaccinations

Table 12: Improbable Vaccinations Administered in the Current Quarter and in the Previous Quarter

| 3yr Trend | Improbable Dose Conditions  | Quarter 3, 2017 |      |             |           | Quarter 2, 2017 |      |             |           |
|-----------|---|-----------------|------|-------------|-----------|-----------------|------|-------------|-----------|
|           |   | A               |      | Other Sites |           | A               |      | Other Sites |           |
|           | Min/max age (BR 130)  | n               | %    | %           | Min-Max % | n               | %    | %           | Min-Max % |
| ↘         | Rotavirus vaccine to a child >8 months  | 1               | 0.00 | 0.06        | 0.01–0.24 | 6               | 0.03 | 0.07        | 0.02–0.28 |
| ↘         | DTaP to a child ≥7 years  | 30              | 0.08 | 0.10        | 0.06–0.19 | 12              | 0.05 | 0.10        | 0.05–0.20 |
| ↘         | HepA (adult formulation) to a child <19 years                                   | 25              | 0.07 | 0.15        | 0.10–0.19 | 25              | 0.11 | 0.18        | 0.09–0.27 |
| ↘         | HepB (adult formulation) to a child <19 years                                   | 6               | 0.02 | 0.28        | 0.04–0.89 | 7               | 0.03 | 0.40        | 0.07–1.37 |
| ↘         | Tdap/Td to a child <7 years   | 6               | 0.02 | 0.02        | 0.01–0.02 | 3               | 0.01 | 0.02        | 0.01–0.02 |
| ↘         | Vaccine administration date within 30 days of birth for any vaccine except HepB | 0               | 0.00 | 0.01        | 0.00–0.01 | 2               | 0.01 | 0.01        | 0.00–0.02 |
| ↘         | PPV to a child <2 years   | 0               | 0.00 | 0.00        | 0.00–0.01 | 2               | 0.01 | 0.01        | 0.00–0.01 |
|           | <b>Discontinued vax /outside licensure in the US</b>                            |                 |      |             |           |                 |      |             |           |
| ↘         | HPV vaccine to a male administered before 2009                                  | 0               | 0.00 | 0.00        | 0.00–0.00 | 0               | 0.00 | 0.00        | 0.00–0.00 |
| ↘         | Hib PRP-D (CVX code 46) administered after 2000                                 | 0               | 0.00 | 0.00        | 0.00–0.00 | 0               | 0.00 | 0.00        | 0.00–0.00 |
| ↘         | DTP containing vaccines administered after 1997                                 | 1               | 0.00 | 0.01        | 0.00–0.03 | 2               | 0.01 | 0.02        | 0.00–0.05 |
| ↘         | OPV after 2000  | 3               | 0.01 | 0.01        | 0.00–0.02 | 2               | 0.01 | 0.01        | 0.00–0.03 |
| ↘         | Whole cell influenza virus vaccine administered after 2002                      | 1               | 0.00 | 0.00        | 0.00–0.01 | 0               | 0.00 | 0.00        | 0.00–0.01 |
| ↘         | RotaShield administered after 1999  | 0               | 0.00 | 0.01        | 0.00–0.06 | 0               | 0.00 | 0.02        | 0.00–0.11 |
| ↘         | HibTITER (CVX code 47) administered after 2007                                  | 1               | 0.00 | 0.04        | 0.00–0.11 | 0               | 0.00 | 0.06        | 0.00–0.23 |
| —         | Infanrix-Hexa vaccine (CVX code 132)  | 0               | 0.00 | 0.00        | 0.00–0.00 | 0               | 0.00 | 0.00        | 0.00–0.00 |
|           | <b>BR 128</b>   |                 |      |             |           |                 |      |             |           |
| ↘         | Children with >35 vax by age 2 years  | 0               | 0.00 | 0.04        | 0.00–0.20 | 0               | 0.00 | 0.04        | 0.00–0.16 |
| —         | Children with >50 vax by age 5 years  | 0               | 0.00 | 0.01        | 0.00–0.07 | 0               | 0.00 | 0.01        | 0.00–0.06 |
| —         | Children with >70 total vax   | 0               | 0.00 | 0.00        | 0.00–0.01 | 0               | 0.00 | 0.00        | 0.00–0.00 |
|           | <b>BR 129</b>   |                 |      |             |           |                 |      |             |           |
| ↘         | Children with >7 DTaP by age 7 years  | 12              | 0.03 | 0.08        | 0.02–0.21 | 6               | 0.03 | 0.06        | 0.01–0.13 |
|           | <b>BR 132</b>   |                 |      |             |           |                 |      |             |           |
| —         | Children with >10 vax on the same day   | 0               | 0.00 | 0.00        | 0.00–0.00 | 0               | 0.00 | 0.00        | 0.00–0.00 |

[Purpose, definitions, calculations](#)

## Dose Validity: Percentage of Invalid Doses among Persons Aged &lt;18 Years

Table 13: Dose Validity — Current and Previous Quarters

| <b>Quarter 3, 2017</b>                                       |              |              |              |              |             |              |              |              |              |              |              |              |             |              |                    |  |
|--|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------------|--|
| Reason   | HepA         | HepB         | Hib          | HPV          | Flu         | MMR          | Mening       | PCV          | Polio        | Rota         | DTaP         | Tdap         | Td          | Var          | Total <sup>a</sup> |  |
| Percent invalid determined by IIS                            | 1.22         | 1.47         | 0.82         | 0.47         | 0.65        | 0.61         | 0.55         | 0.37         | 0.64         | 0.62         | 0.69         | 0.35         | 9.12        | 0.58         | 0.79               |  |
| Percent invalid determined by TIPS (for one or more reasons) | 1.64         | 2.53         | 2.03         | 0.67         | 0.42        | 1.11         | 2.42         | 1.61         | 5.92         | 0.75         | 0.89         | 0.40         | 7.88        | 1.04         | 2.00               |  |
| <b>Validity difference between IIS and TIPS</b>              | <b>-0.42</b> | <b>-1.06</b> | <b>-1.21</b> | <b>-0.20</b> | <b>0.23</b> | <b>-0.50</b> | <b>-1.87</b> | <b>-1.24</b> | <b>-5.28</b> | <b>-0.13</b> | <b>-0.20</b> | <b>-0.05</b> | <b>1.23</b> | <b>-0.46</b> | <b>-1.20</b>       |  |
| Minimum age violation  | 0.33         | 0.06         | 0.34         | 0.13         | 0.15        | 0.36         | 2.33         | 0.15         | 5.65         | 0.03         | 0.80         | 0.24         | 4.81        | 0.24         | 1.07               |  |
| Minimum interval violation                                   | 0.87         | 0.61         | 0.10         | 0.20         | 0.10        | 0.01         | 0.06         | 0.14         | 0.43         | 0.01         | 0.41         | 0.16         | 3.55        | 0.01         | 0.29               |  |
| Live vaccine violation                                       | 0.00         | 0.00         | 0.00         | 0.00         | 0.05        | 0.16         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.22         | 0.03               |  |
| Product violation  | 0.00         | 0.00         | 0.13         | 0.04         | 0.00        | 0.00         | 0.00         | 0.82         | 0.00         | 0.20         | 0.00         | 0.08         | 0.63        | 0.00         | 0.12               |  |
| Maximum age violation  | 0.00         | 0.00         | 0.10         | 0.00         | 0.00        | 0.00         | 0.00         | 0.22         | 0.00         | 0.40         | 0.00         | 0.00         | 0.00        | 0.00         | 0.06               |  |
| Extraneous dose  | 0.59         | 1.91         | 1.47         | 0.31         | 0.16        | 0.61         | 0.09         | 0.36         | 0.21         | 0.12         | 0.00         | 0.00         | 0.03        | 0.57         | 0.59               |  |
| <b>Quarter 2, 2017</b>                                       |              |              |              |              |             |              |              |              |              |              |              |              |             |              |                    |  |
| Reason   | HepA         | HepB         | Hib          | HPV          | Flu         | MMR          | Mening       | PCV          | Polio        | Rota         | DTaP         | Tdap         | Td          | Var          | Total <sup>a</sup> |  |
| Percent invalid determined by IIS                            | 1.26         | 1.51         | 0.97         | 0.50         | 0.67        | 0.61         | 0.27         | 0.37         | 0.64         | 0.62         | 0.69         | 0.37         | 9.31        | 0.60         | 0.82               |  |
| Percent invalid determined by TIPS (for one or more reasons) | 1.65         | 2.52         | 2.06         | 0.73         | 0.42        | 1.12         | 2.51         | 1.62         | 5.82         | 0.76         | 0.90         | 0.41         | 8.23        | 1.05         | 2.00               |  |
| <b>Validity difference between IIS and TIPS</b>              | <b>-0.39</b> | <b>-1.01</b> | <b>-1.09</b> | <b>-0.22</b> | <b>0.25</b> | <b>-0.51</b> | <b>-2.24</b> | <b>-1.25</b> | <b>-5.18</b> | <b>-0.13</b> | <b>-0.20</b> | <b>-0.04</b> | <b>1.08</b> | <b>-0.45</b> | <b>-1.18</b>       |  |
| Minimum age violation  | 0.33         | 0.07         | 0.35         | 0.14         | 0.15        | 0.36         | 2.44         | 0.15         | 5.56         | 0.02         | 0.81         | 0.24         | 4.99        | 0.25         | 1.06               |  |
| Minimum interval violation                                   | 0.87         | 0.61         | 0.10         | 0.21         | 0.10        | 0.01         | 0.07         | 0.14         | 0.43         | 0.01         | 0.41         | 0.16         | 3.68        | 0.01         | 0.29               |  |
| Live vaccine violation                                       | 0.00         | 0.00         | 0.00         | 0.00         | 0.05        | 0.16         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00        | 0.22         | 0.03               |  |
| Product violation  | 0.00         | 0.01         | 0.15         | 0.05         | 0.00        | 0.00         | 0.00         | 0.84         | 0.00         | 0.20         | 0.00         | 0.08         | 0.67        | 0.00         | 0.12               |  |
| Maximum age violation  | 0.00         | 0.00         | 0.10         | 0.00         | 0.00        | 0.00         | 0.00         | 0.22         | 0.00         | 0.40         | 0.00         | 0.00         | 0.00        | 0.00         | 0.06               |  |
| Extraneous dose  | 0.59         | 1.89         | 1.49         | 0.34         | 0.16        | 0.61         | 0.07         | 0.35         | 0.21         | 0.12         | 0.00         | 0.00         | 0.03        | 0.57         | 0.59               |  |

<sup>a</sup> Denominators for 'Total' dose validity percentages are all vaccination records assigned to any vaccine group.

TIPS has partially integrated dose validity logic defined by the Clinical Decision Support for Immunization (CDSi) and will be implementing additional improvement to increase CDSi compliance.

Values in red represent negative differences between TIPS and IIS values.

[Purpose, usage, calculations](#)

## Appendix A: Summary Report Dates

Table 15: Summary Report Dates

| Quarter               | End of Reporting Period | Reporting Deadline | Birth Cohort             |
|-----------------------|-------------------------|--------------------|--------------------------|
| <b>Past Reports</b>   |                         |                    |                          |
| Q2014 Q3              | 09/30/2014              | 10/31/2014         | 10/01/1995 to 09/30/2014 |
| Q2014 Q4              | 12/31/2014              | 01/31/2015         | 01/01/1996 to 12/31/2014 |
| Q2015 Q1              | 03/31/2015              | 04/30/2015         | 04/01/1996 to 03/31/2015 |
| Q2015 Q2              | 06/30/2015              | 07/31/2015         | 07/01/1996 to 06/30/2015 |
| Q2015 Q3              | 09/30/2015              | 10/31/2015         | 10/01/1996 to 09/30/2015 |
| Q2015 Q4              | 12/31/2015              | 01/31/2016         | 01/01/1997 to 12/31/2015 |
| Q2016 Q1              | 03/31/2016              | 04/30/2016         | 04/01/1997 to 03/31/2016 |
| Q2016 Q2              | 06/30/2016              | 07/31/2016         | 07/01/1997 to 06/30/2016 |
| Q2016 Q3              | 09/30/2016              | 10/31/2016         | 10/01/1997 to 09/30/2016 |
| Q2016 Q4              | 12/31/2016              | 01/31/2017         | 01/01/1998 to 12/31/2016 |
| Q2017 Q1              | 03/31/2017              | 04/30/2017         | 04/01/1998 to 03/31/2017 |
| Q2017 Q2              | 06/30/2017              | 07/31/2017         | 07/01/1998 to 06/30/2017 |
| <b>Current Report</b> |                         |                    |                          |
| Q2017 Q3              | 09/30/2017              | 10/31/2017         | 10/01/1998 to 09/30/2017 |
| <b>Future Reports</b> |                         |                    |                          |
| Q2017 Q4              | 12/31/2017              | 01/31/2018         | 01/01/1999 to 12/31/2017 |
| Q2018 Q1              | 03/31/2018              | 04/30/2018         | 04/01/1999 to 03/31/2018 |
| Q2018 Q2              | 06/30/2018              | 07/31/2018         | 07/01/1999 to 06/30/2018 |
| Q2018 Q3              | 09/30/2018              | 10/31/2018         | 10/01/1999 to 09/30/2018 |
| Q2018 Q4              | 12/31/2018              | 01/31/2019         | 01/01/2000 to 12/31/2018 |
| Q2019 Q1              | 03/31/2019              | 04/30/2019         | 04/01/2000 to 03/31/2019 |
| Q2019 Q2              | 06/30/2019              | 07/31/2019         | 07/01/2000 to 06/30/2019 |

## Appendix B: Purpose, Definitions, Calculations, Usage

| Appendix: Summary |   |
|-------------------|---|
| Purpose           | To provide a summary of the demographic and vaccination records submitted and processed in the current and previous quarters.   |
| Definitions       | Deduplication – algorithms based on MIROW guidelines were used to remove duplicate copies of vaccination records.   |
| Calculations      | <p>Demographic records are deleted if they contain a missing or duplicate patient ID, missing or invalid date of birth, Duplicate Patient ID missing or invalid grantee, or missing region.</p> <p>Vaccination records are deleted if they report a non-administered or refused vaccination, contain a missing patient ID, missing or invalid vaccination date, missing or invalid CVX and CPT codes, if there is no associated demographic record, or the associated demographic record has been flagged for deletion based on the criteria above.</p> |

[RETURN>>](#)

| Appendix: Patient Participation in the IIS for Persons Aged <18 Years |   |
|---|---|
| Purpose   | To provide the percentage of persons with immunization records in the IIS.  |
| Definitions   | Patient Participation - is defined as a person, having at least two doses of vaccine recorded in the IIS, excluding H1N1 and travel vaccines. Of note, for adolescents, only vaccine doses administered from 9–17 years are counted.  |
| Calculations  | <p>The 2016 Census data are used as denominators.</p> <p>Child Participation</p> <p>Include:</p> <ul style="list-style-type: none"> <li>• All doses (valid and invalid) administered.</li> </ul> <p>Exclude:</p> <ul style="list-style-type: none"> <li>• Children with addresses outside of your state or geopolitical area. Geopolitical area is defined as the area that contains the population of children residing in the geopolitical location covered by the IIS.</li> <li>• Inactive children in IIS. Children are considered inactive for this report if they are (1) inactive permanently, or (2) have moved or gone elsewhere from the geopolitical area covered by the IIS.</li> <li>• Demographic records belonging to those with only an H1N1 vaccination record.</li> <li>• H1N1 vaccines administered</li> <li>• Travel vaccines (yellow fever, typhoid, etc.) See: <a href="https://wwwnc.cdc.gov/travel/page/yellowbook-home">https://wwwnc.cdc.gov/travel/page/yellowbook-home</a></li> <li>• Non-vaccine products (e.g. immune globulins, PPD)</li> </ul> <p>Adolescent Participation</p> <p>Include:</p> <ul style="list-style-type: none"> <li>• All doses (valid and invalid) administered by the end of reporting period.</li> <li>• Adolescent doses ONLY if they were administered from age 9 through 17 years. Only include: Tdap/Td, HPV, meningococcal, seasonal influenza, pneumococcal, HepA, HepB, polio, MMR, and varicella. (<a href="https://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html#printable">https://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html#printable</a>)</li> </ul> <p>Exclude:</p> <ul style="list-style-type: none"> <li>• Doses administered to adolescents before the child's 9th birthday.</li> <li>• Adolescents with addresses outside of your state or geopolitical area. Geopolitical area is defined as the area that contains the population of adolescents residing in the geopolitical location covered by the IIS.</li> <li>• Inactive adolescents in IIS. Adolescents are considered inactive for this report if they are (1) inactive permanently, or (2) have moved or gone elsewhere from the geopolitical area covered by the IIS.</li> <li>• Demographic records belonging to those with only an H1N1 vaccination record.</li> <li>• H1N1 vaccines administered</li> <li>• Travel vaccines (yellow fever, typhoid, etc.) See: <a href="http://wwwnc.cdc.gov/travel/page/yellowbook-home">http://wwwnc.cdc.gov/travel/page/yellowbook-home</a></li> <li>• Non-vaccine products (e.g. immune globulins, PPD)</li> </ul> |

[RETURN>>](#)

| Appendix: Timeliness of Vaccination Reporting |   |
|---|---|
| Purpose                                       | To provide reporting timeliness of vaccination records administered to children who were born in the previous 13 quarters   |
| Definitions                                   | The percentage of vaccination records that were administered to a child born in the previous quarters that were reported to the IIS the same day or the day after, within 2–7 days, within 8–14 days, within 15–30 days, and at 31 days or greater.   |
| Calculations                                  | <p>Include:</p> <ul style="list-style-type: none"> <li>• All doses (valid and invalid)</li> </ul> <p>Exclude:</p> <ul style="list-style-type: none"> <li>• Inactive persons in IIS. Persons are considered inactive for the purposes of this reporting if they are (1) inactive permanently, or (2) have moved or gone elsewhere at a jurisdictional level.</li> <li>• Persons with addresses outside of your state or geopolitical area. Geopolitical Area is defined as the area that contains the population of people residing in the geopolitical location covered by the IIS.</li> <li>• H1N1 vaccines administered and demographic records belonging to those with only an H1N1 vaccination record.</li> <li>• Travel vaccines (yellow fever, typhoid, etc.) See: <a href="http://wwwnc.cdc.gov/travel/page/yellowbook-home-2016">http://wwwnc.cdc.gov/travel/page/yellowbook-home-2016</a></li> <li>• Historical records</li> <li>• Non-vaccine products</li> </ul> |

[RETURN>>](#)

| <b>Appendix: Timeliness of Demographic Reporting</b> |  |
|--|--|
| Purpose  | To provide reporting timeliness of demographic records of children born in previous 13 quarters that were established in an IIS.   |
| Definitions  | The percentage of demographic records of children born in the previous quarters that were established in an IIS the same day or the day after, within 2–7 days, within 8 –14 days, within 15–30 days, within 31–45 days, and at 46 days or greater.  |
| Calculations   | <p>Include:</p> <ul style="list-style-type: none"><li>• Children born in previous 13 quarters.</li></ul> <p>Exclude:</p> <ul style="list-style-type: none"><li>• Children who are known to have been born outside the state/city</li><li>• Children known to have been residing outside of the jurisdiction at the date of birth.</li><li>• Inactive children in IIS. Children are considered inactive for the purposes of this reporting if they are (1) inactive permanently, or (2) have moved or gone elsewhere at a jurisdictional level.</li></ul> |

[RETURN>>](#)

| Appendix: Vaccination Coverage Among Children Aged 19–35 Months |   |
|---|---|
| Purpose   | To provide coverage of routine vaccinations among children aged 19 – 35 months.   |
| Definitions   | <p>Coverage is defined as the number of individuals in a certain age group who received an immunization(s) divided by the Census-based estimate of persons in that age group in the awardee site area. Definitions of each coverage metric are consistent with NIS.</p> <p>Children were included in this cohort if they are aged 19–35 months as of the end of reporting period. This is according to the point in time assessment method in analytic guide for assessing vaccination coverage using an IIS (<a href="http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf">http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf</a>).</p> |
| Calculations  | <p>All administered doses were included regardless of validity.</p> <p>NIS data were used as the reference. The checkmark indicates awardee site data are within the confidence interval of NIS data.</p>   |

[RETURN>>](#)

| Appendix: Vaccination Coverage Among Persons Aged 13–17 Years |   |
|---|---|
| Purpose   | To provide coverage of routine vaccinations among children aged 13 – 17 years.  |
| Definitions   | <p>Coverage is defined as the number of individuals in a certain age group who received an immunization(s) divided by the Census-based estimate of persons in that age group in the awardee site area. Definitions of each coverage metric are consistent with NIS except for HPV coverage.</p> <p>Adolescents were included in this cohort if they are aged 13 – 17 years as of the end of reporting period. This is according to the point in time assessment method in analytic guide for assessing vaccination coverage using an IIS (<a href="http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf">http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf</a>).</p> |
| Calculations  | <p>All administered doses were included regardless of validity except for HPV UTD coverage, only valid doses were counted.</p> <p>NIS data were used as the reference. The checkmark indicates awardee site data are within the confidence interval of NIS data.</p>  |

[RETURN>>](#)

| Appendix: HPV Vaccination Coverage Among Persons Aged 13–17 Years |  |
|---|--|
| Purpose   | To provide coverage of HPV vaccination among persons aged 13 – 17 years.   |
| Definitions   | Adolescents were included in this cohort if they are aged 13 – 17 years as of the end of reporting period. This is according to the point in time assessment method in analytic guide for assessing vaccination coverage using an IIS ( <a href="http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf">http://www.immregistries.org/resources/other-aira-resources/Analytic_Guide_for_Assessing_Vaccination_Coverage_Using_an_IIS.pdf</a> ). |
| Calculations  | <p>Only valid doses were included.</p> <p>Both two-dose and three-dose schedules, as recommended by ACIP, were included in the up-to-date status calculation.</p> <p>Data were compared with the NIS-Teen (2016) data.</p>   |

[RETURN>>](#)

| Appendix: Improbable Vaccinations |   |
|-----------------------------------|---|
| Purpose                           | To provide the percentage of children who received improbable vaccinations in the current and previous quarters. The trends of the past 3 years are displayed as spark lines.   |
| Definitions                       | Improbable doses included vaccines administered outside minimum or maximum ages, administration of discontinued vaccines or vaccines not licensed in the U.S., and excessive total vaccine doses. Applicable business rules can be found in Data Quality Assurance in Immunization Information Systems: Incoming Data for business rules at <a href="http://www.immregistries.org/AIRA_MIROW_Chap3_DQA_02112008.pdf">http://www.immregistries.org/AIRA_MIROW_Chap3_DQA_02112008.pdf</a>   |
| Calculations                      | <p>"Current Quarter" measurements describe persons with improbable vaccinations occurring during the quarter, excluding demographic and vaccination records with critical errors. Denominators for "Current Quarter" measurements are counts of all demographic records for persons 0 through 18 years of age, at the end of the reporting period, who received at least one vaccination administered during the quarter, excluding records with critical errors.</p> <p>"Previous Quarter" measurements describe persons with improbable vaccinations occurring during the quarter immediately preceding the current quarter, excluding demographic and vaccination records with critical errors. Denominators for "Previous Quarter" measurements are counts of all demographic records for persons 0 through 18 years of age at the end of the reporting period who received at least one vaccination, administered during the previous quarter, excluding records with critical errors.</p> |

[RETURN>>](#)

| Appendix: Dose Validity |  |
|-------------------------|--|
| Purpose                 | To provide the percentages of invalid doses administered during the current and previous quarters according to TIPS and individual IIS, respectively.  |
| Usage                   | TIPS is currently partially compliant with CDSi but is projected to be fully compliant with CDSi within a year. Therefore, the difference between TIPS and IIS should be interpreted with caution.                         |
| Calculations            | The percentage of invalid doses for all reasons for vaccine groups is calculated by dividing the number of invalid vaccination records by total vaccination records administered during the current and previous quarters. |

[RETURN>>](#)

## Appendix C: Additional References

### Additional References

Business Rules: Data Quality Assurance in Immunization Information Systems: Incoming Data for business rules, [http://www.immregistries.org/AIRA\\_MIROW\\_Chap3\\_DQA\\_02112008.pdf](http://www.immregistries.org/AIRA_MIROW_Chap3_DQA_02112008.pdf)

Core Data Elements: See the IIS Recommended Core Data Elements at <https://www.cdc.gov/vaccines/programs/iis/core-data-elements.html>. Note that only a handful of the required elements are in the TIPS submission and all of these are in the summary report.

Functional Standards: Functional standards for certain items in the Summary Report are listed in the table, <https://www.cdc.gov/vaccines/programs/iis/func-stds-table.pdf>.