Nigeria
Rapid Data Quality Assessment
Introduction

- **QUICK** review of data quality to support statements around poor data quality when performing GAVI assessment
- Report template created in order to create report on DQ
- Meant to provide evidence that more focus on data quality is required
- Outputs should be measurable (i.e. if adjustments to data are made improvement in the outputs presented should be observable)
- Review is contained to limited set of information/analysis types and should not be considered a replacement for a more thorough data quality review
Introduction

- Process starts by configuring the app
- The app may be installed already but have a poor configuration; may be easier to remove configuration and start from scratch
- Can use the following resources
  - Configuring the DQ Tool with the right data elements (presentation)
  - How to configure the WHO Data Quality Tool (word doc)
- Try to map the following core set of data elements:
  - PLHIV receiving ART
  - Pentavalent 3 (DPT 3)
  - Confirmed malaria cases
  - Antenatal care first visit
  - TB cases (all forms) notified
  - *Pentavalent 1 (DPT 1)
Introduction

- Depending on the size of the implementation, consider segmenting the data elements into smaller groups as this will lead to performance benefits.
- You will notice a number of other parameters in the tool will be automatically configured after you have performed some mapping, including numerator relations and numerator quality parameters.
- Can keep the default configuration for this exercise; leaving the recommendation for the country to support configuring it to their specifications.
3 analyses will be run after the configuration is complete

1. Completeness using the pivot table app
2. Review of consistency - data dashboard in WHO DQ app
3. Review of outlier dashboard in WHO DQ app

Note: We will skip the use of the consistency-time dashboard. The Outliers dashboard is usually more sensitive and specific in identifying incorrect values. The Outliers dashboard also permits “drilling down” to identify the specific health facilities and months that were responsible for any identified suspicious values.
### Completeness

#### LGA NHMIS Completeness in Nigeria - 2018

<table>
<thead>
<tr>
<th>Completeness</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=85%</td>
<td>430</td>
</tr>
<tr>
<td>75% - &lt; 85%</td>
<td>110</td>
</tr>
<tr>
<td>60% - &lt; 75%</td>
<td>100</td>
</tr>
<tr>
<td>40% - &lt; 60%</td>
<td>61</td>
</tr>
<tr>
<td>&lt; 40%</td>
<td>28</td>
</tr>
</tbody>
</table>

- **Bama LGA** - 0.25, 0 and 3% for 2016, 2017 and 2018 respectively
  - What is happening in this scenario?
- **Gombi LGA** - In 2018, it has 100% completeness however in 2016 this was only 47.2%.
  - Do comparisons across years within this LGA would need to be adjusted? Can this discrepancy be explained due to other reasons?
Consistency: DPT 1 - 3 Dropout
Nigerian States

DPT 1 to 3 dropout rate - Jan 18 to Dec 18
Consistency: DPT 1 - 3 Dropout
Nigerian LGAs
# of LGA’s that have been identified as having >=1 extreme outlier for the following core variables in 2018:

<table>
<thead>
<tr>
<th>MAL - Confirmed cases (#)*</th>
<th>RMNCAH - ANC 1st visit (#)</th>
<th>TB cases(all forms) notified</th>
<th>EPI - DPT3+Penta3 (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>324</td>
<td>461</td>
<td>652</td>
<td>475</td>
</tr>
</tbody>
</table>

Note:
1. Malaria outliers may be due to seasonal variation and are subject to further investigation unless clearly identified as an outlier
2. Extreme outliers with lower weight may not be an outlier and may need to be removed from this summary
# Consistency - Outliers

<table>
<thead>
<tr>
<th>State</th>
<th>Unit</th>
<th>Data</th>
<th>Jan 18</th>
<th>Feb 18</th>
<th>Mar 18</th>
<th>Apr 18</th>
<th>May 18</th>
<th>Jun 18</th>
<th>Jul 18</th>
<th>Aug 18</th>
<th>Sep 18</th>
<th>Oct 18</th>
<th>Nov 18</th>
<th>Dec 18</th>
<th>Z-score</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>be Benue State</td>
<td>be Ado Local Government Area</td>
<td>TB cases (all forms) notified</td>
<td>4.0</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
<td>20.0</td>
<td>1.0</td>
<td>4.0</td>
<td>3.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>2.91</td>
<td>10.79</td>
</tr>
<tr>
<td>Akwa Ibom State</td>
<td>ak Obot Akara Local Government Area</td>
<td>TB cases (all forms) notified</td>
<td>3.0</td>
<td></td>
<td>1.0</td>
<td>1.0</td>
<td>6.0</td>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.73</td>
<td>5.73</td>
</tr>
<tr>
<td>Kano State</td>
<td>kn Shanono Local Government Area</td>
<td>TB cases (all forms) notified</td>
<td>3.0</td>
<td>2.0</td>
<td>1.0</td>
<td></td>
<td>2.0</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
<td>18.0</td>
<td></td>
<td></td>
<td></td>
<td>2.25</td>
<td>10.79</td>
</tr>
<tr>
<td>Imo State</td>
<td>im Mbatai Local Government Area</td>
<td>TB cases (all forms) notified</td>
<td>1.0</td>
<td></td>
<td>1.0</td>
<td>4.0</td>
<td>2.0</td>
<td>18.0</td>
<td></td>
<td>2.0</td>
<td>4.0</td>
<td>2.0</td>
<td>1.0</td>
<td></td>
<td>2.6</td>
<td>10.79</td>
</tr>
</tbody>
</table>
## Consistency - Outliers

| State            | Unit                                      | Data                          | Jan 18 | Feb 18 | Mar 18 | Apr 18 | May 18 | Jun 18 | Jul 18 | Aug 18 | Sep 18 | Oct 18 | Nov 18 | Dec 18 | Weight
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>ak Akwa Ibom State</td>
<td>ak Mkpat Enin Local Government Area</td>
<td>MAL - Confirmed cases (#)</td>
<td>4380.0</td>
<td>1838.0</td>
<td>1941.0</td>
<td>204647.0</td>
<td>1653.0</td>
<td>2347.0</td>
<td>2066.0</td>
<td>2392.0</td>
<td>1748.0</td>
<td>2532.0</td>
<td>1799.0</td>
<td>2359.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ak Ibiaku 1 Ward</td>
<td></td>
<td>0.0</td>
<td>246.0</td>
<td>0.0</td>
<td>202147.0</td>
<td>40.0</td>
<td>272.0</td>
<td>296.0</td>
<td>247.0</td>
<td>129.0</td>
<td>267.0</td>
<td>0.0</td>
<td>384.0</td>
<td>0.0</td>
</tr>
<tr>
<td>ak Akwa Ibom State</td>
<td>ak ibekwe Akpan Nya Health Centre</td>
<td>MAL - Confirmed cases (#)</td>
<td>0.0</td>
<td>246.0</td>
<td>0.0</td>
<td>202147.0</td>
<td>40.0</td>
<td>272.0</td>
<td>296.0</td>
<td>247.0</td>
<td>129.0</td>
<td>267.0</td>
<td>0.0</td>
<td>384.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Weight**

- **Missing**: The number of missing data points.
- **Outlier**: The number of outlier data points.
- **Total**: The total number of data points considered.
Conclusions

1. Finalize configuration of WHO DQ Tool and perform more detailed review
2. For diseases with seasonal variation (ie. malaria) configure the predictor and validation rules to conduct analysis on outliers for this program
3. Develop strategies to adjust data when comparing between periods with large discrepancies in completeness
4. Consider integration of sub-set of external data (population, surveys, etc) to perform relevant comparisons with NHMIS data and evaluate external consistency
5. Provide training on the use of data quality tools (WHO DQ app, pivot table, validation rules, notifications, predictor) to perform routine reviews of data quality