Summary Analysis of Reported Data Sets

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U.S. Food and Drug Administration
## Selected Vaccines

<table>
<thead>
<tr>
<th>Manufacturer - Vaccine</th>
<th>Components</th>
<th>Adjuvants</th>
<th>EDQM Number</th>
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<tr>
<td>GSK – Sample A&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-</td>
<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt;</td>
<td>48597 or 48598</td>
</tr>
<tr>
<td>GSK – Sample B</td>
<td>-</td>
<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt; &amp; AlPO&lt;sub&gt;4&lt;/sub&gt;</td>
<td>48599 or 48600</td>
</tr>
<tr>
<td>GSK – Sample C&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt;</td>
<td>48601 or 48602</td>
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<tr>
<td>Sanofi Pasteur Canada – Pediace&lt;sup&gt;a&lt;/sup&gt;</td>
<td>DTaP-Hib-IPV</td>
<td>AlPO&lt;sub&gt;4&lt;/sub&gt;</td>
<td>n/a</td>
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<td>Sanofi Pasteur France – Tetraxim</td>
<td>DTaP-IPV</td>
<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt;</td>
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<td>SSI – Toxoid (vial)</td>
<td>aP</td>
<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt;</td>
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<td>SSI – Vaccine (syringe)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>DTaP-IPV</td>
<td>Al(OH)&lt;sub&gt;3&lt;/sub&gt;</td>
<td>47007 or 48562</td>
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General Philosophy

- Goals Hierarchy:
- Define Q-metric (%recovery close to 100%)
  - $Q = F(L,M,D,V,A,DM)$
  - $Q = F(L,M,D,V,A)$
  - $Q = F(L,M,D,V)$
  - $Q = F(M,D,V)$
  - ...
  - $Q = F(V)$
  - $Q$

- Method optimization within each lab was possible approach
- Additional data were submitted by almost all participants

L-lab; M-method; D-dose; V-vaccine; A-adjuvant; DM-desorption method
Data

Study design: One lab - one method with minimum vaccines vs. All generated data.

- Wider picture
- Participants can better compare results
- Complexity increases
- Sparse data
- Statistical analysis is more challenging
Reduction Strategies

- Quality per Method by Lab, Vaccine, Dose
- Quality per Method by Lab, Vaccine
- Quality per Method by Lab,
- Quality per Method
- Quality per Vaccine?
% Recovery by Vaccine: All assays

**Distributions**

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<tr>
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<th>Moments</th>
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<tr>
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# Standard Statistics for All Assays

## % Recovery by Vaccine:

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<th>GSK - Vac B</th>
<th>SP - Pediacel</th>
<th>SP - Tetraxím</th>
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<td>70.1</td>
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<td>-276.1</td>
<td>381.9</td>
<td>94.2</td>
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<td>-973.2</td>
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## Binding Assays

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1. Pediacel desorbed with EDTA
2. Pediacel not desorbed
## % Recovery by Vaccine: Binding Assays

### Distributions

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<th>Vaccine</th>
<th>Quantiles</th>
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# Standard Statistics: % Recovery by Vaccine: Binding Assays

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## Binding Assays: % Recovery of PTx spike

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# Monoclonal Assays: % Recovery of PTx spike

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SSI – aP was not tested
Pediace failed desorbed (2)
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(1) Pediacel desorbed with EDTA
(2) Pediacel not desorbed
Conclusions

- Collaborative studies are valuable tool for methods assessment and decision making.
- To allow for method comparison, studies should be carefully planned and executed according to the protocol.
- Results should be reported using standardized form.
- The variability of the recovery experiments depends upon correlation between dose of spiked analyte and the entity measured by the method.
Where Should We Go from Here?
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THANK YOU
Methods

- Binding Assay - Polyclonal method
- Binding Assay - Monoclonal method
- eHPLC
- cAMP Assay