HHS RESPONSE TO THE 2014-2015 SEASONAL INFLUENZA VACCINE MISMATCH

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Resilient People. Healthy Communities. A Nation Prepared.
The 2014-15 Influenza Vaccine Mismatch and Everything After

- A(H3N2) Vaccine Mismatch
- Congressional Oversight
- The ‘Secretary’s Memo’
- Communications with Stakeholders
- Improvement implementation plan (SIVI) approved
Critical tasks and task links are shown in red
Mitigating Seasonal Vaccine Mismatch Risk

- Improve vaccine composition decision making
- Optimize the influenza vaccine development and production timelines
- Expedite vaccine distribution, administration and tracking.
- Five year plan of interagency collaboration (BARDA, CDC, FDA, NIAID, industry, and academic partners) that would build on the technical success of previous collaborations.
Work Plan

Expand GISRS, More/Better CVV, NGS, Modeling/Risk Assessment, Communication

CVV Development and Characterization

- Better Decision
- Faster Process
- Reduced Timeline Variability

Higher Yielding CVV, Communication

Production at Risk

Production and Strain Balancing

Formulation, Release and Fill

Early/More Reagent Preparation, Better Potency Assay

Reagent Preparation

Distribution and Vaccination

Vaccine Usage Monitoring
Mismatch Vulnerability Risk Mitigation Scenarios

VRBPAC Decision in Late February
Mismatch vulnerability is 6.75 months

VRBPAC Decision postponed until mid-April
Mismatch vulnerability: from 6.75 to 5.0 months

VRBPAC Decision postponed until mid-June
Mismatch vulnerability: from 6.75 to 3.0 months
Overall Program Impact

- Enable a delayed vaccine composition decision for one virus component

- Enable the production of a second (monovalent) vaccine product recommended as late as mid-June during the seasonal manufacturing campaign if unexpected antigenic drift occurs.

- The proposed improvements will create the operational flexibility to respond to both unexpected antigenic drift, which can result in seasonal influenza vaccine strain mismatch, and antigenic shift, which triggers an influenza pandemic.
Expanding GISRS will increase the number and timeliness of seasonal influenza viruses

- “Sequencing first” will lead to earlier identification of potential drift variants and trigger an earlier CVV development process.
WP 1 Impact
CVV Development and Characterization (2)

- Early, more precise detection and higher throughput antigenic characterization will allow earlier and better matched preparation of CVV and potency reagents.
- Developing a risk assessment framework will lead to a systematic process to evaluate the need for additional, alternative CVV preparations or an updated vaccine component recommendation.
Additional CVV preparation capacity will provide flexibility to respond in a timely manner to potential drifted virus strains.
WP 2 Impact

Reagent Preparation

- Reagent preparation improvement will reduce the average time to prepare and calibrate reagents.

- Preparing antisera and antigen reagents early and preparing alternate antigen and antisera reagent sets for more than one CVV facilitates delayed or revised vaccine composition decisions.
WP 2 Impact
Reagent Preparation (cont.)

- Improved potency assays may reduce the large quantities of reagents currently needed for vaccine release and enable a more flexible response to a change in vaccine composition.
WP 3 Impact
Vaccine Production

- Implementation of available improved donor approaches are expected to reduce production timelines
- Successful development of reliable influenza B donors could further reduce manufacturing durations
- Timeline reductions of any substantial magnitude are valuable to vaccine manufactures and facilitates delayed or revised vaccine composition decisions
WP 4 Impact

Vaccine Distribution and Administration

- Provides an efficient vehicle to report data to state immunization information systems (IIS) with single point of submission

- Increase in vaccinations reported (mostly for adults) to state IIS, which will lead to improvements in provider vaccine coverage and uptake monitoring

- Enables tracking of a second (monovalent) vaccine product when necessary
Late Decision Example

Figure Legend:
Improved steps are shown in green
Unaffected tasks are shown in grey
Critical task links are shown in red
Late Decision Example (start)

Figure Legend:
Improved steps are shown in green
Unaffected tasks are shown in grey
Critical task links are shown in red
Late Decision Example (end)

Figure Legend:
Improved steps are shown in green
Unaffected tasks are shown in grey
Critical task links are shown in red
Limitation of current influenza vaccines

There is need for more effective influenza vaccines

Adjusted VE for influenza vaccination by influenza A subtype and B virus lineage, US Flu VE Network, 2014-15

<table>
<thead>
<tr>
<th>Influenza</th>
<th>% vaccinated</th>
<th>Influenza-neg.</th>
<th>% vaccinated</th>
<th>Adjusted VE (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (H3N2)</td>
<td>(52)</td>
<td>(55)</td>
<td>13%</td>
<td>(2 to 23)</td>
</tr>
<tr>
<td>B (Yamagata)</td>
<td>(37)</td>
<td>(55)</td>
<td>55%</td>
<td>(43 to 65)</td>
</tr>
<tr>
<td>B (Victoria)</td>
<td>(26)</td>
<td>(55)</td>
<td>63%</td>
<td>(26 to 81)</td>
</tr>
</tbody>
</table>

* Data is for all ages and adjusted for study site, age, sex, race/Hispanic ethnicity, self-rated health status, days from illness onset to enrollment, and calendar time (biweekly intervals).
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