Equine Piroplasmosis Update

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Equine Piroplasmosis Update

- **Current statistics:** total testing numbers, case counts, affected populations
- **Treatment update**
- **Texas ranch update**
- **Diagnostics and research update**
- **New concerns:** Smuggled horses, EP/EIA dual infection, exotic strain *T. equi*
## Current Stats: Testing/Surveillance

<table>
<thead>
<tr>
<th>Year</th>
<th># Horses Tested at NVSL</th>
<th># Horses Tested at NAHLN</th>
<th>Total # Horses Tested</th>
<th># EP Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>9,170</td>
<td>0</td>
<td>9,170</td>
<td>9</td>
</tr>
<tr>
<td>2010</td>
<td>42,578</td>
<td>34,225</td>
<td>76,803</td>
<td>143</td>
</tr>
<tr>
<td>2011</td>
<td>32,683</td>
<td>42,997</td>
<td>75,680</td>
<td>31</td>
</tr>
<tr>
<td>2012</td>
<td>15,659</td>
<td>29,958</td>
<td>45,617</td>
<td>6</td>
</tr>
<tr>
<td>2013</td>
<td>14,386</td>
<td>24,553</td>
<td>38,939</td>
<td>27</td>
</tr>
<tr>
<td>2014*</td>
<td>10,7576</td>
<td>11,639</td>
<td>22,395</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125,232</strong></td>
<td><strong>143,372</strong></td>
<td><strong>268,604</strong></td>
<td><strong>247</strong></td>
</tr>
</tbody>
</table>

*Laboratories reporting through Sept 2014
Case Counts and Disposition

Of the 247 EP-positives (237 *T. equi*, 10 *B. caballi*):

- 198 QH racehorses
- 13 TB racehorses
- 32 previous imports
- 1 QH roping horse
- 3 smuggled Spanish PRE (Mexico)
- 154 euthanized/died
- 18 legally exported
- 41 enrolled in the treatment program (22 released)
- 51 currently under quarantine in 9 states

• Most of the findings in QH/TB racehorses had documented epidemiological links to unsanctioned horse racing
• No tick-borne transmission identified in any of these cases
Treatment Update

• Long-term Quarantine with Enrollment in APHIS-VS/ARS Treatment Research Program
  – High-dose imidocarb protocol
  – Definition of clearance = removal of all transmission risk
  – 200+ horses have completed treatment
  – 11 horses failed treatment on 1st attempt
    • 7 horses were retreated and cleared
    • 1 did not clear on retreatment
  – At least 150 now cELISA negative post-treatment
  – Time to cELISA negative: 1-2 years

• APHIS-VS policy established to release treated, cleared, cELISA negative horses (February 2013)
Treatment Update: VS policy

• 2011 USAHA Resolution #21: internal VS working group evaluated all data from the VS/ARS treatment program

• Domestic VS policy for quarantine release of previously *T. equi* infected horses that meet the following criteria:
  – Enrolled in VS/ARS treatment research program AND
  – Treated using ARS published high-dose imidocarb dipropionate treatment protocol under State or Federal supervision; AND
  – Permanently identified using an ISO-compliant microchip with the identification number held in data repository accessible by State and Federal animal health officials; AND
  – Nested or real-time PCR negative on a series of at least three (3) post-treatment samples collected a minimum of 30 days apart; AND
  – Negative by transfusion to a splenectomized horse OR negative by the ARS Western blot clearance test; AND
  – cELISA and CFT negative at NVSL.

• Additionally, States should establish a compliance agreement with the horse owner to conduct the cELISA test annually for 3 years post-treatment as added assurance of continued disease freedom
Update on Texas Ranch Incident (2009-2010)

- **2,500 horses tested** in this outbreak
- **413 positive** horses identified in 16 states
- Infection and tick-borne transmission on the ranch since at least 1990 (spread by *Amblyomma cajennense*)
- No tick-borne transmission on any premises outside of south Texas
- Still have positive horses quarantined in 5 states
- **Index Ranch update:**
  - Euthanized 130+ horses
  - 163 horses treated
  - 132 of 163 now cELISA negative (no antibodies left)
  - Plan to consolidate antibody positive horses together this fall and release the rest of the ranch from quarantine
  - Continue annual assurance testing of all horses on the ranch
- Ongoing surveillance in Texas – area testing
Diagnostics and Research Update

• Status of *T. equi* Western blot clearance test
  ➢ Moved to NVSL; validation expected to be completed by end of CY2014

• Diagnostic strain typing as epidemiologic tool
  ➢ 2013 USAHA Resolution #7 and #14 (combined)
  ➢ Development of whole genome sequencing protocol for *T. equi* underway at NVSL (unknown ETA)

• New research at ARS: exotic strain of *T. equi*
  ➢ Found to date only in handful of horses from Mexico
  ➢ Doesn’t behave as expected on our diagnostics
  ➢ Closely related to *T. equi* in zebra from S. Africa
  ➢ Appears to be mild strain (morbidity, no mortality)
  ➢ Regulatory significance: Undetermined
EP – New Concerns

• Exotic strain *T. equi*?
• Smuggled horses from Mexico
  – Newly identified route of influx for Spanish PRE’s
  – Uncovering more instances of equine movement back and forth than previously thought (bushtrack QH)
• EP/EIA dual infections – QH bushtrack
  – New cluster(s) identified in California (8 dual infections; additional cohorts infected with either EP or EIA)
  – Need awareness and appropriate testing when high-risk horses are encountered during investigations
  – Need samples of blood/serum products from Mexico found during EP investigations for analysis
Questions?