

Equine Infectious Anemia Update for the U.S.

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Epidemiology slides courtesy of the Equine Health Team:
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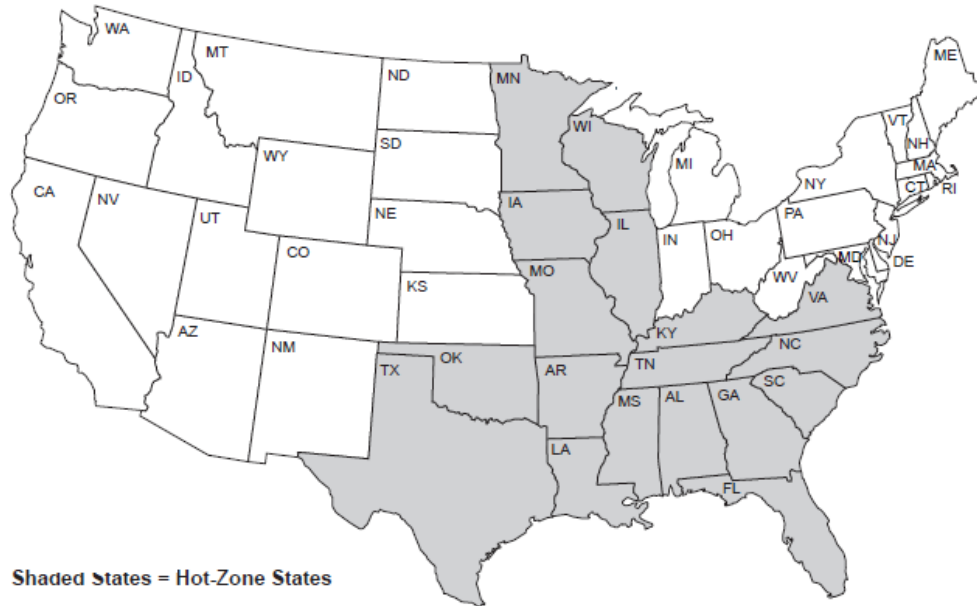
USDA-APHIS-Veterinary Services

November 2022



Changing Epidemiology of EIA in the U.S.

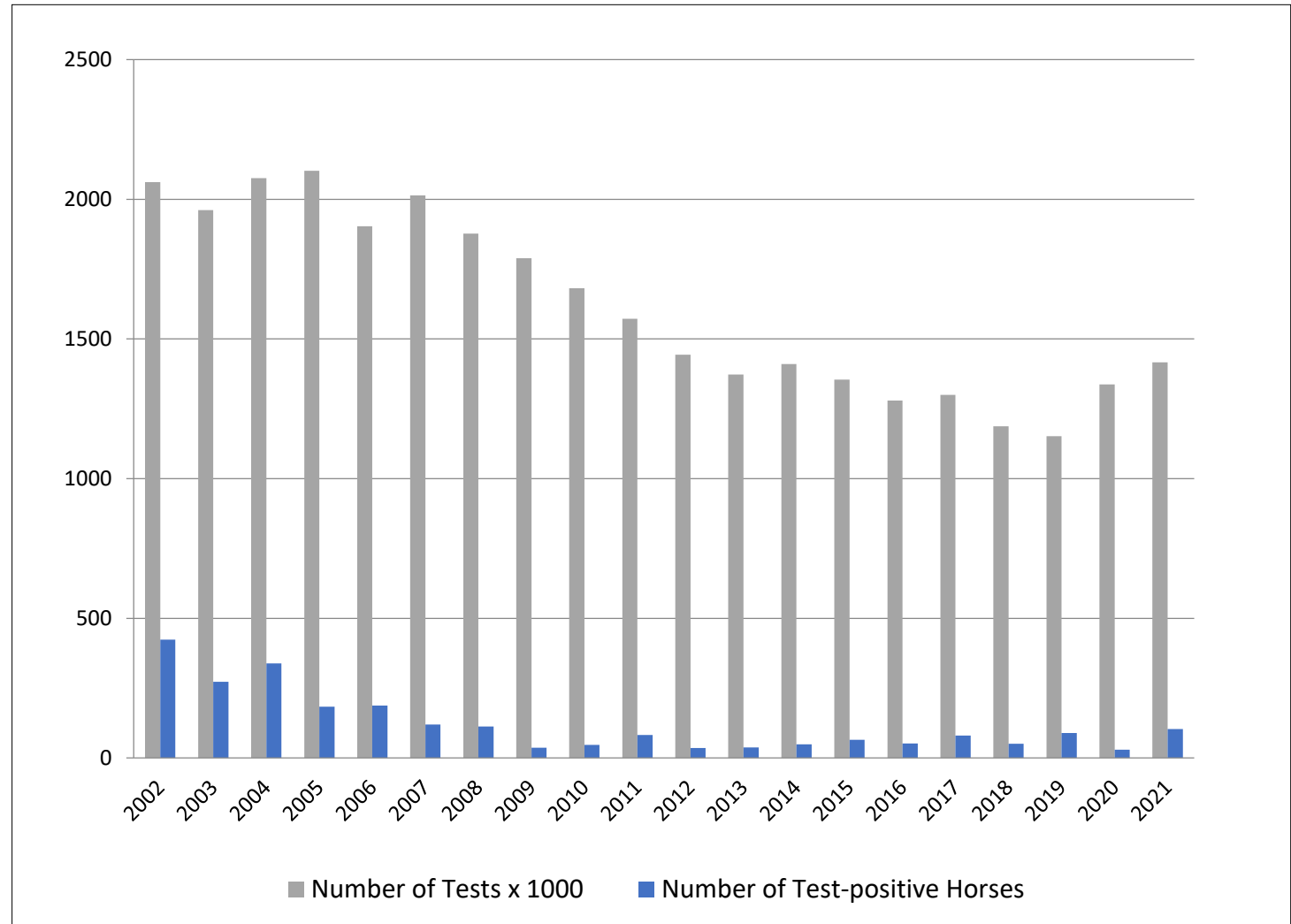
Map 1. Historical Equine Infectious Anemia (EIA) "Hot Zones"



- Until the mid-1990s, 92% of test positive samples originated from horses located in the “hot zone” (shaded area on map)
- Environmental conditions favoring natural transmission by insect vectors and reservoirs of untested horses

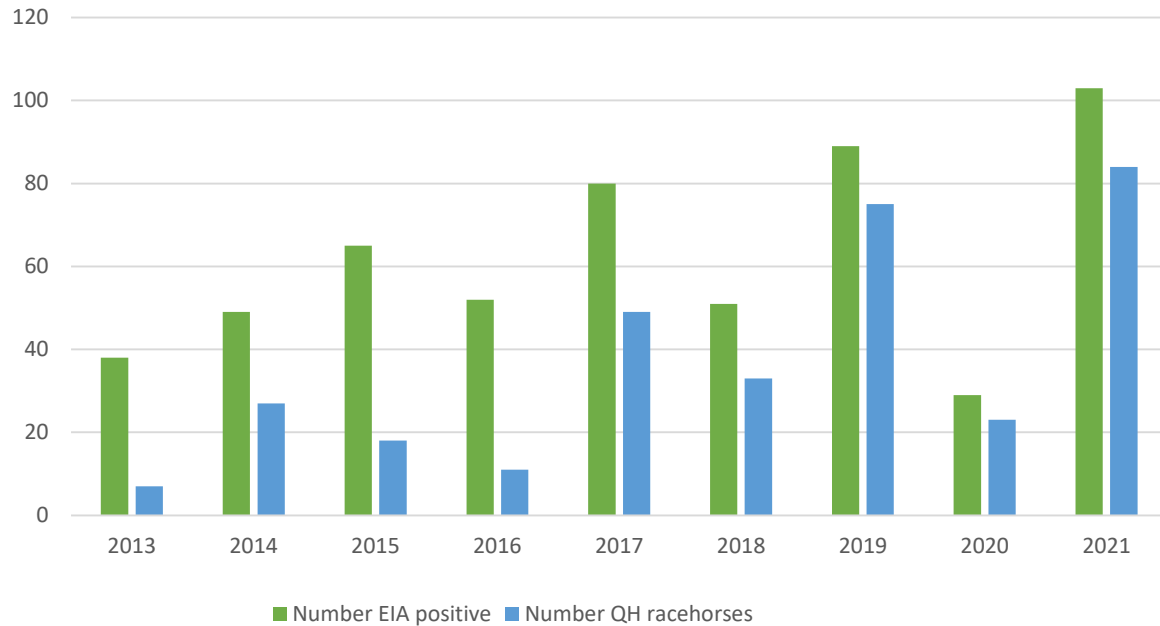
EIA: Recent U.S. Testing and Positive Case History

- Average of 1.2 to 1.4 million EIA tests/year
- 2021: 1.4 million tests
- 103 positive horses in 2021
- U.S. prevalence estimated at 0.004%

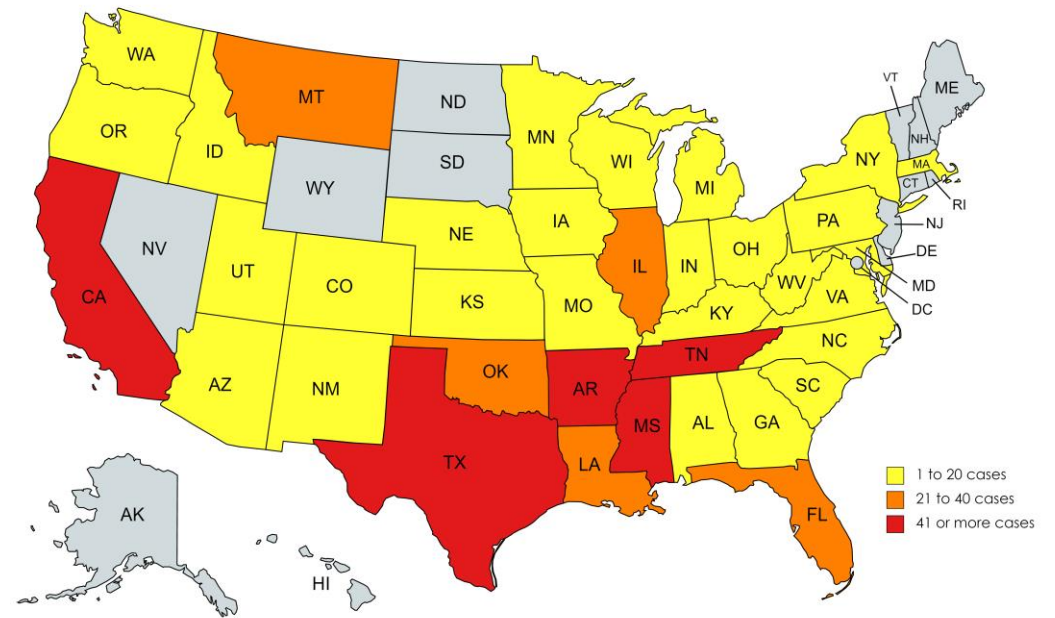


Currently, EIA in the U.S. largely linked to iatrogenic transmission

Total EIA positives vs. QH racehorse positives



EIA cases 2010 through 2021



Created with mapchart.net

Significant number of cases have ties to unsanctioned/bushtrack racing

No longer associated with geography

Role of Unsanctioned (Bushtrack) Racing in U.S. EIA Cases

- Many cases found either currently participating in bushtrack racing or with a history of moving between sanctioned racing and bushtracks
- Blood doping and use of injectable substances/drugs
- Needle/syringe/IV set reuse, contamination of multi-dose drug vials, illegally imported blood products

The Washington Post
Democracy Dies in Darkness

EXCLUSIVE

A horse track with no rules

On-track drug injections, shock devices and a dead jockey: A “bush track” in Georgia is one of dozens that profit outside the reach of regulation.

By Gus Garcia-Roberts

Updated August 6, 2022 at 6:25 p.m. EDT | Published August 5, 2022 at 6:00 a.m. EDT

Hombres A Caballo RED SPRINGS

RED SPRINGS

CARRERA #2

El Monarca C.Cristo Rey (Ganador)
VS.
Tapado C.Valle Azul 350 Y.

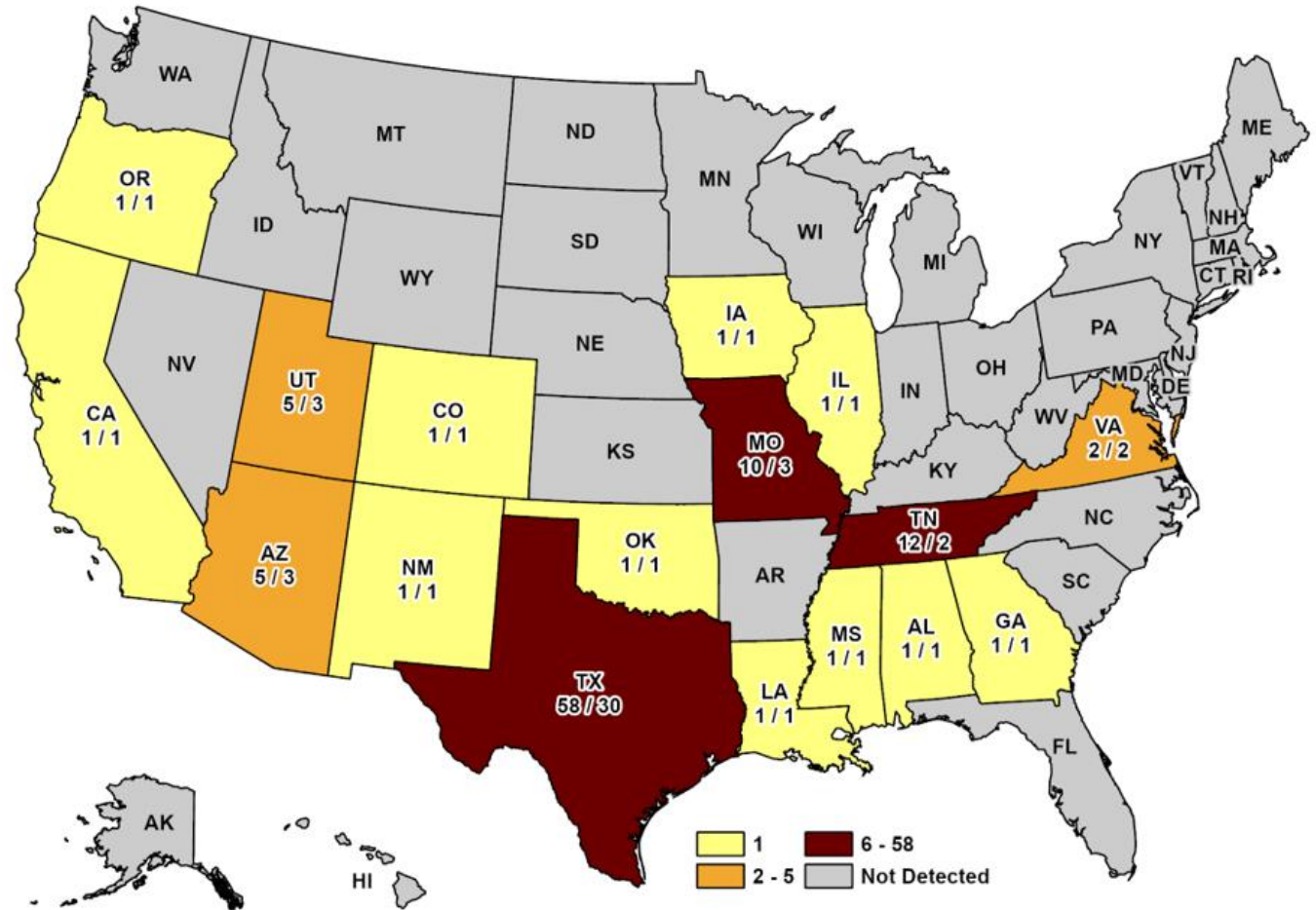
21 AGOSTO
VAMOS ALAS CARRERAS
TARASCO
LA ARANA

VS
350
YARDAS
TRUMP MY RECORD EL AGUACATE

U.S. EIA Positive Cases 2021

103 cases
17 states

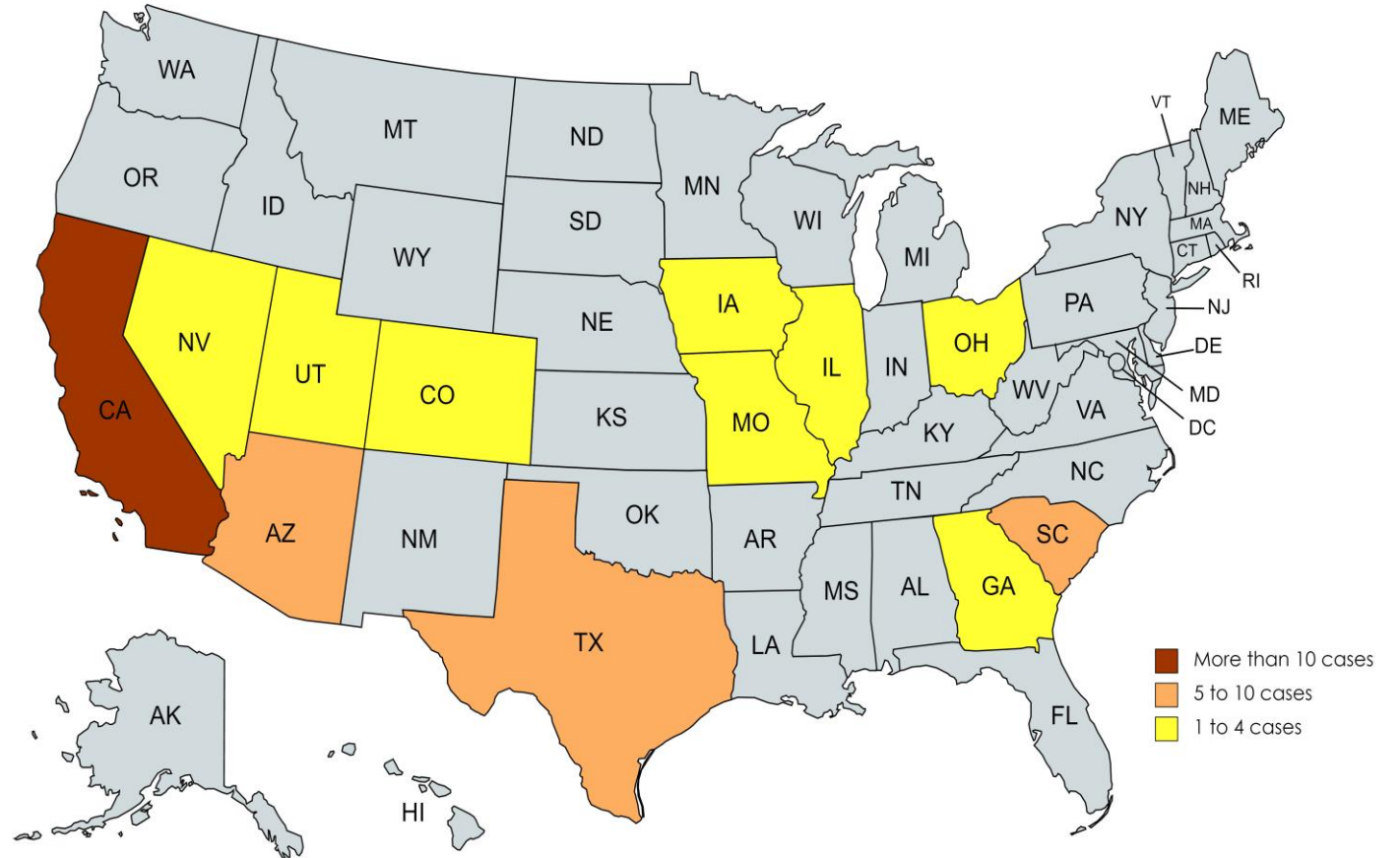
Epidemiology: 84 of the 103 cases were in QH racehorses with iatrogenic transmission either confirmed or suspected as the source of disease transmission



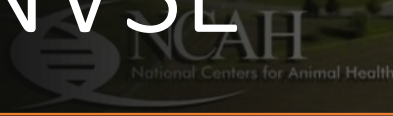
U.S. EIA Positive Cases 2022

67 cases
12 states
as of 15 Sept 2022

Epidemiology: 56/67 cases in current or former QH racehorses; 1 horse from untested/undertested populations; and 4 illegal movement from Mexico



Diagnostic Virology Laboratory at NVSL



What is the Diagnostic Virology Laboratory?



Biosafety level 3 containment laboratory (BSL3)

One of the first nationally accredited labs: [ISO/IEC 17025](#) since 2006

Serves as an OIE reference laboratory for several diseases:

- ✓ Horses – **equine infectious anemia**, eastern/western equine encephalitis, as well as **vesicular stomatitis**
- ✓ Poultry – **influenza A** and Newcastle disease
- ✓ Swine – **influenza A**, pseudorabies
- ✓ Cattle/sheep – bluetongue virus

Provides training and proficiency tests for other laboratories across the country so they can maintain their ability to perform diagnostic tests

Develops tests for **new emerging diseases** and strives to improve the quality of existing assays

Equine Infectious Anemia (EIA) Laboratory Approval Process

- EIA is one of the most highly regulated diseases of equids in the U.S.
- Regulatory guidance specifies the roles of NVSL in the training and laboratory approval process
- DVL coordinates approval of ~400 testing laboratories in U.S., including governmental labs, academic institutions, commercial operations, and private veterinary practices
- The EIA laboratory approval process involves extensive collaboration with other NVSL sections, the other USDA APHIS Veterinary Services business units, and state animal health officials



Equine Infectious Anemia (EIA) Laboratory Approval Process

**Code of Federal
Regulations 9 CFR 75.4**

Authority for testing & laboratory/technician approval

**EIA Uniform Methods and
Rules (UM & R)**

Guidelines for EIA control, including laboratory testing procedures

**VS Guidance
15201.1**

Policies and Procedures for laboratories & technicians

Equine Infectious Anemia (EIA) Laboratory Approval Process

Regulatory guidance in 9CFR and VSG



Laboratory approval involves state and federal partners



Initial training laboratory operators at NVSL for approved labs



Ongoing competency demonstrated by annual proficiency testing

Equine Infectious Anemia (EIA)

Last Modified: Oct 1, 2020



What is Equine Infectious Anemia (EIA)?



Equine Infectious Anemia (EIA) is a viral disease affecting only members of the equidae family (horses, ponies, zebras, mules, and donkeys). There is no vaccine or treatment for the disease. Infection is often in-apparent and results in a lifelong carrier state if the horse survives the acute phase of the infection. EIA is found widely throughout the world. There is no evidence that EIA is a threat to human health. EIA is a reportable animal disease in all states.

▼ Clinical Signs

▼ Information for the Veterinarian

▼ Transmission

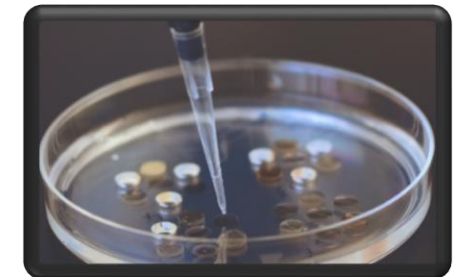
▼ Treatment

▼ Documents and References

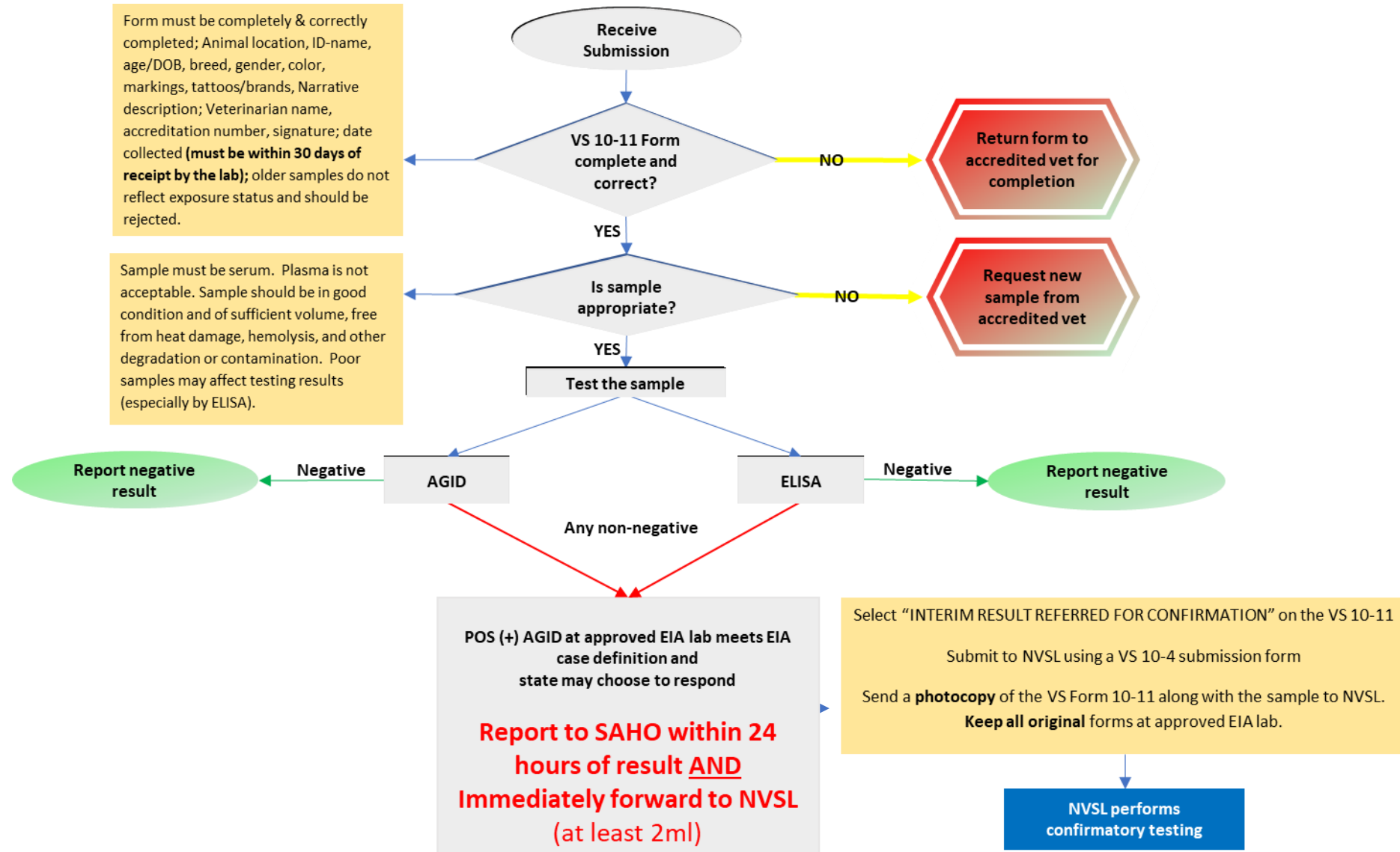
- VSG 15201.1 Approval of Labs to Conduct EIA Testing (Made effective in 2019)
- VSG 15201.1 Official Documents:
 - EIA Laboratory Monthly Data Report TEMPLATE (MS-Excel file, Aug 2020)
 - VS 10-16 Application to Conduct EIA Testing
 - VS 10-15 (Director's) Agreement to Conduct EIA Testing
 - VS 10-17 Laboratory Inspection Checklist for EIA Labs (Oct 2020)
- VSG 15201.1 Outreach, Training and Explanatory Information:
 - FAQ 15201.1 (2019)
 - 15201.1 Requirements Actions (2020)
 - EIA Lab Approval Webinar recording
 - NVAP Outreach

Development of an online EIA training course

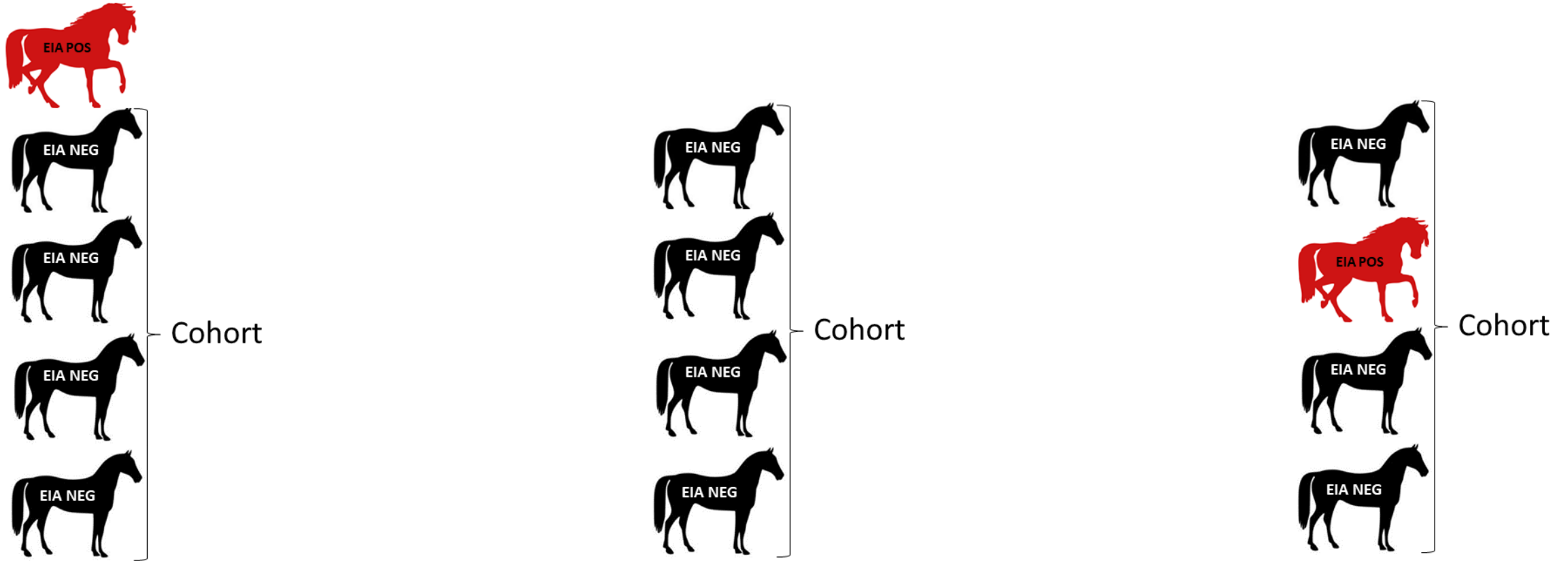
- The COVID-19 pandemic has prevented in-person training for the past year
- To address this gap, DVL developed and launched an online training course which fills a critical need for EIA laboratories
- Within 8 months the backlog of those needing training had been caught up



APHIS-Approved EIA Testing Laboratory Algorithm



Cohort Testing for EIA in the U.S.



Day 1

Index EIA positive horse is suspected.
EIA confirmation at NVSL in Ames.
When positive a quarantine is imposed. The index horse is often euthanized and serum samples of the cohort are tested.

Day 30 (optional)

Quarantine of cohort reaches 30 days and blood sample are drawn and tested.

Day 60

Quarantine of cohort reaches 60 days and blood sample are drawn and tested. If all horses are negative the cohort is released. If a new positive is identified the clock starts again.

U.S. EIA Testing Updates

- AGID test kits
 - IDEXX announced discontinuing AGID kit production (available in Europe)
 - VMRD AGID test kit continues to be available
- EIA laboratory training
 - On-line option available for adding personnel in previously approved labs
 - New laboratories are required to have personnel trained in-person at NVSL
- Project to characterize modern strains of EIAV
 - Update existing diagnostic methods and develop new methods – additional antibody targets, molecular, and sequencing
 - Requesting samples from positive horses



Thanks for your attention!

