What is the SDRS?

SHIC-funded, veterinary diagnostic laboratories (VDLs) collaborative project, with goal to aggregate swine diagnostic data from participating reporting VDLs, and report in an intuitive format (web dashboards), describing dynamics of disease detection by pathogen or disease syndrome over time, specimen, age group, and geographical space.

For this report, to help develop the template, data is from the Iowa State University VDL. Other VDLs should be participating soon.

For all "2018 predictive graphs", the expected value was calculated using a statistical model that takes into account the results from 3 previous years. The intent of the model is not to compare the recent data (2018) to individual weeks of previous years. The intent is to estimate expected levels of percent positive cases based on patterns observed in the past data, and define if observed percentage positive values are above or below the expected based on historic trends.

Collaborators:

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Advisory Council:

The advisory group reviews the data to discuss it and provide their comments to try to give the data some context and thoughts about its interpretation: Clayton Johnson, Douglas Marthaler, Emily Byers, Hans Rotto, Jane C. Hennings, Jeremy Pittman, Mark Schwartz, Paul Sundberg, Paul Yeske, Pete Thomas, Rebecca Robbins, Tara Donovan

This report is an abbreviated version of the dashboards that are available online.

To access the full data, use your computer, tablet, or phone to:

1) Scan the code below, or go to: www.powerbi.com

Power BI

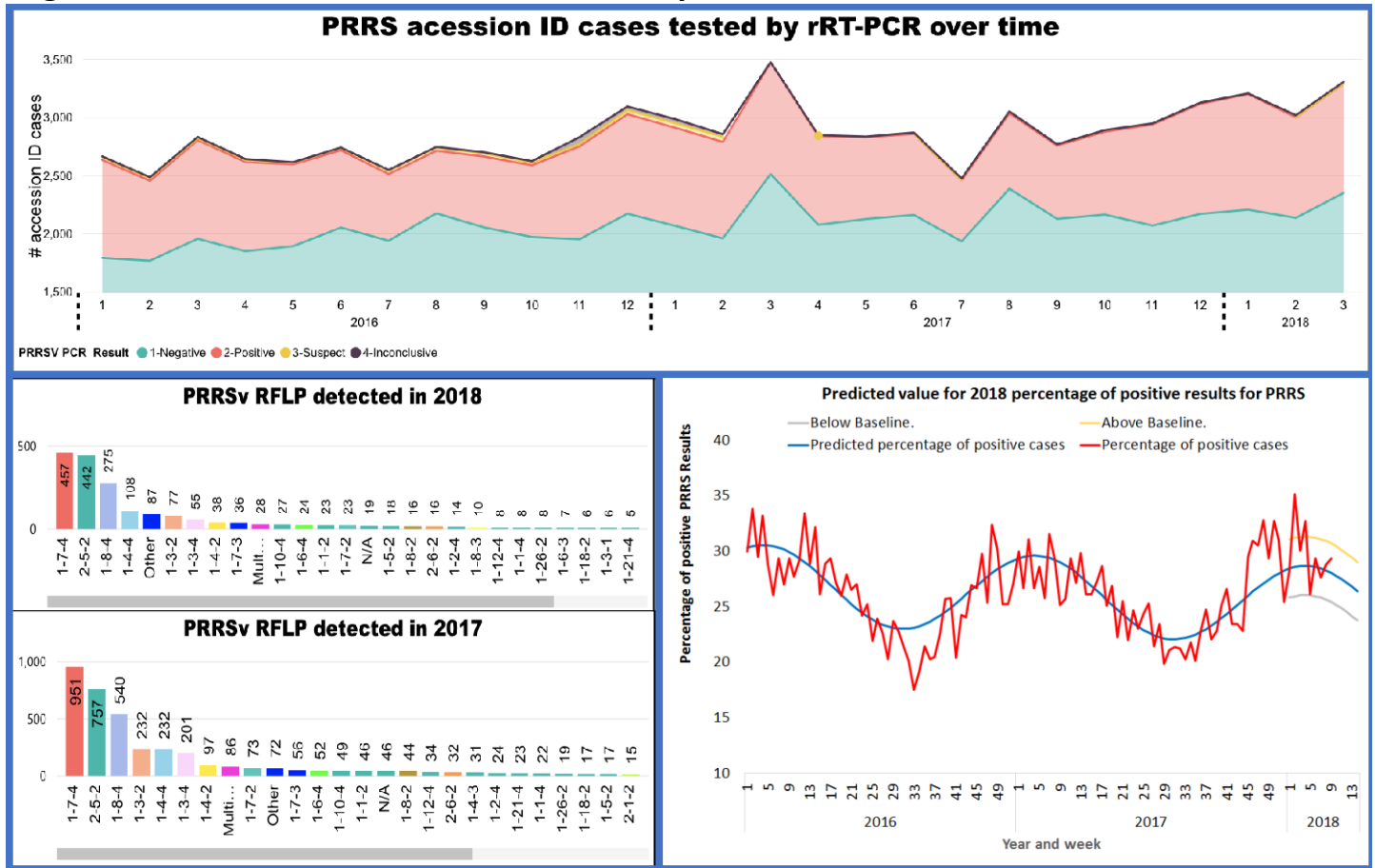2) Login: sdrs@iastate.edu
3) Password: Bacon 100
4) On the left bar, click on 'Apps'
5) Select your dashboard of interest (e.g. PRRS)

# Page 2 – Detection of PRRSV RNA over time by rRT-PCR.

Figure 1 *Top chart*: Results of PRRS rRT-PCR cases over time. *Bottom right*: expected percentage of positive results for PRRSV RNA by rRT-PCR, with 1 standard deviation above and below the expected value. *Bottom left*: PRRS virus RFLPs detected on 2017, and 2018.

SDRC Advisory Council highlights:
1) There was a relative increase in number of sequences requested for PRRS in 2018 compared to 2017: the first 3 months of 2018 had proportionally more cases being sequenced for PRRS than 2017, 1143 sequences for first 3 months of 2017 and 1331 sequences for 2018, this represent an increase of 16.41% in number of sequences, which may reflect increased interest of practitioners to better characterize the viruses involved in clinical cases.
2) The cyclic regression (bottom right plot) shows a significant increase in percentage of cases testing positive for PRRSV by rRT-PCR, which is in agreement with data from MSHMP, and from perceptions in the field that PRRSv had increased activity this Winter compared to the previous Winter.
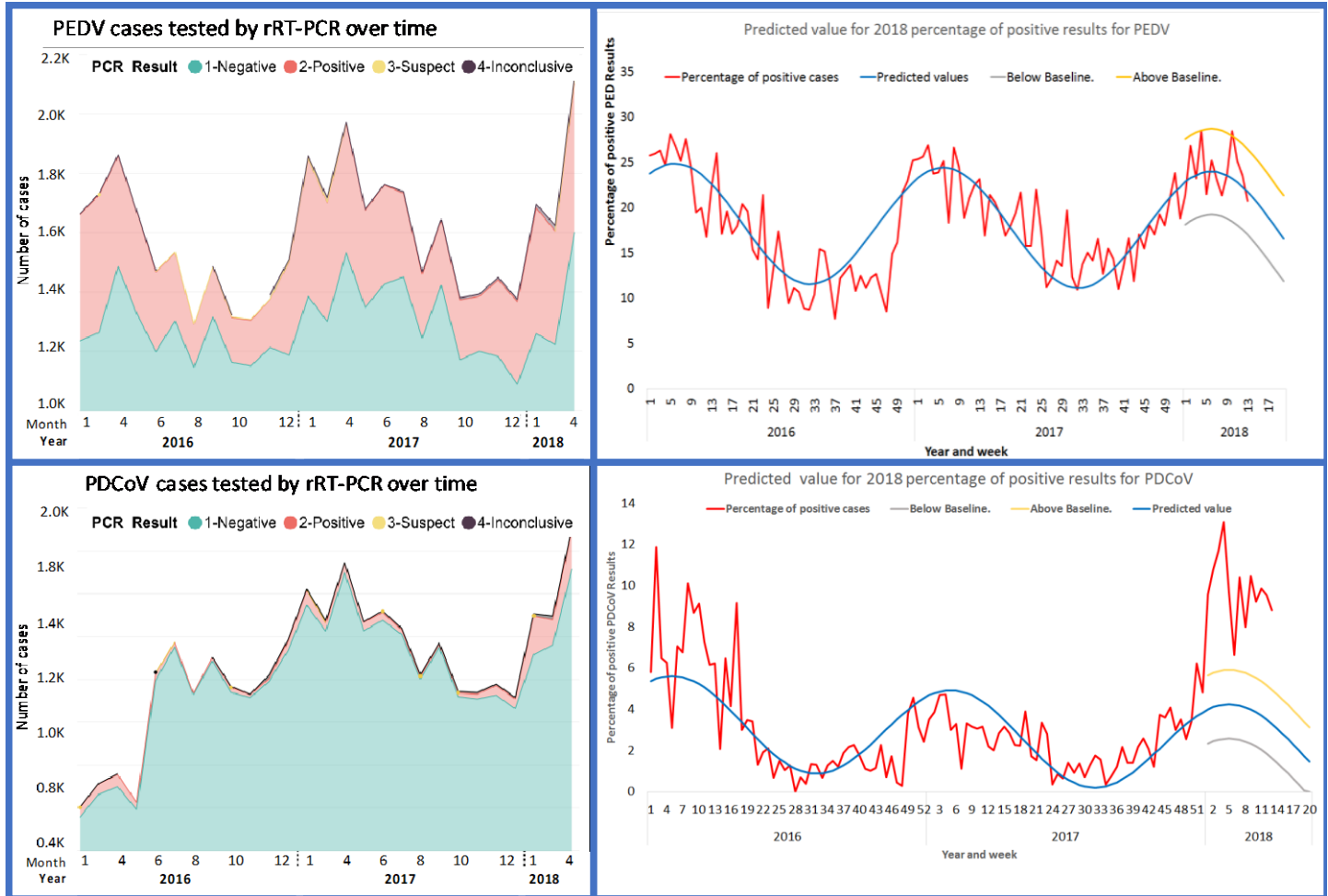
Figure 2   Left side: results of PEDV, and PDCoV rRT-PCR cases over time. Top right, and middle right charts: expected percentage of positive results for PEDV and PDCoV by rRT-PCR, with 1 standard deviation above and below the expected value, respectively.

SDRC Advisory Council highlights:
1) The significant increase of PDCoV detection is in agreement with increased reports of clinical disease associated with PDCoV in suckling pigs. PDCoV is also being reported, as an incidental finding, in a significant number of finishing pig cases with no apparent clinical disease.
2) As discussed in the previous report, the percentage of cases testing positive by rRT-PCR for TGEV is under 2%, which is a significant change from years before 2013.

Page 4 – Detection of pathogens associated with CNS disease
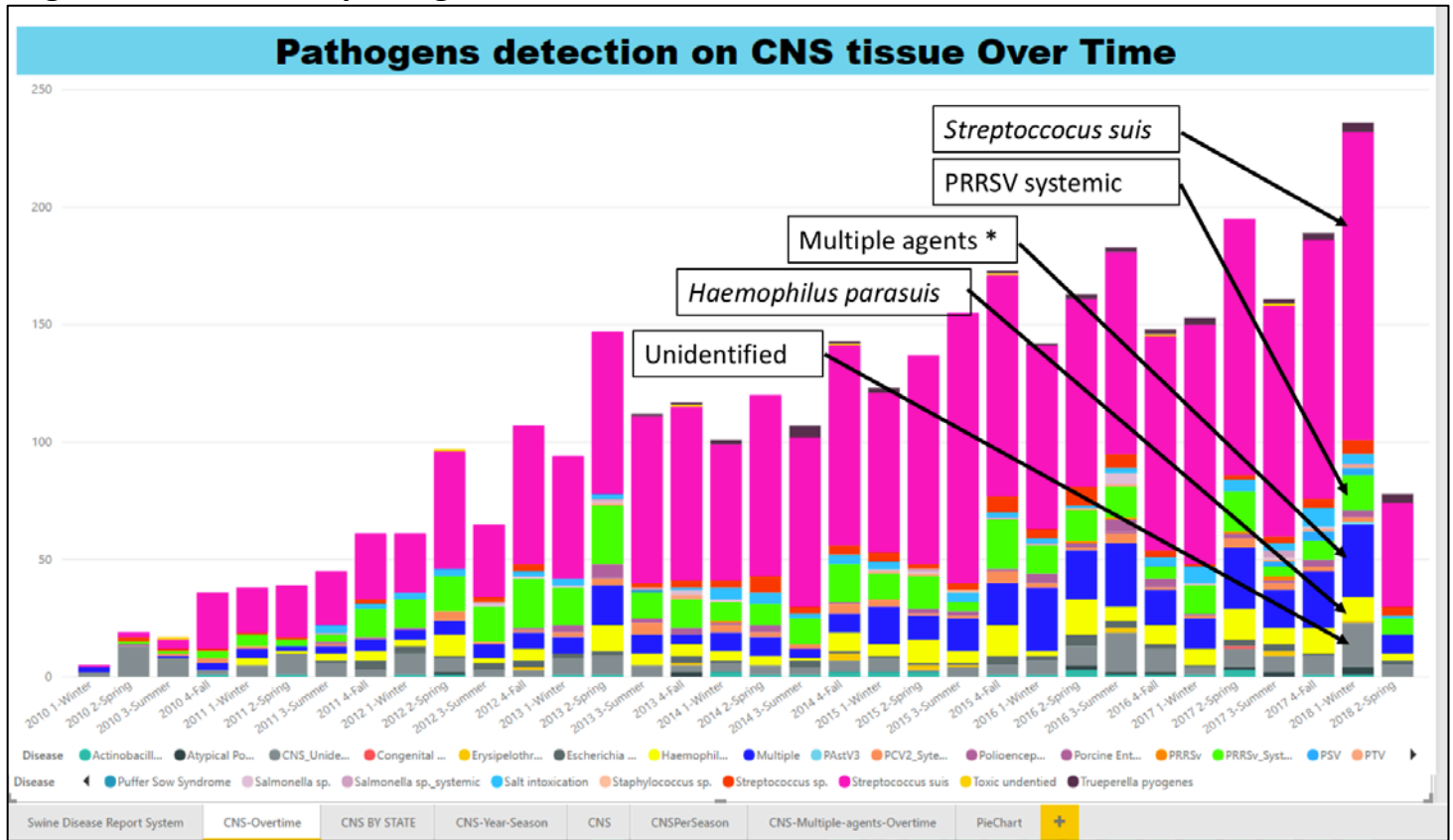
Figure 3   Pathogen detection on CNS tissue over time. Each bar indicates a season (Winter, Spring, Summer, Fall), and each color represents a pathogen. * Multiple agents represent cases with more than one pathogen detected on CNS tissues. The data was gathered from cases having CNS tissue, and with report of CNS-related lesions or disease (e.g. meningitis) based on reason for submission, and/or diagnostic notes reported from the diagnostician who worked on the case.

SDRC Advisory Council highlights:
There was a significant increase on submission of tissues to detect CNS pathogens over time:
   a) Consistent with perception from field that CNS cases has been increased;
   b) The recent pressures to reduce antibiotic use, and the new veterinary feed directive regulations have motivated better documentation of pathogens in general.
   c) As an attempt to update/improve the efficacy of autogenous vaccines, veterinarians have increased submission of samples to update or better characterize field strains.
   d) PRRSV has been detected in CNS tissues of pigs with CNS disease. From 2010 until 2018, 8 % of CNS cases where attributed to systemic PRRSV. In cases from North Carolina, 25% of CNS cases were attributed to systemic PRRSV.
   e) Most cases with 'multiple' pathogens identified had a combination of *Streptococcus suis*, *Haemophilus parasuis* and PRRSV.