“Street Level” Input to Help Develop Analytical Tools for BARs

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BAR

- Laboratory Verification Process and Notifications
- BAC Chair Notification
  - Local FBI/JTTF
  - HDHHS OSPHP
  - HCPHES
  - DSHS Region 6/5S
  - DHS JC
BAR Timeline

- One Hour from BAC Chair Notification to Local Call
  - Gather Intel
  - Put BAR in Context of Intel
  - Make a Decision(s)

- One Hour from Local Call to National Call
Opportunity for Developing Signal Interpretation Toolbox

- We can now characterize:
  - Likelihood of Detection Concentration
    - Expected Ct value ranges
    - Probability of a reported Ct value occurring due to endemic agent
  - Where we have detections
    - Mapping/GIS
  - When we have detections
    - Time of Day, Year/Seasonal Distribution
  - Why we have some detections
    - Predisposing Weather Conditions
      - Predictive Modeling (Logistic Regression)
Analysis of Past Experience Tells Us the Probability of Ct Values We Might Encounter

Ct < W = 1 in 1,000
Ct < X = 1 in 57,585
Ct < Y = 1 in a million
Ct < Z = 1 in a billion

Source: Probability Analysis by Matt Richardson, (unpublished)
Some areas of Houston are more prone to detections than others:

- Mostly southeast of downtown

- Screening test reactives tend to show a gradient of lower Ct values (greater concentration) with increasing proximity to the coast
Variables Analyzed

- BAR Yes or No
- Agent detected
- Number of collectors positive
- Day, Month, Year
- High, low, and average temperature
- Heating Degrees ($65 - \text{Avg} = \# \text{ of HD}$). Use when the average temperature ($\text{Avg}$) is less than 65.
- Cooling Degrees ($\text{Avg} - 65 = \# \text{ of CD}$). Use when the average temperature ($\text{Avg}$) is greater than 65.
- Departure from normal temperature, in degrees Fahrenheit
- Precipitation for the day, in inches
- Precipitation total up to and including the day for 2, 3, 4, 5, 6 and 7 days prior.
- Snowfall Depth (?)
- Fraction of Daytime Minutes with Sunshine (1 to 10 scale)
  - 0 = overcast conditions all day
  - 5 = partly cloudy
  - 10 = sunny all day
- Average and max wind speeds
- Average/resultant wind direction
- Gust wind direction
- Degrees of change in wind direction
- Weather codes (Thunderstorm, Mist, Haze, Fog, etc.)
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