

# SMA 2019 Annual Conference

**Panel 6: Dealing with Surprise in Complex Systems**

# Moderator: Gia Harrigan, DHS/ S&T

Panelists:

Dr. Laura Steckman- MITRE

Dr. Kay Mereish – DHS/ I&A

Dr. Molly Jahn – Univ of WI

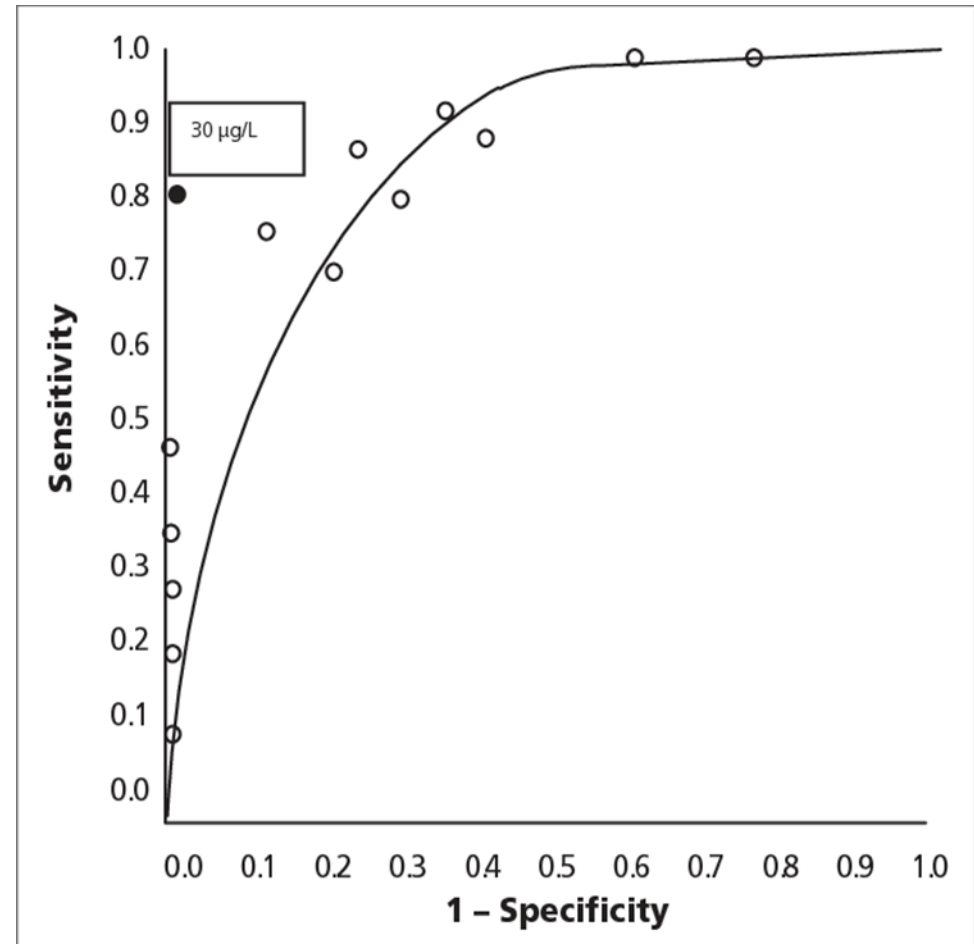
Dr. Robert McReight -

# Surprise and Complex Systems

- “surprise” and “the complex system”, both are an increasingly important issue in all aspects of life, for politicians, economists and even in healthcare systems.
- No one like to be surprised because it is “a condition in which perceived reality departs qualitatively from expectations.”
- Many surprises we face are a consequence of living in an increasingly complex and connected world.
- Some surprises are due to lack of sufficient data an analyst can use to predict what is next.

# The Receiver- Operator Curve (COR)

- The receiver operating characteristic curve (ROC), the more data point the better curve, But also mean higher sensitivity will result with lower specificity, as it is applied in many medical diagnostics tests and other applications.



# Intelligence analysts,

faces much more complexity than healthcare professional or economists, as they try to combined physical data (information about sites, material, equipment etc) with social data (leadership characteristics, intentions, motives etc..) to predict an outcome in specific region or topic where unpredictability and surprise are fundamental aspects of the world around us.

**Can big data help the analysts and how?**

# Surprise !!

