Introduction and Background

- Flint is a poor city with 41% of residents below federal poverty line
- In 2011 Flint declared a financial state of emergency
- An Emergency Financial Manager (EFM) had control over most city governing matters.
- In 2014 Flint switched from pre-treated Detroit water (DSWD) to the Flint River in an effort to save money
- Failure to ensure water quality → the Flint Water Crisis

Handling of Water Quality

- The Flint River still should have been treatable. **What happened?**
  - Michigan Department of Environmental Quality failed to implement proper corrosion control
    - Incorrect interpretation of federal Lead and Copper Rule
    - Rushed startup of Water Treatment Plant before operators felt ready or equipment was available
  - Decision to monitor Flint water for 2, 6 month periods
    - Pipes were corroded by Flint River water during the monitoring period
    - After pipes ruined, corrosion control is ineffective
    - Incorrect (in some instances purposeful) monitoring and data analysis

Decision to Switch to Flint River

- Different sources of water were evaluated
- Original study (TYJT) commissioned by treasury: Blending Flint River water with DSWD is cheapest
- Second study (Rowe) commissioned by EFM: KWA is cheapest option (KWA is pipeline that Flint would help fund to pump water directly the city)
- Decision to switch source to Flint River Water Treatment Plant (WTP) driven by cost only and conflicting reports

Handling of Water Quality

- Failed lines of communication prevented decision makers in city and state governments from having the correct information
- As public outrage grew, public officials dug in their heels to protect themselves instead of seeking solutions
- Cost concerns trumped the decision-making process and overrode quality concerns

Other Decision Making Factors

- Bacterial contamination → elevated levels of carcinogenic disinfection by-products
- Action level blood levels in children under 5 years increased from 2.1% to 4.0% after the switch
- Third largest outbreak of Legionella in U.S. history: 87 infections and 12 dead
- A complete loss of public trust in the government to protect population health
- Millions of dollars in ruined infrastructure

Effects of the Flint Water Crisis

- Cost concerns trumped the decision-making process and overrode quality concerns

Conclusions

- If cost is the only valuable metric there are negative financial consequences and decreased quality
- Quality needs to be monitored with accurate data and with unbiased interpretation
- Decision makers need the best information and advice from analytical staff and experts
- This research will be used as a case study in a graduate course in quality