Objective: Determine the effect of workforce characteristics on the duration of a communicable disease case investigation.

Background
- The impact of a qualified workforce on public health service delivery is unknown.
- It is believed that a better trained workforce provides public health services more efficiently.
- Efficient communicable disease (CD) surveillance can be measured by cases being quickly and completely resolved.
- Efficiency can be measured by the number of days a case is open and whether or not the case is ultimately closed.

Research Questions
Does workforce education and experience play a factor in whether or not a local health department (LHD) closes a CD case?

Does workforce education and experience impact the duration of a CD case investigation?

Data Sources
- Survey of LHD CD employees
  - Education
  - Experience
  - CD Dedicated
  - CD FTE
  - Minutes per Case
  - Survey data matched with cases reported in online registry

Online Registry: Colorado Electronic Disease Reporting System
  - Case Mix
  - Case Closed Status
  - Duration of Investigation
  - Unit of Analysis: Case

Models
- Logistic Regression: \( \text{Case Closed} = \beta_0 + \beta_1 \text{Workforce Characteristics} + \beta_2 \text{County Characteristics} + \varepsilon \)
- GLM Regression: \( \text{Case Duration} = \beta_0 + \beta_1 \text{Workforce Characteristics} + \beta_2 \text{County Characteristics} + \varepsilon \)

Overview of Sample
- 80% of LHDs in CO participated.
- 30% had a CD dedicated employee.
- 30% had an employee with a public health degree.
- 42% had an employee with a graduate degree.
- Mean years of experience of CD staff was 9 years.
- Mean time per case: 12.5 hours.
- Mean CD FTE: 1.86 FTE.
- Sample Size: 11,375 cases.

Results
- Factors that significantly increase likelihood of case closing:
  - CD Dedicated Employee (9.6% more likely)
  - Employee with PH Degree (3.3% more likely)
  - Number of CD FTE (9.6% more likely)
- Factors that significantly reduce case investigation duration:
  - Employee with PH degree (reduced by 0.45 days)
  - Number CD FTE (reduced by 0.295 days)

Implications
- Case investigation efficiency is enhanced by:
  - Having an employee completely dedicated to CD.
  - Hiring an employee with a public health degree.
  - Increasing the number of FTE dedicated to CD.
- Increasing the number of agency-wide FTE and increasing funding does not have a significant effect on improving efficiency.

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