Niedersächsisches Landesgesundheitsamt

Deploying an online access panel as a control group for case-control studies in the investigation of gastrointestinal outbreaks: early experiences from Germany

D. Perriat[1,2], M. Mylius[1], E. Mertens[1], K. Meyer-Schlinkman[1], J. Dreesman[1]

1. Public Health Agency of Lower Saxony, Germany; 2. European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Control and Prevention (ECDC), Stockholm, Sweden.

Background: Potential of online panels to recruit controls

- Recruiting controls for outbreak investigation can be time consuming.
- In 2018, 40 likely foodborne outbreaks occurred in Lower Saxony, Germany.
- Online panels have the potential to facilitate the recruitment of controls in case-control studies.

Figure 1. Map of Germany indicating Lower Saxony state (8 millions inhabitants)

Objective: To explore the feasibility and reliability of using an online panel as a control group in case-control studies to investigate foodborne outbreaks in Lower Saxony, Germany.

Methods: Panel controls in 4 historical outbreak case-control studies

Data sources

HuGO panel	Non-probabilistic online access panel, that comprises 277 adults living in Lower Saxony, Germany, who accepted to regularly answer hygiene and health related questions.
Historical studies	Four case-control studies that investigated foodborne outbreaks in Germany, 2003-2017
Lower Saxony census	Microcensus of Lower Saxony 2018, n= 6,537

Feasibility

- Online questionnaire to the HuGO panel (socio-demographics, food consumption)

Reliability

- Representativity of the HuGO panel for Lower Saxony (sociodemographics, chi2 goodness of fit)
- Comparison of the strength of association between exposures and diseases (odds ratios) using:

4 historical studies
- historical cases
- historical controls

vs

4 panel studies
- historical cases
- HuGO panel recruited controls

Results: 3/4 outbreak sources identified with controls from the HuGO panel

Feasibility

- 203/277 (73%) members of the HuGO panel answered the survey, 132/203 (65%) within a week.

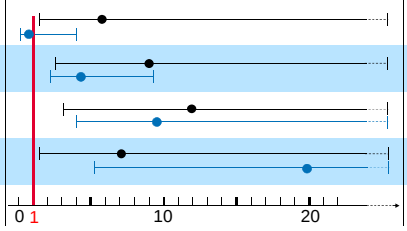
Reliability

- Sociodemographics between the HuGO panel and the Lower Saxony census differed significantly.
- The ORs of the source food items associated with the diseases in the historical studies:
  - were similar to the ORs of three panel studies.
  - were not similar to the OR of one panel study.
- The ORs of the non-source food items were non-significant in both historical and panel studies.

Table 1. Comparison of the strength of association between outbreak sources and diseases using historical vs panel studies

Historical studies					OR and 95%CI, historical studies (black) OR and 95%CI, panel studies (blue)	Similar results in historical and panel studies
Date	Place (Germany)	Pathogen	Source	Design		
2017	Lower Saxony state	*Campylobacter jejuni*	Tap water	12 cases-35 controls		No
2005	Lower Saxony state	*Salmonella enterica* Bovismobificans	Raw pork	38 cases-37 controls		Yes
2004	Saxony Anhalt state	*Salmonella enterica* Goldcoast	Raw pork	14 cases-54 controls		Yes
2003	Several states, incl. Lower Saxony	*Salmonella enterica* Oranienburg	Chocolate	48 cases-50 controls		Yes

OR: Odds ratio, 95%CI: 95% confidence interval



Conclusion: Consider recruiting controls from panels to investigate outbreaks

1. Using the HuGO panel to recruit controls in outbreak investigations
   - was feasible, and gave similar results as using randomly selected controls.
   - had a limited applicability in an outbreak that strongly clustered in time and place.
2. Public health professionals should be encouraged to consider recruiting controls in access panels for future investigations.
3. We plan to further evaluate this approach in parallel case-control and case-panel studies.

VIEW NOW

Contact: delphine.perriat@nlga.niedersachsen.de

EPIET & EUPHEM

Niedersachsen