

Creation of a CASPER Survey Protocol for Use in Riley County, Kansas

Riley County Health Department

by

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MPH Candidate

Introduction

- Undergraduate degree in Animal Science and Industries
- Emphasis Area: Infectious Disease and Zoonoses
- Diagnostic laboratory experience at the KSVDL Rabies Laboratory since January 2020
- Field experience conducted as a group project with the Riley County Health Department (RCHD)

Background

CASPER Background

- CASPER= Community Assessment for Public Health Emergency Response
- 2-stage cluster sampling designed for rapid needs assessments
 - Originally for emergencies, has been utilized for non-emergency data collection
- Developed by the Centers for Disease Control and Prevention (CDC)
- Provides household-level data from areas, typically US Census blocks, spread across a survey area

CASPER Background

- CDC provides a comprehensive guide to conducting a CASPER survey on their website
 - The “CASPER Toolkit”
- CASPER Toolkit has not been updated for years, while websites used in the Toolkit have been updated
- Toolkit is slightly outdated and cumbersome- good as a reference, but not a master plan for a CASPER
 - Creates need for streamlined and updated region-specific CASPER protocol and toolkit

Project Goals

1. Analysis of CASPER methodology and previously-conducted CASPER surveys from other health departments
2. Synthesis of streamlined, RCHD-specific CASPER protocol and toolkit
3. Trial of synthesized protocol
4. Final editing of protocol and submission to RCHD

Methods

General CASPER Methodology

- 2 stage sampling
 - Stage 1: Random selection of 30 clusters (generally US Census blocks) within survey area
 - Performed by the investigating body
 - Stage 2: Selection of 7 households within each cluster
 - Performed by the teams conducting surveys in the field
- Goal for surveys: At least 168 surveys of 210 completed (80% completion rate)
- Utilize community volunteers to conduct surveys in field

Literature Review

- CDC CASPER Toolkit
- CASPER reports from other entities
 - Texas Department of State Health Services
 - Richland County Health Department (Montana)
 - Hawaii State Department of Health
- Establish goals for RCHD CASPER use, how to conduct a CASPER

RCHD CASPER Protocol Synthesis

- Collaboration between myself and 4 other Master of Public Health (MPH) students
- Protocol creation divided into sections based on CASPER phase structure
 - Preparation and Conduct: myself and 1 other student
 - Data Analysis: 2 students
 - Reporting: 1 student
- Protocol included general guide as well as templates for reuse in future surveys

Test of RCHD CASPER Protocol

- Performed a test survey to evaluate performance of initial protocol
- Test survey examined 4 clusters within Manhattan, KS
 - Approximately 13.33% of a standard CASPER
 - Reduction due to limited time and resources
 - *Not* intended to collect data for any use other than to test data analysis protocol
- Survey date: January 9, 2021
 - Full CASPER would span multiple days in order to account for larger sample size

Test of RCHD CASPER Protocol

- Volunteers gathered from Kansas State University MPH program and personal contacts of MPH students leading the survey
- Just-in-time training module from CDC used prior to volunteers entering the field
 - How to select households, safety, data collection
- Multiple survey sessions during the day to simulate multiple survey days and collect as many surveys as possible
- Data collection performed using CDC mobile application Epi Info 7 as well as pen and paper method

Final Protocol Edits and Submission

- Test survey analyzed for strengths and weaknesses
- Changes made to protocol phases based on analysis
- Final protocol sections submitted via Google Drive

Data and Results

Calculation of Contact, Cooperation, and Completion Rates

Rate	Formula	Data Collected	Result
Contact Rate	$\frac{\text{Completed interviews}}{\text{All attempted households}}$	22/51	43.14%
Cooperation Rate	$\frac{\text{Completed interviews}}{\text{All contacted households}}$	22/23	95.65%
Completion Rate	$\frac{\text{Completed interviews}}{\text{Surveys needed to complete}}$	22/28	78.57%

- Contact, cooperation, and completion rates calculated from test survey to assess effectiveness of survey
- Barely failed to reach required 80% completion rate for representative data
- Low refusal rate from contacted households, but low contact rate

Observations and Protocol Changes

Observation	Impact
Survey creation in Epi Info software perceived as difficult by beginner users	Removed recommendation for survey creation in Epi Info from protocol
Links to geographical information software and US Census Bureau data and maps in CASPER toolkit are outdated	Current links compiled in a document to be included as part of the CASPER protocol packet
Volunteers for trial survey indicated strong understanding of CASPER concepts and how to perform a CASPER survey	Reinforced the strength of the training presentation provided by the CDC, training presentation included in protocol packet
Low contact rates in Manhattan clusters, especially in apartment buildings	Encouraged consideration of survey date and effects of KSU schedule on student presence
Surveyed residents refused to answer questions or provided answers not included on survey	Added recommendation to include “refused to answer” and “other” answer responses for future surveys

Protocol Before and After Trial Survey

Before	After
Utilized Epi Info as survey creation, data collection, and analysis software	Recommended use of programs such as Qualtrics or Google Forms for survey creation and data collection, recommended use of Microsoft Excel for data analysis
Did not consider adding “refused to answer” and “other” answer options	Specifically instructed survey creator to include “refused to answer” and “other” options on future surveys
Did not fully emphasize the importance of social media and local news advertisement	Specifically included a section regarding the importance of publicity before a CASPER
Relied on links in CASPER toolkit for US Census data and mapping software	Included a list of current links to necessary websites for mapping and census data
Attempted to create training presentation template from scratch	Emphasized strength of CDC-provided training presentation template

Recommendations for Future Surveys

Recommendation	Intended Effect
Do not utilize Epi Info software without prior experience	Encourage CASPER organizers to use programs that are more user-friendly and do not require higher levels of technical expertise
Engage in communication with target community early and often	Allow target community ample time to prepare for CASPER and understand survey goals
Ensure “refused to answer” and “other” options are present on surveys	Allow CASPER organizers to collect accurate data
Ensure that volunteers use electronic and physical forms of surveys	Add redundancy to prevent loss of data due to technology failures
Utilize all options for documentation and personnel	Encourage CASPER organizers to be aware of all possibilities for resources available

Conclusions and Discussion

Conclusions

- CASPER survey system is an excellent fit for RCHD's needs and wants
- Choice of survey tools, especially for data collection and analysis, is critically important
- Communication is key for making the public aware of upcoming surveys
- Manhattan appears receptive to community surveys based on cooperation rate

Limitations

- Trial survey was limited by time and resources
 - Multiple days and better survey date could have improved contact and completion rates
 - Survey was conducted over Kansas State University's winter break – students leaving town for break may have harmed contact rates
- COVID-19 caused problems when attempting surveys
 - Trial survey originally planned for late November 2020, postponed due to COVID concerns
 - Residents hesitant to interact with volunteers

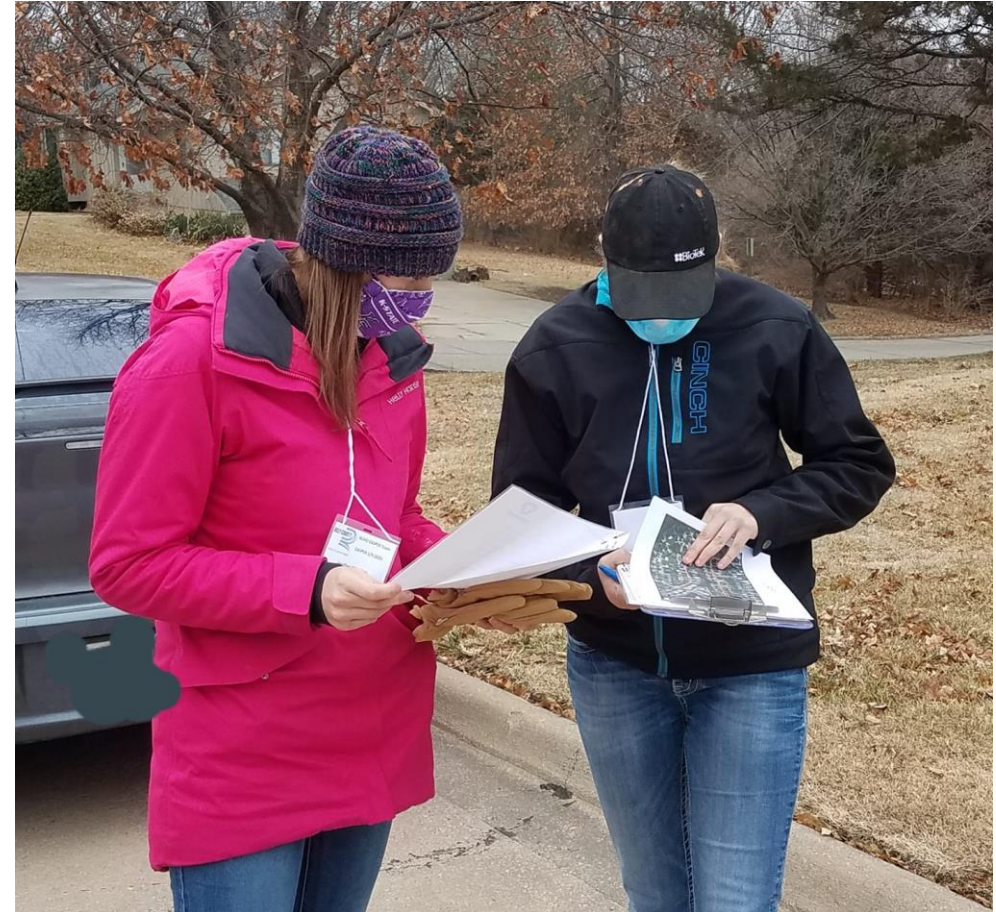
Core Competencies

Competencies Addressed

Number and Competency		Description
7	Assess population needs, assets and capacities that affect communities' health	Creation and use of a CASPER protocol for Riley County, Kansas
9	Design a population-based policy, program, project or intervention	Designing a county-specific CASPER protocol, tailored to the needs of the Riley County Health Department and community partners
11	Select methods to evaluate public health programs	Use of trial CASPER results to influence program direction, including integration with a Community Health Improvement Plan
21	Perform effectively on interprofessional teams	Creating protocol to be used by wide variety of professionals, including the Flint Hills Wellness Coalition and Riley County Health Department
22	Apply systems thinking tools to a public health issue	Consideration of all resources, contacts, and programs when creating protocol

Acknowledgements

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- Trial CASPER Volunteers



Volunteers Heather Wittstruck and Celeste Wallis during surveys (Photo Credit Ed Kalas)

Questions?