



DESIGNING A CASPER SURVEY TOOL OPTIMIZED FOR RILEY COUNTY

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Master of Public Health | Infectious Diseases and Zoonoses

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- Graduate Committee

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- Mr. Edward Kalas

Outline

- Background
- Applied Practice Experience
- Products
- MPH Competencies

Background



CASPER



- Community Assessment for Public Health Emergency Response
- Epidemiological tool
- Used to conduct a type of rapid needs assessment (survey) at a household level in a community

History of CASPER



- Adopted by the World Health Organization (WHO) during the implementation of the Expanded Program of Immunization (EPI) in the 1970s
- Widely used in the 1990s for conducting community needs assessments including community emergency preparedness plans during disasters
- The Centers for Disease Control and Prevention (CDC) published the first edition of the CASPER toolkit in 2009, and a second edition was released in 2012
- Originally developed for use in emergency situations, such as disasters, the tool is increasingly being used in non-emergency situations

Casper Phases

- The four phases in a CASPER include:
 - preparing for the CASPER
 - conducting the CASPER
 - analyzing data
 - writing the report

Uses of CASPER



- Assessing the public perceptions regarding health issues.
- Estimating the needs within a community.
- Assisting in planning for an emergency response.
- Streamlining the process for public health accreditation
 - Public Health Accreditation Board (PHAB)

CASPER Methodology

- Two-stage, thirty by seven cluster sampling methodology
- Cluster: a non-overlapping section in a geographical area with a known number of households

CASPER First Stage Sampling

- Thirty clusters selected with a probability proportional to the number of households within the cluster
- Probability of selection dependent on eligibility of the cluster
- Clusters chosen without substitution
- Census blocks commonly serve as source of clusters

CASPER Second Stage Sampling

- Seven households interviewed within a cluster
- Selection of seven households within the cluster done by systematic random sampling
- Goal: interview seven households from 30 clusters, giving a total of 210 household interviews



Applied Practice Experience

Riley County Health Department

- Mission: “to promote and protect the health and safety of our community through evidence-based practices, prevention, and education.”



Project Description



- July 2020 – January 2021
- Team project with other MPH students
- Involved developing a process to optimize the CASPER tool to make it suitable for use in Riley County, Kansas
- Primary focus involved developing optimal cluster and household sampling methodologies for this process

RCHD CASPER trial-run

- To get a better understanding of the logistics associated with conducting a CASPER in Riley County
- 4 clusters chosen to conduct trial-run
- Trial-run conducted on January 9th, 2021
- Observations presented to the Flint Hills Coalition on January 14th, 2021



U.S. Census Bureau Website

 Search

[// Search / Advanced Search](#)

Advanced Search

Table ID (e.g., DP05)

Narrow search with filters

FIND A FILTER

e.g. 336111 - Automobile Manufacturing

BROWSE FILTERS	GEOGRAPHY	WITHIN (STATE)	WITHIN (COUNTY)	WITHIN (TRACT)
Topics	☐ Show Summary Levels			
Geography	Nation	Georgia	Phillips County, Kansas	☒ All Blocks in Riley County in Kansas
Years	Region	Guam	Pottawatomie County, Kansas	Census Tract 1, Riley County, Kansas
Surveys	Division	Hawaii	Pratt County, Kansas	Census Tract 10, Riley County, Kansas
Codes	State	Idaho	Rawlins County, Kansas	Census Tract 10.02, Riley County, Kansas
	County	Illinois	Reno County, Kansas	Census Tract 11, Riley County, Kansas
	Tract	Indiana	Republic County, Kansas	Census Tract 13.01, Riley County, Kansas
	Block Group	Iowa	Rice County, Kansas	Census Tract 13.02, Riley County, Kansas
	Block	Kansas	Riley County, Kansas	Census Tract 2, Riley County, Kansas
	Zip Code Tabulation Area (Five-Digit)	Kentucky	Rooks County, Kansas	Census Tract 3.01, Riley County, Kansas
	Elementary School District	Louisiana	Rush County, Kansas	Census Tract 3.02, Riley County, Kansas
	Secondary School District	Maine	Russell County, Kansas	Census Tract 3.01, Riley County, Kansas
	Unified School District	Maryland	Saline County, Kansas	Census Tract 3.02, Riley County, Kansas
		Massachusetts	Scott County, Kansas	
		Michigan	Sebastian County, Kansas	

<https://data.census.gov/cedsci/advanced>

Riley County Census Block Data

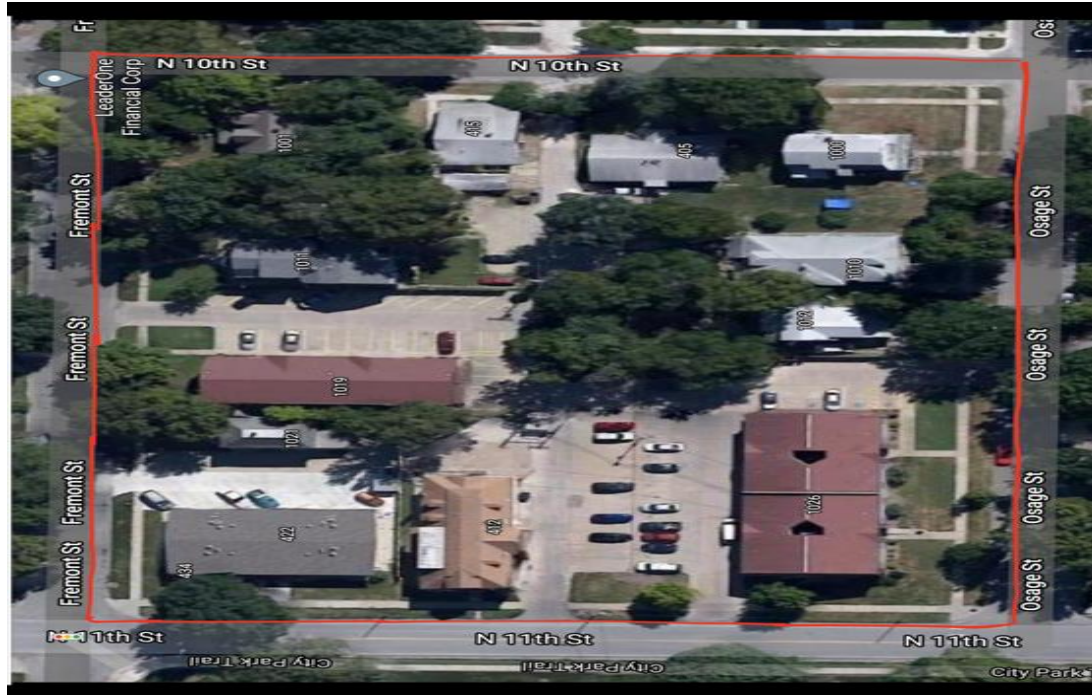
Riley County Census Block Data				
	A	B	C	D
2250	1000000US201610013024101	Block 4101, Block Group 4, Census Tract 13.02, Riley County, Kansas	1	
2251	1000000US201610005004021	Block 4021, Block Group 4, Census Tract 5, Riley County, Kansas	0	
2252	1000000US201610013021064	Block 1064, Block Group 1, Census Tract 13.02, Riley County, Kansas	2	
2253	1000000US201610013022100	Block 2100, Block Group 2, Census Tract 13.02, Riley County, Kansas	8	
2254	1000000US201610002001012	Block 1012, Block Group 1, Census Tract 2, Riley County, Kansas	35	
2255	1000000US201610002003018	Block 3018, Block Group 3, Census Tract 2, Riley County, Kansas	9	
2256	1000000US201610002003019	Block 3019, Block Group 3, Census Tract 2, Riley County, Kansas	2	
2257	1000000US201610005001025	Block 1025, Block Group 1, Census Tract 5, Riley County, Kansas	20	
2258	1000000US201610007004009	Block 4009, Block Group 4, Census Tract 7, Riley County, Kansas	20	
2259	1000000US201610010022100	Block 2100, Block Group 2, Census Tract 10.02, Riley County, Kansas	0	
2260	1000000US201610013024232	Block 4232, Block Group 4, Census Tract 13.02, Riley County, Kansas	6	
2261	1000000US201610009001066	Block 1066, Block Group 1, Census Tract 9, Riley County, Kansas	84	
2262	1000000US201610013012043	Block 2043, Block Group 2, Census Tract 13.01, Riley County, Kansas	0	
2263	1000000US201619800001204	Block 1204, Block Group 1, Census Tract 9800, Riley County, Kansas	0	
2264	1000000US201610008013001	Block 3001, Block Group 3, Census Tract 8.01, Riley County, Kansas	40	
2265	1000000US201610013024312	Block 4312, Block Group 4, Census Tract 13.02, Riley County, Kansas	1	
2266	1000000US201610005003004	Block 3004, Block Group 3, Census Tract 5, Riley County, Kansas	49	
2267	1000000US201610008022036	Block 2036, Block Group 2, Census Tract 8.02, Riley County, Kansas	1	
2268	1000000US201610009004068	Block 4068, Block Group 4, Census Tract 9, Riley County, Kansas	1	
2269	1000000US201610009004055	Block 4055, Block Group 4, Census Tract 9, Riley County, Kansas	0	
2270	1000000US201610010022035	Block 2035, Block Group 2, Census Tract 10.02, Riley County, Kansas	0	
2271	1000000US201610006004026	Block 4026, Block Group 4, Census Tract 6, Riley County, Kansas	8	
2272	1000000US201610006005001	Block 5001, Block Group 5, Census Tract 6, Riley County, Kansas	17	

ap



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Google Maps Cluster 1 Map



<https://maps.google.com/>

Trial-run Response Rates

- $\text{Contact Rate} = \frac{\text{Number of completed interviews}}{\text{All households where contact was attempted}} = \frac{22}{51} = 43.14\%$
- $\text{Cooperation Rate} = \frac{\text{Number of completed interviews}}{\text{All households where contact was made}} = \frac{22}{23} = 95.65\%$
- $\text{Completion Rate} = \frac{\text{Number of completed interviews}}{\text{Number of interviews intended to complete}} = \frac{22}{28} = 78.57\%$

Interpretation of CASPER Response Rates

- Completion Rate: 80% completion rate (168 interviews) required for results to be representative of the sampling frame

Trial-run observations

- Full CASPER feasible in Riley County.
- Avoid Epi Info 7 software for CASPER data management
- External validity of trial-run response rates poor.
- Bias
- Timing of CASPER



Products

RCHD CASPER First Stage Sampling Methodology

- Step-by-step methodology for conducting a CASPER first stage sampling
- Search entries into the U.S. census website to obtain block data in .csv format
- How to perform random sampling of the data using Microsoft Excel

RCHD CASPER Second Stage Sampling Methodology

- Step-by-step methodology for conducting a CASPER second stage sampling
- Intended for use by the CASPER survey teams at the cluster location

Creating Cluster Maps for CASPER Surveys

- Simple methodology to create cluster maps
- Census block data of the chosen clusters entered into the U.S. Census TigerWeb software to create cluster maps

Educational Poster

Mental Health during COVID-19

By Ganesh Kumar

Contact:- gkumar@ksu.edu

- Mental health includes our emotional, psychological, and social well-being¹.
- Anxiety, stress, and fear related to the COVID-19 outbreak can be overwhelming. Isolation and social distancing measures can accentuate these symptoms and make coping with stress more challenging.
- Potential mental health conditions related to the COVID-19 outbreak include **anxiety**³, **depression**³, **PTSD**⁴, and **substance use disorders**². Those with pre-existing mental health conditions may experience worsening of symptoms².

Some tips to improve mental health during times of distress:-

- Try to get enough sleep³.
- Keep to a regular routine³.
- Engage in regular physical activity and meditation².
- Stay in contact with friends and loved ones².
- Keep a positive mindset and be supportive to others³.
- Have a healthy and nutritious diet³.
- Avoid tobacco, alcohol, and drugs³.
- Limit exposure to news and social media. Get news from trustworthy sources^{2,3}.
- Call your primary care provider or mental health care provider in case you require professional help³.
- Explore resources from institutions and organizations such as Pawnee Mental Health Services⁵ (Manhattan, Kansas), National Alliance on Mental Illness (NAMI)³, or the Substance Abuse and Mental Health Services Administration (SAMHSA)³.



References and Resources

1. <https://www.mentalhealth.gov/basics/what-is-mental-health>
2. <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>
3. <https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/mental-health-covid-19/art-20482731>
4. <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-psychiatric-symptoms-and-disorders>
5. <https://www.pawnee.org/>

Image Sources

- <https://www.independent.co.uk/extras/indybest/zoom-video-chat-alternatives-best-app-conference-call-privacy-security-a9446241.html>
- Image by photoamed Hassan from PixaBay
- Image by OpenClipart-Vectors from PixaBay
- <https://www.pngfuel.com/free-png/aauq>



MPH Competencies

Summary of MPH Foundational Competencies

Number and Competency		Description
#1	Apply epidemiological methods to the breadth of settings and situations in public health practice.	Designing first and second stage sampling methodologies for conducting a CASPER in Riley County.
#3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate.	Analyzing the cleaned data from the RCHD trial-run and calculating CASPER response rates. Assessing Epi Info 7 software as a viable option for CASPER data analysis.
#7	Assess population needs, assets, and capacities that affect communities' health.	Part of the CASPER test-run conducted, the sole purpose of which is to assess different aspects of population needs, assets, and capacities related to the communities' health.
#9	Design a population-based policy, program, project, or intervention.	The upcoming RCHD CASPER toolkit, which is a compilation of the tools created by the MPH student team for conducting a CASPER optimized for Riley County.
#19	Communicate audience-appropriate public health content, both in writing and through oral presentation	The poster made for the Kansas State University MPH program, which addresses the issue of mental health in the context of the COVID-19 pandemic.

Thank You!



- Jason DeFisher
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- Grace Sello
- Amanda Todavchick
- Volunteers for the RCHD trial-run

Thank You!



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- Mr. Edward Kalas and staff at RCHD
- MPH Program: Barta Stevenson

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Questions?