Master of Public Health

Integrative Learning Experience Report

DEVELOPING A COMMUNITY ASSESSMENT FOR PUBLIC HEALTH EMERGENCY RESPONSE PROTOCOL FOR THE RILEY COUNTY HEALTH DEPARTMENT

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Summary/Abstract

Community Assessment for Public Health Emergency Response (CASPER) is a specific set of epidemiologic tools and methods designed by the Centers for Disease Control and Prevention (CDC) to provide decision-makers with rapid, inexpensive, accurate, and reliable population-based public health information about communities affected by disasters. The CASPER method and tools can be utilized to quickly measure the basic needs and health status of a community affected by a disaster by providing objective information required to allocate resources and assets during all disaster phases.

The primary objective of this project was to create a simplified local CASPER process for Riley County, Kansas. The development of the CASPER process for the Riley County Health Department (RCHD) closely followed the CDC CASPER toolkit operations sections. This CASPER process was pilot tested to determine if it would be a useful tool for RCHD to measure the community's basic needs and health status. The CASPER process involves conducting door-to-door surveys or a random sample of households using a questionnaire. CASPER tools include site selection tools, questionnaires, data analysis templates, and paper-based or electronic devices for data collection.

Although the CDC developed the CASPER toolkit specifically for use in communities affected by disasters, other health departments adapted the use of CASPER to collect primary data about public health needs as part of a Community Health Assessment (CHA). In non-disaster settings, health departments and organizations can use the CASPER methodology to answer other preparedness and research questions. Other public health departments have indicated that CASPER can be a useful tool for assessing health needs in various settings, including non-disaster settings. The CASPER protocol developed for Riley County, Kansas, is a promising tool for gathering information to allocate limited county and state resources to meet the most immediate needs of Riley County residents.

Subject Keywords: *CASPER, Epi Info, toolkit*

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Literature Review

Both natural and human-made disasters are a major public health concern in the United States because they can occur anytime without warning and cause significant devastation to human lives, property, and financial losses. Across the USA, none of the states is exempt from disaster devastation, whether human-made or natural (National Research Council [NRC], 1991). The recent report by the National Centers for Environmental Information (NCEI) has indicated that since 1980, the United States has sustained approximately 258 weather and climate disasters. The overall damage costs from these disasters exceeded one billion dollars as of January 2020, as depicted in **figure 1.1** (Smith, 2020). Regardless of the nature of disasters, it is vital to respond appropriately and effectively to the public health consequences of disasters. Timely access to accurate public health information is essential in responding effectively and appropriately to disaster devastations (Schnall, 2017).

Introduction to CASPER Methodology

Public health information is vital in increasing public health decision support. Emergency managers can use the information CASPER generates to allocate scarce resources for recovery efforts (*CASPER TOOLKIT*, 2012). These data provide vital situational awareness, which may significantly influence resource allocation approaches and strategies to prioritize public health response for the affected populations (Malilay et al., 2014). It is, therefore, very crucial to focus public health efforts towards developing epidemiological methods, such as rapid needs assessments, to provide emergency managers and public health managers with reliable data throughout the disaster life cycle, including preparedness, response, recovery, and mitigation (Malilay et al., 2014). Also, rapid needs assessment tools including CASPER can generate information that can better inform decision-makers, provide valid information to the news media to dismiss rumors, and assist in planning for future disasters (Bayleyegn et al., 2015).

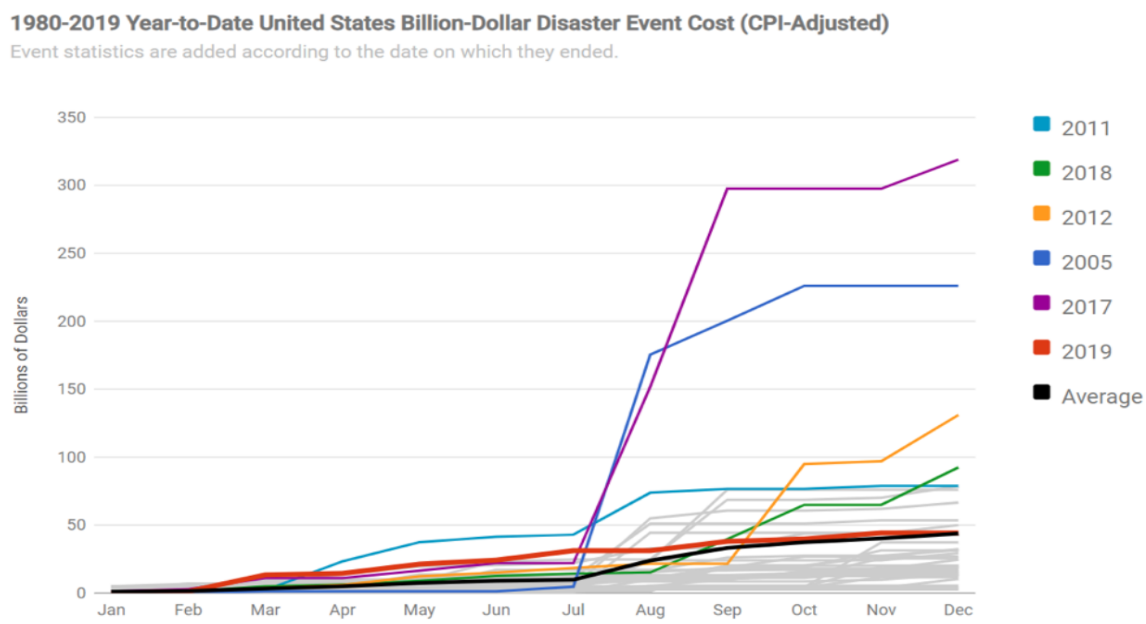

Figure 1.1 Estimated cost of billion-dollar weather climate disasters

The CASPER methodology was initially conceived from the World Health Organization's (WHO) Expanded Program on Immunization (EPI) survey technique for assessing vaccine coverage. It has been adapted for use in disaster-related rapid assessments by the CDC (Malilay,1996). CASPER is a set of epidemiologic tools and methods that provide decision-makers with household-based public health information about the needs of communities affected by disasters rapidly, accurately, at low cost, and in a very simple format (*CASPER TOOLKIT*, 2012).

Although the CASPER tools and methods were originally developed for use in communities affected by disasters, they are also useful for collecting community public health information in non-disaster scenarios. Other public health departments from several US states have used CASPER methodologies in non-disaster settings to assess community awareness and knowledge about emerging infectious diseases, opinions, and concerns on health-related subjects and assess the health status of the community (Ylitalo et al., 2016). For instance, the Texas Department of State Health Services utilized CASPER to assess household-based barriers to healthy eating and physical activity in a low-income neighborhood (Ylitalo et al., 2016). Additionally, the Kentucky Department of Public Health (KDPH) also used CASPER to determine the need to disseminate public health messages on the dangers of carbon monoxide, educate the community on the safe use of generators, and modified future CASPERs to account for gaps such as early communication messaging (Lutterloh, 2011).

Considering the critical role CASPER plays in assessing communities' needs in both disaster and non-disaster settings, my field experience aimed to develop a customized CASPER protocol for use in Riley County, Kansas. The development of the protocol closely followed the CDC CASPER toolkit's major operational phases including preparation for CASPER, conducting CASPER in the field, analyzing the CASPER data, and reporting the CASPER findings.

CASPER Methodology Overview

There are four general phases in conducting a CASPER. According to (*CASPER TOOLKIT*, 2012), these phases include: 1) Preparing for CASPER; 2) Conducting CASPER in the field; 3) Analyzing the data and 4) Writing the report as shown in **figure 2.1** below. All these phases were followed in my field experience. For this report, I will only emphasize the steps to which I contributed significantly, including data collection, data entry, and analysis.

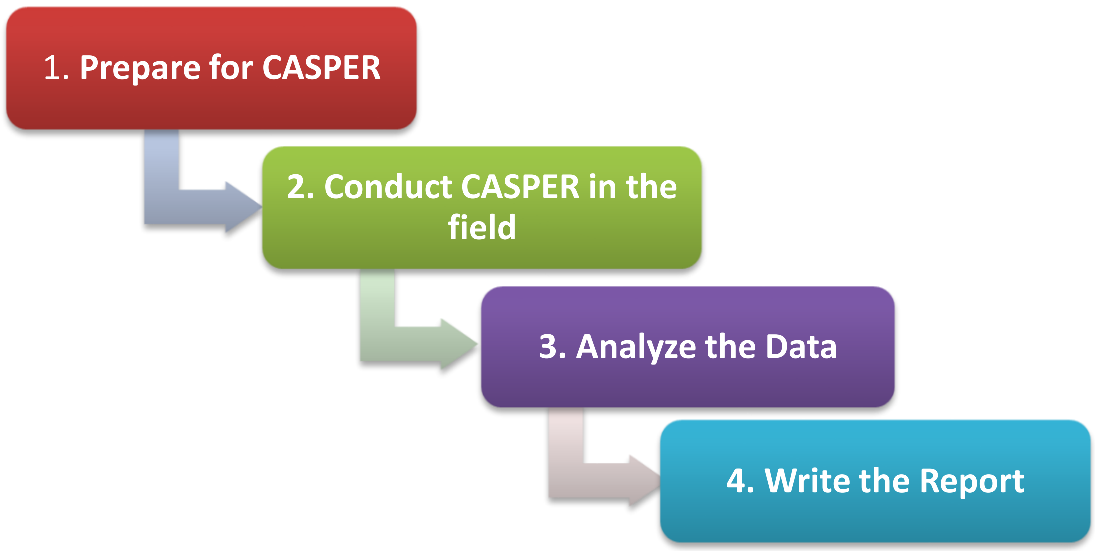

Figure 2.1 Four General Steps in Conducting A CASPER

Phase 1: Preparing for CASPER

The first step in conducting a successful CASPER is preparation. According to the (CASPER TOOLKIT, 2012), preparing for CASPER is very critical and involves: 1) Getting the team in place; 2) Determining the assessment objectives; 3) Determining the sampling approach; 4) Preparing for the fieldwork by developing Epi Info questionnaire and database, 5) Organizing and training field teams, and ensuring that there are enough supplies.

During the preparation for the CASPER, it is also important to understand the sampling frame. The CASPER uses a -stage cluster sampling method. During the sampling process, the specific population of interest is divided into geographically defined clusters that do not overlap. For instance, these clusters could include households or neighborhoods. CASPERs often use census blocks for clusters, because in the United States, census information is accessible and always available on the census website (CASPER TOOLKIT, 2012). First, the CDC CASPER methodology involves selecting a random sample of census blocks from within the county. In the second stage, household samples are randomly chosen from each cluster to conduct household interviews. A standard CASPER two-stage cluster sample includes 30 clusters with seven households selected from each for 210 households. The two-stage cluster sampling method offers various advantages over stratified sampling and simple random sampling by staging selection in two steps (Soloff, 2006).

For the Riley County CASPER pilot test, the sampling frame included occupied households in Riley County. The 2010 census block data were used to select clusters. Four survey teams were supplied with cluster maps before going into the field. One of the CASPER team members, whose primary responsibility was to develop surveys for the project, developed the survey questionnaire for the CASPER pilot test using the Epi Info form creation tool. The survey was comprised of eleven questions that addressed basic demographics including the age, gender, race, and ethnicity of respondents. The CASPER pilot survey also included random questions related to COVID-19. These questions included the number of times the participants tested for COVID-19, and whether they ever tested positive for COVID-19. The questionnaire also included questions on the immediate impact of COVID-19 on employment and internet access.

Phase 2: Conducting the CASPER in the Field

Conducting the CASPER in the field involves house-to-house in-person interviews. According to (CASPER TOOLKIT, 2012), the best way of conducting a CASPER involves interviewing a random sample of households using a questionnaire. CASPER tools include site selection tools, questionnaires, data analysis templates, and paper-based or electronic devices for data collection.

When conducting the CASPER, it is important to inform the community before going to the field. The (Centers for Disease Control and Prevention [CDC], n.d.) recommends, notifying the members of the community of the forthcoming CASPER and the reasons for conducting a CASPER through different media channels including the official health department webpages, press releases, and social media before conducting the CASPER. Informing the community ahead increases awareness of the CASPER and may increase participation. The team member responsible for planning and preparing for the CASPER project utilized numerous methods, including RCHD social media posts to notify the public of the CASPER pilot test. There were initial concerns from some community members regarding the safety of conducting a CASPER during the COVID-19 pandemic with mandatory social distancing orders in place. However, our CASPER team emphasized that our survey protocol will follow physical distancing and mask requirements. Due to these concerns regarding COVID-19, we had to postpone the CASPER trial.

On January 9, 2021, four survey teams conducted household interviews in the four selected clusters. The survey teams comprised Kansas State University staff with support from student volunteers. As mentioned above, the Riley County CASPER trial sampling method did not use cluster random sampling; clusters were manually selected for convenience. The CASPER Survey volunteers wore cloth face masks, maintained up to six feet distance, and obtained verbal consent from the selected household. Once the interviewers obtained consent, selected households participated in socially distanced outdoor interviews**.**

One of the most critical prospects of conducting a CASPER is to adequately train interview teams before conducting a CASPER to minimize errors in the field. Interview teams are trained on how to select interview households. The training also involves informing teams about the CASPER objectives, their roles, and responsibilities, potential hazards that may come across in the field, and safety precautions that must be followed (CASPER TOOLKIT, 2012). With our CASPER trial, volunteers were given an in-time training a few hours before conducting a CASPER trial.

Volunteer instructions included attempting to interview the selected households more than two times before they can decide to proceed to the adjacent house. Volunteers had to move to the next house if they knocked on an abandoned house or the person who answered the door refused to answer. The interviews were executed for one working day, in the morning and the afternoon sessions. Survey teams reported most households were vacant because the CASPER trial was conducted during the winter break when most people were not in Manhattan, Kansas.

Phases 3: Analyzing data

Once the surveys are collected, the next stage is to enter and analyze data. CASPER survey data can be entered into any statistical software package of choice including Microsoft Excel and Statistical Package for Social Sciences (SPSS) as long as the statistical software package allows for multistage sample design weighting (CASPER TOOLKIT, 2012). However, CDC highly recommends using Epi Info because it is free. To ensure the highest data quality for analysis, data must be entered accurately, cleaned, and processed. When data cleaning and processing are complete, the next step is to assign weights for each household with a completed interview. Weights are assigned based on the probability of the household to be selected for obtaining population estimates as emphasized in the CASPER toolkit. Data analyzed without assigning weights cannot be generalized for the whole sampling frame. It is recommended that a CASPER must reach a minimum of 80% completion (n=168) to conduct a weighted analysis (CASPER TOOLKIT, 2012).

Phase 4: Reporting CASPER Data

The last phase of conducting a CASPER is reporting results. During this phase, the preliminary CASPER results can be interpreted and be shared with public health leaders, decision-makers, and key stakeholders through presentations and written reports. Results can be shared within 36 hours of completing data collection to allow for timely discussions about the implementation of key findings, recommendations, and lessons learned, and plans. (CASPER TOOLKIT, 2012). Sharing findings is one of the most crucial components of conducting a CASPER, as information shared will help to increase public health decision-making support.

When to Use Casper

There are a plethora of opportunities in which CASPER can influence public health. As mentioned previously, CASPER can be used for other surveys that weigh community opinion and knowledge on various health topics. For the literature review, I reviewed a study that showed the utilization of CASPER in assessing household-based behaviors and barriers to fruit and vegetable consumption in Texas (Ylitalo et al., 2016). In 2015, the Texas Department of State Health Services (DSHS) used CASPER to acquire household-based information regarding behaviors and barriers to fruit and vegetable consumption and physical activity. The department also explored the utility of CASPER methods for future health assessments (Ylitalo et al., 2016). The health assessment was performed in one working day, where 36 individuals formed 12 field teams. All the field teams participated in morning "just-in-time" training and were assigned one of three team roles: These team roles included a person responsible for knocking on the door of the selected house, introducing the team, and obtaining informed consent, someone responsible for the data collection on iPad or paper survey, and someone responsible for tracking homes and response rates. For their pilot investigation, the Texas Department of State Health Services selected one zip code from a central Texas metropolitan area with a high prevalence of obesity.

Moreover, the Texas Department of the State Health Services developed their survey using a community-based participatory research approach with community members and stakeholders. They then used CASPER methods to obtain a representative sample of residents to provide information about healthy living behaviors and barriers. Their cross-sectional survey data included (*n*=100) households located in a low-income neighborhood. The findings of their CASPER revealed that 50% of the adults did not meet fruit and vegetable consumption recommendations, and 20% reported the absence of physical activity in the past week. Their CASPER also established a significant association between cost and healthy living in the Texas community.

Finally, the study concluded that CASPER methodology was useful, highlighting that CASPER is a user-friendly CDC toolkit. The authors also mentioned that although they used a relatively low sample size (*n*=100), their CASPER yielded a representative community sample which could be generalized for the households in Texas. They also indicated that the CASPER methods required low-cost implementation and strengthened an academic-practice-community partnership. This study demonstrated the usefulness of CASPER in conducting healthy living assessments in a geographically distinct community with unknown household health behaviors and barriers. The findings of this study are in line with the (*CASPER TOOLKIT*, 2012.) which indicates that CASPER is specifically useful during three post-disaster situations. Such situations include scenarios when we do not know the impact of the disaster on the population's health status and the basic needs of the vulnerable community. Sometimes, a CASPER is needed when there is a need to evaluate the community's response and recovery efforts (Guest & Rondin, 2019).

Other studies have shown that the CASPER methodology can also be used before disasters to assess personal and community preparedness. Williamson County used CASPER to gather public health information at the household level (Tung & Snyder, 2019). Their CASPER assessed awareness of resources and services in Williamson County; explored health behaviors regarding obesity, mental health, and chronic disease in the county; evaluated access and barriers to healthcare, transportation, and community resources in Williamson County. The key findings from their CASPER provided household-level data regarding fundamental issues in the county. The information also helped Williamson County to identify root causes of challenges faced by Williamson County residents; prioritize health problems and assist in developing the county's community health assessment. Recommendations were made for stakeholders and key decision-makers based on the findings. In general, the CDC recommends that health departments and hospitals conduct periodic community health needs assessments using CASPER as it is well suited to routine health data collection. CASPER methods can also be applied to make assessments after disasters, giving health departments more time to plan.

Learning Objectives and Project Description

In June 2020, I served as a public health intern for the Riley County Health Department (RCHD), working on a vast Community Assessment for Public Health Emergencies (CASPER) project for the county. I completed my Applied Practice Experience (APE) with the RCHD in January 2021. I worked closely with my preceptor, Mr. Edward Kalas, and other Master of Public Health (MPH) students to develop a simplified CASPER process for the county. RCHD is a local health department in Manhattan, Kansas and it works with multiple stakeholders including community members, the local board of health, community health and education organizations, Fort Riley and Riley County residents, and visitors (RCHD, 2020). RCHD's mission is to promote and protect the Riley community's health and safety through evidence-based practices, prevention, and education (RCHD, 2020). Mr. Edward Kalas was a Division Manager of Environmental and Community Health until December 2021. Mr. Kalas holds a Master of Public Health degree from the University of Oklahoma and is a certified and registered sanitarian.

My field experience at the RCHD consisted of four primary learning objectives including:

1. Creating the local process for CASPERs for use in Riley County.
2. Assessing how to clean and enter CASPER data to prepare for proper analysis.
3. Utilizing statistical software to enter and analyze data provided.
4. Applying data analysis product to develop an overall evaluation of the CASPER tool.

My most significant contributions included working on sections four and five of the CASPER toolkit during my time with the RCHD. With an emphasis on these sections, I assisted in developing the Epi Info data entry training PowerPoint, data entry flowcharts for future CASPERs, CASPER data collection flyer template, and a Gantt chart template—which will be added to the final document of the CASPER protocol for Riley County. At the end of the project, I developed a short analysis of Epi Info as a data collection tool for future CASPERs.

RCHD CASPER Project

The RCHD CASPER Project was a collaborative effort between a group of Kansas State University Master of Public Health students and the RCHD to adapt the CASPER toolkit for Riley, Kansas. CASPER, as indicated earlier in this report, is an epidemiological tool designed by the

CDC to provide public health leaders and emergency managers with population-based health information (CDC, n.d.). The CDC designed a CASPER survey to assess a chosen sampling frame's health needs rapidly. Sampling frames are often cities or counties chosen for community health assessment or disaster relief.

During the early days of the project, Mr. Kalas gave the CASPER team a 106-page CDC CASPER manual. Our significant tasks included critically reviewing the CASPER manual to generate ideas of what could work best for Riley County as a team. After several weeks of vigorous research, literature review, and studying the CDC CASPER manual, every individual on the CASPER team had to choose a task to work on within the CDC CASPER toolkit. As indicated earlier in this report, the CDC CASPER toolkit comprises four major phases including:1) Phase I: Preparing for the CASPER; 2) Phase II: Conducting the Assessment ; 3) Phase III: Data Entry and Analyses, and 4) Phase IV: Writing the report. I worked on phase three of the CASPER toolkit, emphasizing sections four and five of the CDC CASPER toolkit. Section four includes data entry, cleaning, and processing to prepare data for analysis. Section five describes how to handle the data from the questionnaire. The other part of section five of the CDC toolkit describes the tracking forms analysis, weighted analyses, calculating confident intervals, and response rates using Epi Info Software.

After creating the CASPER project objectives as a team, we focused on our roles based on our toolkit sections' pre-selected CASPER phases. During the project, emphasizing phases two and three of the CDC CASPER toolkit, I created the Epi Info data entry training PowerPoint for the Riley CASPER process. The main goal of creating the Epi Info training PowerPoint is to make future CASPERs easier to perform. Hopefully, this training presentation will guide the Riley County data entry process using Epi Info. The training was explicitly made for the Epi Info tool because CDC recommends it in the toolkit. The training explains how to enter data from multiple sources in Epi Info. It also includes some steps regarding using the "enter data" module in Epi Info to ensure future users are successful with the data entry process. The training PowerPoint was later updated after the CASPER pilot test. Additionally, I also helped create the data collection flyer template that will be utilized in future CASPERs. The template can be modified and used according to a CASPER's needs in that specific time. It allows prospective users to fill in the date, their names, and the CASPER's purpose. The template was created as an addition to the other flyers that were created for the community by another colleague. The flyers are designed to be distributed to the community before CASPER data collection to inform the public about the CASPER and the type of information collected.

With the help of Mr. Kalas and the original CDC toolkit, I also created data entry flowcharts to give future users of the protocol different options of data collection methods. According to the CDC CASPER toolkit, there are two ways of collecting CASPER data, namely electronic and paper form data collection. The flowcharts describe how to handle data entry if a CASPER uses a paper questionnaire and how to handle data if a CASPER uses electronic devices. The flow charts will be part of the final RCHD CASPER report in the appendices. In the pilot test we ran, we tested both methods as we collected data using both paper forms and electronic forms. The following table will be included in the CASPER protocol document to guide the decision on which method to use.

Table 1. Data Collection Options

	Advantages	Disadvantages
Paper Forms	○ Low cost ○ Requires little training ○ Does not require power sources ○ Easy to fill out in the field	○ Forms not protected from getting lost, or form rain ○ Requires additional materials such as clipboard, pencil. ○ Could introduce errors from the manual transfer of the data from the paper form to the database ○ Labor intensive ○ Additional data entry required
Electronic Forms	○ Electronic data transfer ○ No additional data entry required after data collection ○ Less time consuming	○ Technical training required ○ Surveys need to be pre-loaded into mobile devices before data collection ○ Units not protected from elements ○ Requires more time to fill out ○ May limit number of field teams to availability of equipment

Towards the end of the project, we had to combine the toolkit's operational sections that each of us worked on and plan to produce a report on how to conduct CASPERs in Riley County. We prepared for the CASPER methodology test trial by creating a survey using the CDC application Epi Info 7. Questions for the survey included demographics and brief questions regarding COVID-19. This CASPER trial was not intended to produce representative data for Riley, Kansas. As indicated in the previous sections, the CDC's CASPER involves a two-stage cluster sampling design in which initially 30 clusters are selected, and then seven household interviews are conducted in each cluster in the second stage (*CASPER TOOLKIT*, 2012). The goal of a CASPER is to interview a total of 210 households within the sampling frame. However, for the RCHD CASPER pilot test, four clusters instead of thirty clusters or census blocks were selected within the frame based on the estimated number of housing units in each cluster. Clusters were selected from a compiled list of US Census Bureau clusters within Riley County. While the CDC indicates that a true CASPER should randomly select 30 clusters using a random number generator, the four clusters selected for the CASPER trial were manually selected to provide clusters that had a high probability of initial responses. The deviation from the CASPER protocol was intentional. It was only done because the small sample size was not intended to produce representative data. Following the appropriate random cluster sample selection procedure for CASPER, would allow for an actual representative sample, adding to the CASPER survey's strength.

After collecting data from the pilot test, I was responsible for creating datasheets . They consisted of tracking, weighted, and unweighted data. I was also responsible for entering data collected from 22 surveys into the Epi Info software and created datasheets in excel. My other roles in the CASPER project included reviewing data to check for inconsistencies, implausible entries, missing data, and skip pattern errors. The goal during data cleaning was to prepare the raw data for analysis. Even though the pilot test aimed not to get any data for future use, I had to critically follow all the steps we proposed to ensure that they work in real-life settings. In addition to dealing with missing data and possible errors, data cleaning also included changes to the data to prepare for weighted analysis. For example, some numeric answer choices were stored as text, which could impede analysis efforts. The Epi Info statistical analysis package requires a standard type of numeric coding to be applied after collecting data. After cleaning the data using excel, I converted the data back to a Microsoft Access ".mdb" file that could be read by the Epi Info statistical tool. After successfully importing the data into the epi Info's classical analysis module, I calculated means, frequencies, and confidence intervals and generated an analysis output.

Data Entry and Analysis Using Epi Info

Epi Info mobile app is a tool that enables public health practitioners to calculate sample sizes, collect public health data, and analyze data using smartphones and tablets. This application also helps public health practitioners in outbreak investigations, emergency response, and public health research (Centers for Disease Control and Prevention [CDC], n.d.). Epi Info for windows allows the creation of survey forms that can be emailed to other users to load in their mobile Epi Info companion apps for data collection in the field. Data can be collected offline and uploaded to the cloud when devices are connected to the internet. Uploading data instantly on the cloud gives data analysts access to real-time data to conduct analysis and perform situational awareness (Centers for Disease Control and Prevention [CDC], n.d.).

Data Entry

The CASPER pilot test data were entered using Epi Info. Interview teams submitted both electronic surveys and paper surveys after returning to the command station in Trotter hall. The paper surveys were later entered into the Epi Info database on the day of the CASPER trial. I re-entered 22 paper surveys into the epi Info survey to compare paper and electronic data collection accuracy. Some of the electronic entries were missing; therefore, the paper survey was considered the gold standard. However, for paper surveys that had a blank field, I had to refer to the electronic survey for those specific missing questions. The paper surveys were then validated against the field-entered electronic surveys that were saved in the Box database. This quality assurance (QA) process identified eight missing electronic surveys, so we ended up using only data collected from paper forms.

Data Analysis

The CASPER pilot data analysis in Epi Info involved generating an analysis output of means, frequencies, variance, standard deviations and confidence intervals. After the quality analysis process, I imported the data tables into excel to do further data cleaning. When data cleaning was completed, the weighted spreadsheet was created. The weighted data were calculated using the weight formula in which the denominator is the total number of housing units in the sampling frame, and the denominator is the number of housing units interviewed in each cluster multiplied by the number of clusters selected (*CASPER TOOLKIT*, 2012). A weighted cluster analysis was performed. Specific calculations of outcomes were generated as follows: unweighted and weighted frequencies, unweighted and weighted means, and the weighted 95% confidence intervals standard deviations, and variance.

Response rates were also calculated using the data from the tracking sheets. Response rates included the completion rates, cooperation rates, and contact rates. The completion rate describes the percentage of CASPER teams to completing the goal number of interviews, usually 210 households. For our CASPER pilot, the goal number of our survey was 28. Completion rates must be over 80% for the survey to be representative of the sampling frame. The cooperation rate describes how eligible and willing the community was to participate in the CASPER. The lower this rate is, the more the sample leans toward convenience and away from random and indicates the possibility of bias. Higher cooperation rates will mean a survey that is representative of the sampling frame. The (*CASPER TOOLKIT*, 2012) recommends aiming for cooperation rates above 60%. Lastly, the contact rate describes, essentially, the effort of the survey: the proportion of all households visited where a survey was completed. Contact rates should be above 20%. CASPER results with contact rates below 20% will need to be interpreted carefully as the sample demographics may not align well with the sampling frame's demographics.

Results

Our CASPER team conducted a pilot test to determine how the simplified CASPER toolkit performed in the context of Riley County. Based on the Epi Info data analysis output, our findings were as follows: The CASPER tool can be used to collect demographic and COVID-19-related data and to provide descriptive statistics using Epi Info. Riley County CASPER pilot test survey data were collected using paper forms and electronically via smartphones using the Epi Info mobile companion application. The four CASPER field teams conducted a total of 22 interviews. Electronic entries were uploaded to the shared Box cloud storage. Records from paper forms were manually entered into Epi Info 7 upon return from the field. After synchronizing the data, analysis was performed using Epi Info 7 software. Survey teams attempted to contact 28 households and completed 22 interviews, generating the response rates below:

Table 3.1. Example of Response Rates Obtained From CASPER

Response Rates	**Clusters (n=4)**
Completion Rate: represents the closeness to collecting the target # of interviews (# of completed surveys/target # of surveys)	78.6%
Cooperation Rate: represents compliance of community to participate (# of completed surveys /# of contacted households)	95.7%
Contact Rate represents the percent of attempted households and an interview completed) (# of completed surveys / # of households where contact was attempted)	43.1%

The CASPER tool also allows for weighted analysis. During analysis, each surveyed household was assigned weights. Weights are assigned based on the probability of a household to be selected to get population estimates (*CASPER TOOLKIT*, 2012). CASPER data analyzed without assigning weights cannot be generalized for the whole sampling frame. Applying the weights when running analyses provides estimates that can be generalized to every housing unit in the geographic boundary for which the CASPER is conducted provided that the survey reached the 80% completion rate (*CASPER TOOLKIT*, 2012). Although our pilot test sample was too small for weighted cluster analysis and did not meet the 80% completion rates, we still conducted an analysis to obtain examples of data that can be acquired from the simplified CASPER toolkit. The first and second sections of the Epi Info output provided the unweighted and weighted analysis of the mean age stratified by gender, respectively. For example, according to our CASPER test trial, this is the type of data that can be obtained from CASPER (**Table 3.2**). The third section summarized in (**Table 3.3**), shows the frequency of COVID tests number stratified by race per cluster. This table provides frequencies and percentages of which the number of COVID tests were taken. As mentioned earlier, the data collected in the field were not intended for any specific use other than testing the CASPER protocol for Riley County. Please note that these are some examples of CASPER data that our customized toolkit trial provided. These examples are grouped and summarized below:

Table 3.2. Example of Demographic Data of Gender Stratified by Age Obtained from CASPER (*n*=20)

Weighted Analysis

	Observations	Weighted observations	Age M(SD)
Male	8	280	35.0(15.9)
Female	12	571	47.6(17.8)

M=Mean

SD=Standard deviation

Table 3.3.Weighted Frequency of COVID Test Number (*n*=19)

Covid tests #	Frequency	Weighted Frequencies	% Percent	95% CI
None	10	11587	48.9	17.6-80.9
Once	3	3778	15.9	-16.8-48.7
Twice	2	2771	11.7	-13.3-36.7

Three times	3	4534	19.1	-24.7-63.0
Refused to answer	1	1008	4.3	-8.5-17.0

Discussion

The simplified CASPER toolkit for Riley County has the potential to be a useful tool for assessing health needs in various settings, including non-disaster scenarios. However, the CASPER methodology still requires expertise in sampling and statistical software for data analysis. This project experience required some technical support from the CDC and other external assistance. The Riley County CASPER toolkit could be used to collect essential data about the demographics and the impact of the COVID-19 pandemic in Riley County. Based on the utility of CASPER and the examples of data that could be gathered during the CASPER trial, volunteer feedback, and observations, I believe that with proper planning and clear CASPER objectives, the CASPER protocol developed for Riley County, Kansas, may be an invaluable tool for gathering information to focus scarce county and state resources to meet the most immediate needs of Riley County residents.

Also, there is sufficient evidence from previously conducted CASPERs that the CASPER method can be useful in many ways. Previous CASPER reports have identified numerous reasons for using the CASPER methodology. According to (Bayleyegn 2015 & Zane, 2010), one of the CASPER advantages is that results collected using the CASPER methodology can be representative of the community and generalizable beyond the individual respondents since everyone in the community has a chance to participate due to the random nature of the CASPER method. This conclusion above was made compared to the results of a convenience sample, which only represents the individuals who responded to the survey (Bayleyegn, 2015). While the Riley County CASPER trial's current output could not be used to generalize the Riley County households, CASPERs using this tool in Riley County may still achieve their intended use provided that it uses the right sample size of a minimum of 168 households as recommended by CDC and has the clear data collection objectives.

Our CASPER team and volunteers found the CASPER to be quick and efficient. According to (CASPER TOOLKIT, 2012), CASPER results could also be collected and processed within a short period since CASPER methodology is based on the rapid needs assessment framework. Several CASPER reports also came to a consensus that CASPER was indeed a quick method of assessing community needs (Ylitalo, 2016; Tung & Snyder, 2019). This was also true for our CASPER trial as data were collected for a day, and results were generated within 36 hrs. This expediency of CASPER methodology can give decision-makers the information they need promptly.

The CASPER methodology is also perceived to have higher quality data than other methods such as mailed surveys because it utilizes door-to-door surveys. This was also supported by most reports reviewed. Conducting door-to-door surveys guarantees high-quality data because the interviewer can clarify questions that may be unclear, yielding complete data (Hanchey, 2018 & Schnall, 2019). For our CASPER trial, volunteers had to make additional notes on the paper questionnaires for responses that were not among the potential answer choices. This was very helpful because we could have missed that crucial information if surveys were administered online or by email. Also, CASPER gives interviewers in the field an opportunity to gather data by personal observation, such as the physical road and housing conditions or structures (CASPER TOOLKIT, 2012). Most previous CASPERs used volunteers to conduct interviews, making CASPER significantly less expensive compared to other data collection methods. When interviewers go into a community, they can also promote increased community awareness of the organization's assessment. During the CASPER, interviewers can also disseminate other important material such as resource lists, fact sheets, or contact information. That way, the CASPER serves an educational function, in addition to its primary function to determine the community's health status.

There are also several lessons learned, provided below, to make future CASPERs successful. The lessons emphasize the data collection, data entry, and analysis sections that I worked on. General recommendations for the CASPER protocol for Riley County may be included in the final CASPER manual.

Lessons Learned: Epi Info Data Entry, Collection, And Data Cleaning Observations and Recommendations.

One of the most valuable lessons I learned through this experience was how to conduct a CASPER locally. I also learned how to tailor the CASPER toolkit for the specific needs of Riley County. Through this experience, I have learned that CASPER data can be analyzed using numerous software platforms. These software platforms include but are not limited to Epi Info, SAS, and other statistical analysis programs. However, the CDC recommends the Epi Info program for conducting analyses, especially to assign weights to survey households. It is also worth mentioning that Epi Info can be both a benefit and a detriment to the data analysis process.

Even though the CDC recommends using Epi Info for CASPERs because it is free, using this tool for Riley County reflected many hurdles. Some of the problems we encountered with Epi Info included that it is only available for Windows and not available for Macintosh Operating System which the departments should consider before using it. I also observed that SAS and other statistical analysis programs can be used for CASPERs but are often more complicated. However, these programs allow for advanced statistical techniques. The general recommendation would be that analysis teams should be familiar with the software when conducting advanced statistical analyses. Additionally, other user-friendly spreadsheets, including Microsoft Excel, can be used to present the results in visually pleasing tables and graphs.

Epi Info can be an excellent tool for data collection and entry when using paper forms; however, for entering data collected from mobile phones, the department has to have a data analyst or an IT personnel to import data from the mobile Epi Info companion. Another observation was that it is imperative to consider using the age range in the questionnaires instead of exact ages. Participants were not very comfortable sharing their exact ages, even for health reasons. Future CASPER surveys should also consider including the "other or unknown" options in questionnaire answers to avoid missing valuable data. From our pilot survey, we learned that some of the respondents' answers were not within the set questionnaire options; thus, some interviewers left blank spaces on the forms while some noted additional responses with a pen on paper forms.

Data entry and analysis appeared to be faster with data collected electronically than with data collected using paper forms data however, electronic data entry required more training. For example, our team needed more hands-on time with the Epi Info and other applications that were used to manipulate the data. Using the same data entry and analysis methods and tools, future survey analysis might be possible by acquiring adequate training to use these tools.

Another issue with Epi Info is that it generates very long IDs, making it hard to validate the data provided extensive samples are used. For example, the Epi Info automated IDs have more than 20 characters, making it almost impossible to use the search bar to locate a specific record. It would have been very efficient if a unique ID with a maximum of two to three digits were assigned to the records when developing the survey. With our CASPER pilot data cleaning, it was easy to validate the data and track missing entries by visual examination because we had a few entries, but this would be difficult for large samples. I would recommend that for the above problem, separate rows for IDs should be used in form creation so that every entry could be easily found in the database for easy validation. Other available options are more user-friendly for data collection and entry, such as Qualtrics surveys and google forms. The departments planning on completing CASPERs may want to consider alternatives to Epi Info. We also learned that double data entry for data validation is critical to ensure to a high degree of certainty that the records on the forms have been transcribed into the database. With appropriate training and expertise in sampling and statistical software for data analysis, CASPER could be a useful tool for assessing health needs in various settings, including Riley County.

In conclusion, working on this project has been very rewarding in many ways for me. All the activities that I performed equipped me with the necessary skills which will be vital in the career. My plan with these skillsets that I accrued during my experience, is to continue expanding my knowledge about the CASPER methods and plan to apply them in the context of Lesotho, my native country, to assess the needs of vulnerable people facing consequences of droughts and seasonal floods. This could be a very useful tool to assess household food insecurity in Lesotho to provide the government and humanitarian agencies with population-based information to aid in responding effectively and appropriately to community needs.

Competencies

Student Attainment of MPH Foundational Competencies

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		Description
21	Perform effectively on interprofessional teams	My project was a group project where I worked with other public health students under Mr.Ed Kalas's supervision. The other students had different emphasis areas from mine, which is Nutrition. I worked on the CASPER project with three other students from the infectious and zoonotic diseases track and one other from the physical activity emphasis. I also had the opportunity to attend the Riley coalition meeting, where my team presented the CASPER protocol analysis.
2	Select quantitative and qualitative data collection methods appropriate for a given public health context	This competency was achieved by developing a data collection process for local RCHD future CASPERs. Initially, I conducted a lot of research to determine which data collection methods would suit Riley County. After going through vigorous research and comparing other health departments' processes, I created a data entry flowchart on data entry methods. The flowcharts showed how data could be collected using paper forms and electronic

		forms. The two data collection methods were pilot tested towards the end of our project when we ran the whole CASPER trial in Riley County.
3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software as appropriate	After pilot testing the CASPER process, I created datasheets, which showed tracking data using Microsoft excel. I used Microsoft excel to clean data in preparation for analysis then created data tables of weighted and unweighted data from the CASPER pilot test. I also ran a fundamental data analysis using Epi Info software.
9	Design a population-based policy, program, program, project, or intervention	This competency was achieved by creating a local CASPER process that will be simple and easy to use for RCHD CASPERs. We developed the CASPER manual for Riley County using the CDC CASPER protocol.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	This competency was achieved through the delivery of a training presentation PowerPoint for CASPERs. I developed raining presentation PowerPoint slides for future CASPER on entering data using the enter module on Epi Info software. Besides the flyers that were already created by my colleagues who worked on CASPER preparations, I made a data collection flyer that could be edited in the future depending on the use and need of CASPER. We presented our CASPER pilot test results to the RCHD coalition.

Competency 19- Communicate audience-appropriate public health content, both in writing and through oral presentation

I worked on section four of the CDC CASPER toolkit. Section four includes data entry, cleaning, and processing to ensure the highest quality data for analysis. I created the Epi Info data entry training PowerPoint as part of creating the CASPER protocol for Riley County. The main goal of creating the Epi Info training PowerPoint is to make future CASPERs easier to perform. The training was explicitly made for the Epi Info tool because CDC recommends it in the toolkit. The training explains how to enter data from multiple sources in Epi Info. It also includes some steps regarding using the "enter data" module in Epi Info to ensure future users are successful with the data entry process. When creating the training PowerPoint with the CDC material guide, I had to bear in mind that the prospective CASPER project members may have different technical knowledge and skill levels. So, I made the training as practical as possible by going to the Epi Info software, entered data into the CDC forms in the Epi-Info database, and created the training using real process screenshots. I also helped create the data collection flyer template that will be utilized in future CASPERs. The template can be modified and used according to a CASPER's needs in that specific time. It allows prospective users to fill in the date, their names, and the CASPER's purpose. The template was created as an addition to the other flyers that were created for the community. The flyers are designed to be distributed to the community before CASPER data collection to inform the public about the CASPER and the type of information collected.

Competency 9- Design a population-based policy, program, program, project, or intervention

My primary focus on the project had was to work on sections four and five of the CDC toolkit, data entry, and analysis. At the end of the project, we had to combine the toolkit's operational sections that each of us worked on and plan to produce a report on how to conduct CASPERs in Riley County. During the early days of the project, Mr. Kalas gave us the CDC CASPER manual to read and develop what we think could work for Riley County. After several weeks of studying the CDC CASPER manual, each of us had to choose a CASPER phase to work on within the CDC CASPER toolkit with the goal of developing a customized CASPER toolkit for Riley County.

Competency 21- Perform effectively on interprofessional teams

This competency was achieved by working with other MPH students from different public health areas. In collaboration with the K-state MPH department, Volunteers, MPH students, CASPER team, and RCHD, we created a customized protocol for RCHD and prepared for the CASPER trial by completing surveys using the CDC application Epi Info 7. This allowed me to work with other students from infectious and zoonotic diseases and physical activity. From this experience, I learned how to work with teams on a professional level. Each student was given a section on the CDC CASPER toolkit to work on. We met bi-weekly as a group to discuss our progress and provide updates. I also had the opportunity to attend the Riley coalition meeting, where my team presented the CASPER protocol analysis.

Competency 2- Select quantitative and qualitative data collection methods appropriate for a given public health context

As part of data entry and collection, I developed data entry flowcharts as data entry items that future users of the CASPER protocol should ensure the quality of data collected during a CASPER. With the help of Mr. Kalas and the original CDC toolkit, I created data entry flowcharts to give future users of the protocol an option to choose which method of data entry to choose depending on their choice of the data collection method. According to the CDC CASPER toolkit, there are two ways of collecting CASPER data. The flowcharts describe how to handle data entry if a CASPER uses a paper questionnaire and how to handle data if a CASPER uses electronic devices. The flow charts are part of the final CASPER report in the appendices. In the pilot test we ran, we tested both methods as we collected data using both paper forms and electronic forms.

Competency 3- Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software as appropriate

Another focus area during my project was creating datasheets, which showed tracking data, weighted and unweighted data from the CASPER pilot test. After completing a pilot test of the whole CASPER methodology in Riley County, I entered data collected from 22 surveys into the Epi Info software and created datasheets in excel. Once I completed the data entry process into the Epi Info platform, I thoroughly reviewed data to check for inconsistencies, implausible entries, missing data, and skip pattern errors. The goal during data cleaning was to prepare the raw data for analysis. Even though the pilot test aimed not to get any data, I had to critically follow all the steps we proposed to ensure that they work in real-life settings. In addition to dealing with possible errors and missing data, data cleaning also included changes to the data to prepare for weighted analysis. For example, some numeric answer choices were stored as text, which could impede analysis efforts. The Epi Info statistical analysis package requires a standard type of numeric coding to be applied after collecting data. After cleaning the data using excel, I converted the data back to a Microsoft Access .mdb file that could be read by the Epi Info statistical tool. After successfully importing the data into the Epi Info's classical analysis module, I calculated means, frequencies, and confidence intervals and generated an analysis output.

Table 5.2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy, or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity at the organizational, community, and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets, and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project, or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social, or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
16. Apply principles of leadership, governance, and management, which include creating a vision, empowering others, fostering collaboration, and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880, or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880, or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Student Attainment of MPH Emphasis Area Competencies

Table 5.3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area:		
Number and Competency		**Description**
1	Information literacy of public health nutrition	Inform public health practice through analysis of evidence-based policy, systems, and environmental change. FNDH 600
2	Compare and relate research into practice	Examine chronic disease surveillance, policy, program planning and evaluation, and program management, in the context of public health nutrition. FNDH 600
3	Population-based health administration	Critically examine population-based nutrition programs. FNDH 600
4	Analysis of human Nutrition principles	Examine epidemiological concepts of human Nutrition in order to improve population health and reduce disease risk.

5	Analysis of Nutrition epidemiology	Describe criteria for validity in nutritional epidemiological methodology. FNDH 844

PHN Emphasis Area Competency Description of Competency Required Course

1.**Information literacy of public health nutrition**

In FNDH 600 -Public health Nutrition class and MPH 820- Environmental health class, I learned about disasters in general, disaster management, and mitigation, the vital role disaster management can play through ensuring the availability and accessibility of accurate and reliable disasters risk information when required. The classes also presented the key factors relating to the disaster management cycle and explored challenges in disasters. This knowledge about disasters was useful in my field experience. My first roles at RHCD included identifying a list of CASPER uses in both disaster settings and non-disaster settings through a comprehensive literature review of CASPERs conducted in disaster settings and through critically studying the CDC CASPER toolkit. Understanding how CASPERs were initially used in disaster settings enabled me to understand the CASPER utilization in non-disaster settings better and by virtue of that, I was able to suggest the best possible methods for the Riley Country CASPER process.

Information literacy of public health nutrition was an important aspect of my time in the MPH program. In FNDH 844 and FNDH 820 class, I learned how to critically appraise different studies of different designs and interpreted those studies via weekly presentations and reports. Most notably, FNDH 844 emphasized methods and issues involved in understanding and conducting studies on the relationship between human diet and disease. In MC750 I was also able to conduct evidence-based research and design health a communication campaign for food security among Kansas State University students during the COVID-19 pandemic. One of my goals for the RCHD project was to help develop a simplified CASPER tool for Riley to help in assessing the Riley County health needs. Understanding and being able to interpret the best available practices and current research were very crucial when creating the CASPER protocol for Riley County. It is important to understand and incorporate the best valid evidence available while also prioritizing community needs.

In MPH 720 we conducted needs assessments for social support among youth in Riley County young adult community and conducted interviews within this community and presented findings to stakeholders. This practice taught me how important it is to report findings to stakeholders.

After we conducted the CASPER project, I had to write a short analysis on the use of the Epi Info application for data collection, cleaning, and entry and entry. The analysis included lessons learned and recommendations which were included in the final presentation of the CASPER pilot analysis that my team presented at the coalition meeting.

2. Compare and relate research into practice

In the FNDH 600 and KIN 610 class, I learned how to examine chronic disease surveillance, policy, program planning, and evaluation and management. In the FNDH 600 class, one of the MPH student requirements was to consider surveillance data in combination with the national diabetes prevention program in planning and evaluating a countywide public health initiative. In the Kin 610 class, I learned how to plan programs from the beginning till the end. The class allowed me to develop a theory-based physical activity intervention for children in low-income households in Riley County. At the end of the course assignment, we designed a comprehensive evaluation plan for a physical activity intervention including study design and outcome and process measures. Even though I did not directly apply any of these skills in my APE, I believe they are valuable skills that will help me effectively plan and evaluate health programs back home in Lesotho.

3. Population-based health administration

In FNDH 600 and FNDH 844, I learned how to critically examine population-based nutrition programs. Most notably in FNDH 600 I critically examined Supplemental Nutrition Assistance Program (SNAP) With the Special Supplemental Nutrition Program for Women Infants and Children (WIC) by making comparisons of the two programs. This competency was also not directly applied in my field experience; however, it was one of the valuable skills I acquired during my time in the MPH program.

4. Analysis of human Nutrition

In FNDH 600, I learned how to examine nutrition epidemiologic concepts to improve population health and reduce disease risk. I learned how to apply epidemiological study designs to inform the improvement of population health and the reduction of disease risk. This was very useful in my APE because it gave me a better understanding and a general perspective of the application of randomized control trials in reducing health risks. The CASPER methodology uses a cluster randomized control trial, so it was easy for me to understand how the CASPER methodology works in assessing community needs.

5. Analysis of Nutrition epidemiology

In FNDH 844-Nutritional Epidemiology, I had the opportunity to learn how to review and appraise scientific studies base on the criteria for validity and how to search for relevant literature within databases including PubMed. I used these skills in my APE to find appropriate literature on different previous CASPERs conducted by health departments in other states. I also had to determine whether the findings of those studies would be generalizable in the context of Riley County, especially findings from modified CASPER.

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Appendices

Appendix A. Data Entry Flowcharts for Riley County Health Department (CASPER)

a) Data Collected on Paper Forms

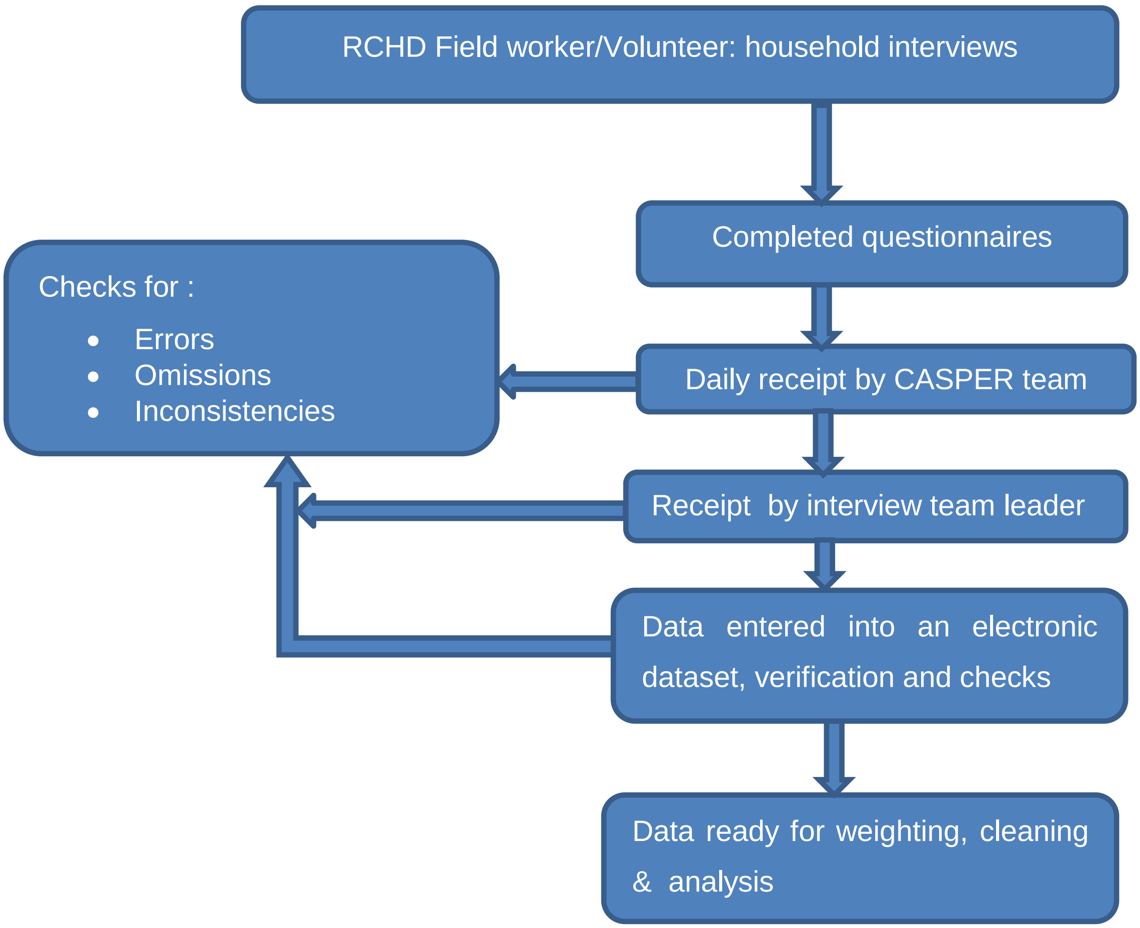


Figure A3~~1~~. Data collection using paper forms

b) Data Collected on Electronic Device (E.G., Cellphone Phone & iPad)

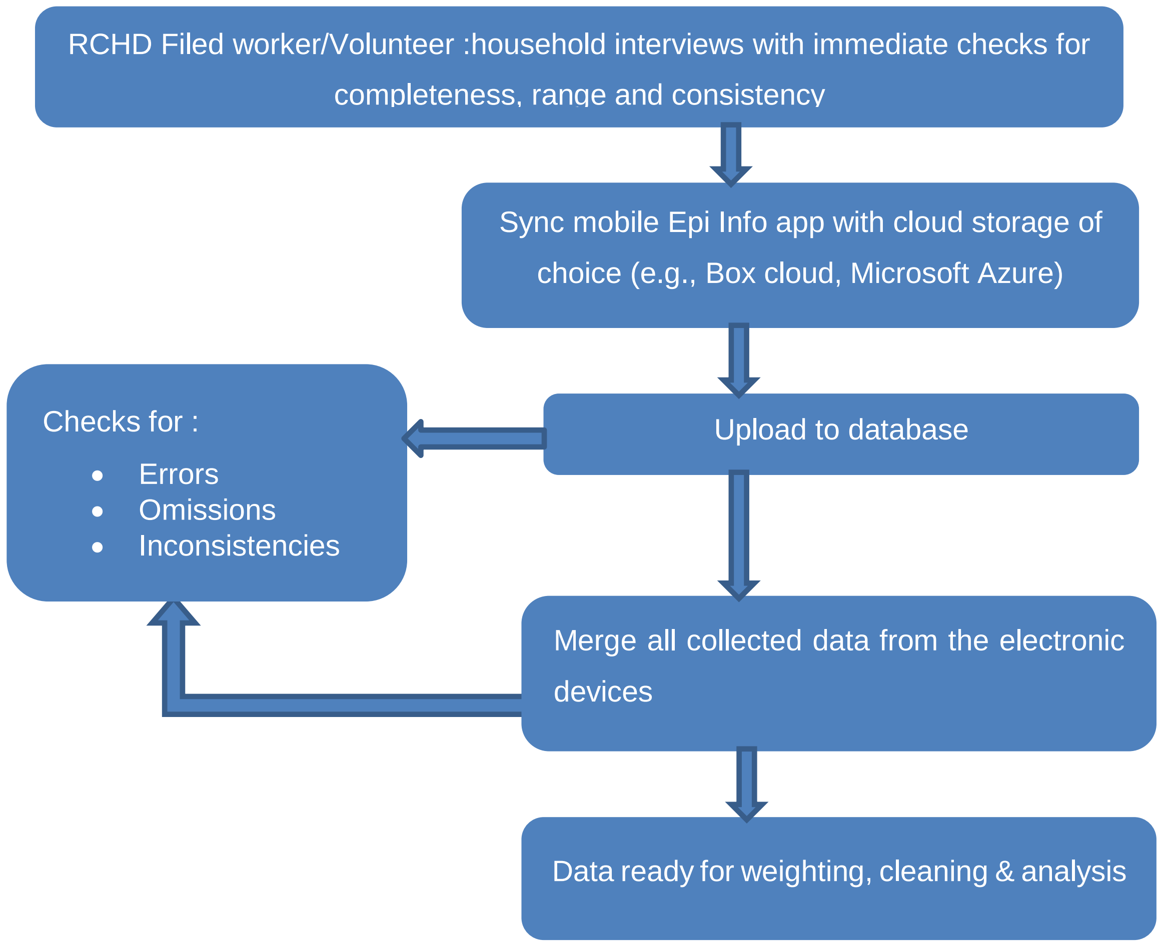
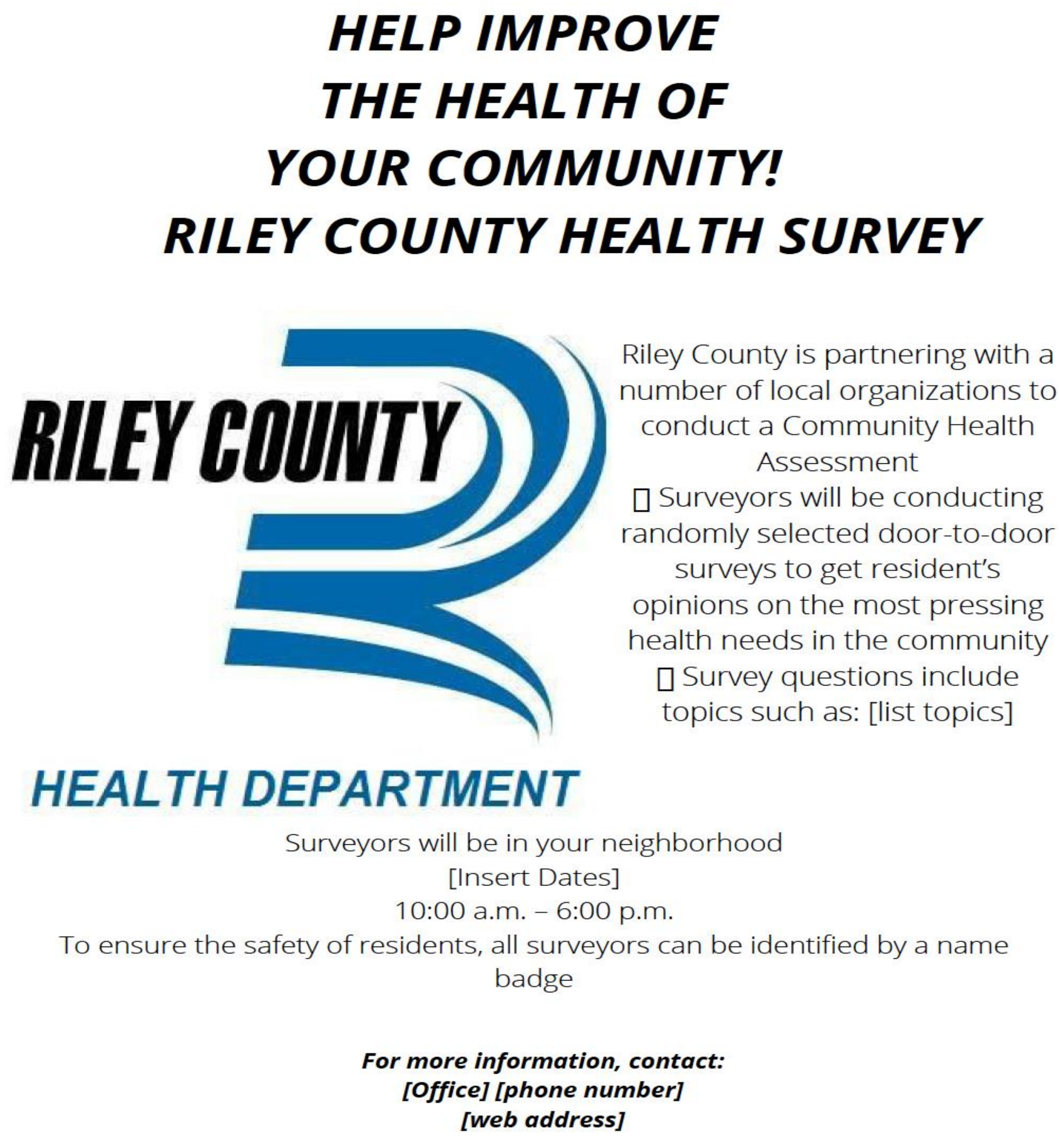


Figure 4~~2~~. Data collection using electronic devices

Appendix B. Data Collection Flyer Template



HELP IMPROVE THE HEALTH OF YOUR COMMUNITY!

RILEY COUNTY HEALTH SURVEY

RILEY COUNTY

HEALTH DEPARTMENT

Riley County is partnering with a number of local organizations to conduct a Community Health Assessment

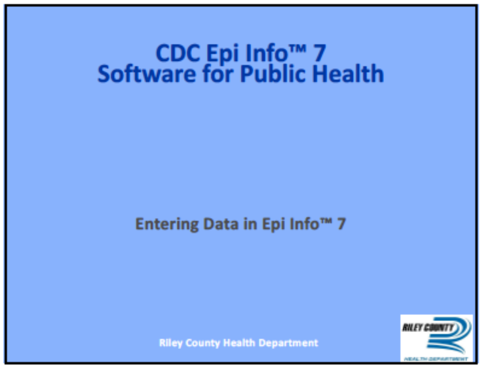
- Surveyors will be conducting randomly selected door-to-door surveys to get resident's opinions on the most pressing health needs in the community
- Survey questions include topics such as: [list topics]

Surveyors will be in your neighborhood
[Insert Dates]
10:00 a.m. – 6:00 p.m.
To ensure the safety of residents, all surveyors can be identified by a name badge

For more information, contact:
[Office] [phone number]
[web address]

Figure B1. Data collection flyer template

Appendix C. Epi Info Data Entry Training PowerPoint



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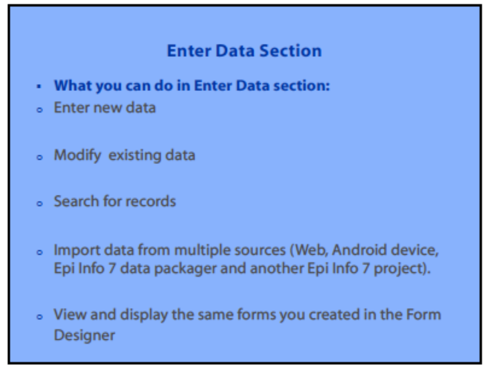

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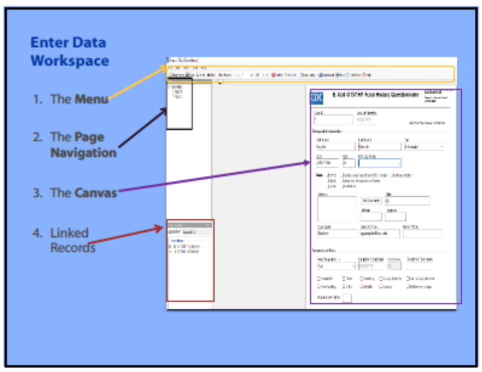

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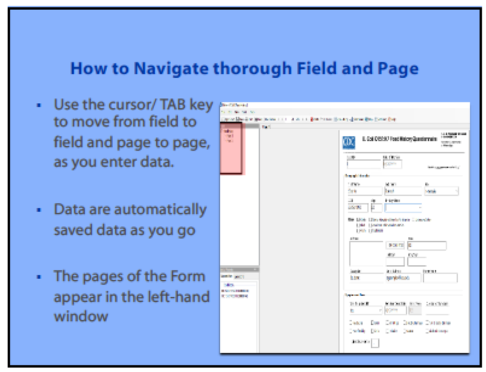

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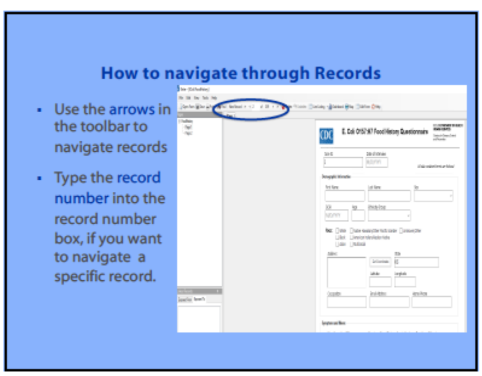

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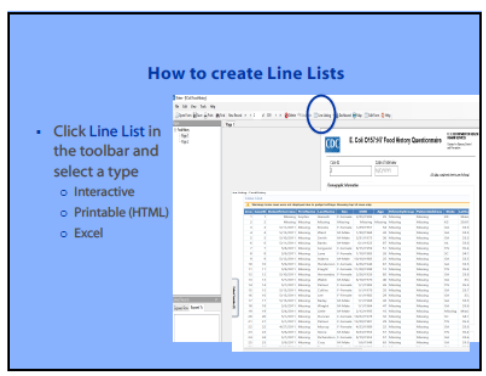
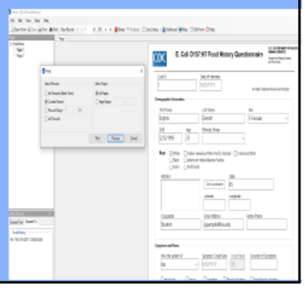


6

How to Print a Form

- You can print and preview your form from Epi Info 7
- Click Print in the toolbar



7

Importing Data in Enter

- **From mobile device**
  - Data collected via Android device.
  - Requires a synch file created by Epi Info application.
- **From Web**
  - Data collected via the Epi Info Web Survey feature.
  - Requires security token, survey, and organization keys.
- **From form**
  - Data collected in multiple workstations.
  - Requires .PRJ and .MDB files.

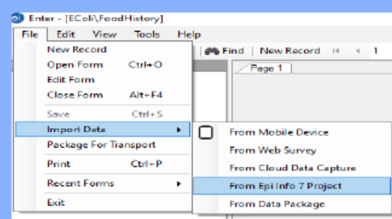
8

Importing Data in Enter

- **From data package**
  - Requires an Epi Info 7 data packager file
  - Single compressed and encrypted file
  - Allows optionally de-identify data and filter certain records based on conditions specified

9

Importing Data in Enter



10

How to import an Excel spreadsheet into Epi Info 7 using the Visual Dashboard.

- Before getting started first make sure that the first row in your Excel spreadsheet contains field names.
- If your spreadsheet contains any headers and titles above the field names, remove them and save the spreadsheet with a new name.

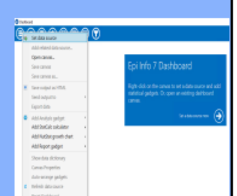
11

- Click Visual Dashboard on the main
- Click on the dashboard,

and navigate to add analysis gadget

- Click on Set data source

from any of the three places you started from.



12

In Visual Dashboard you have three ways to read data into Epi Info 7

- After clicking Set Data Source at the top of the page, click Set a data source in the blue box in the middle of the page
- Right click on the canvas select Set data source
- Choose the workbook style
- Browse to find my file and click ok.
- Once the file name appears, highlight it and click ok and if you'll notice at the top of the page, you'll see the name of the data and the record number and will be ready for analysis.

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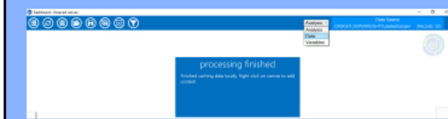
Click on the dashboard, and navigate to add analysis gadget



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References

- CDC.Epi Info™ 7 User Guide – Chapter 4 - Enter: Entering and Editing Data. Available at: https://www.cdc.gov/epiinfo/support/downloads.html#UG_Indiv_Chapters_PDF.Accessed on August 2020
- PAHO/WHO(2017).Epi Info™ User's Guide PAHO/WHO Rapid assessment tool for monitoring laboratory capacity for antimicrobial resistance surveillance. Available at: https://www.paho.org/en/file/49599/download?token=yNxB69Xp.Accessed on: September 2020

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Figure C1. Data entry training PowerPoint

Appendix D. Tracking Dataset Showing Attempted and Completed Interviews Per Cluster.

	A	B	C	D	E	F	G
1		**county**	Riley county	Riley county	Riley county	Riley county	
2		**cluster**	1	6	4	8	
3		**houses in the cluster**	91	110	95	43	
4		**interviewer**	purple 1	no name	Celeste + Hether	Harding/McCall	
5		**Date of interview**	1/9/21	1/9/21	1/9/21	1/9/21	
6							
7		house accessible	9	8	17	9	
8	**no access**	house inaccessible	0	0	2	0	
9							
10							
11	**type of dwelling**	single family home	1	7	10	9	
12		apartment/condo	7	0	6	0	
13		other(duplex)	1	0	3	0	
14							
15		none or minimal	8	7	15	9	
16	**damage**	damaged	1	0	4	0	
17		destroyed					
18							
19	**answer**	door was answered	5	5	5	8	
20		Apperas vacant	0	0	2		
21		nobody home after... 1st vist	6	2	9	4	
22		2nd visit	5		7	2	
23		3rd visit			7	2	
24							
25	**interview**	language barrier	0	0	0	0	
26		refused	1	0	2	1	
27		come back later	0	0	0	0	
28		interview not finished	0	0	0	0	
29		interview completed	4	7	4	7	
30							
31	**total number of houses attempted**		15	8	19	9	

Appendix F. Gantt Chart Template

PROJECT PLAN AND GANTT CHART TEMPLATE

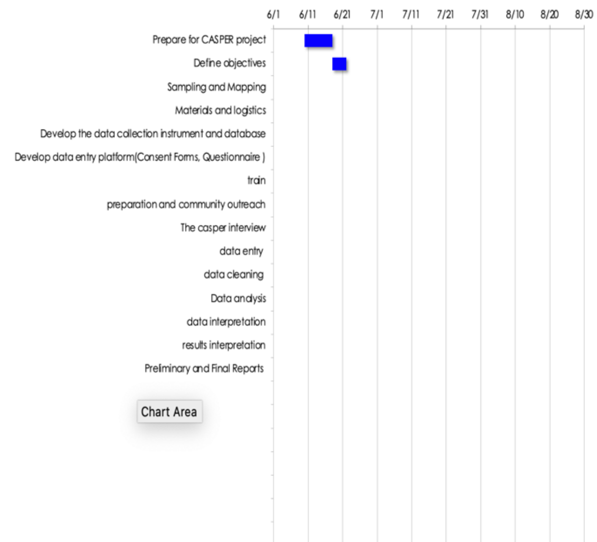
PROJECT NAME	PROJECT MANAGER	START DATE	END DATE
CASPER	Edward Kalas	1-Jun	

OVERALL PROGRESS

PROJECT DELIVERABLE

SCOPE STATEMENT

TASKS	RESPONSIBLE	START	END	DAYS	STATUS
Prepare for CASPER project	All	6/10	6/18	8	Complete
Define objectives	All	6/18	6/22	4	Complete
Sampling and Mapping	Amanda			0	Not started
Materials and logistics				0	Not started
Develop the data collection instrum	Sofia			0	Not started
Develop data entry platform(Conser	Sofia			0	Not started
train				0	Not started
preparation and community outreac	Jason			0	Not started
The casper interview				0	Not started
data entry	Grace			0	Not started
data cleaning	Grace			0	Not started
Data analysis	Ganesh			0	Not started
data interpretation				0	Not started
results interpretation				0	Not started
Preliminary and Final Reports				0	Not started
				0	Not started
				0	Not started
				0	Not started
				0	Not started
				0	Not started
				0	Not started
				0	



Appendix G. CASPER Data Collection Day