Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Kimberly M. Hanson Date

Rapid Response Team Functional Manual Development with the Guatemalan Ministry of Health and Social Assistance

By

Kimberly M. Hanson
Master of Public Health

Hubert Department of Global Health

Lise D. Martel, PhD, MPH, M.Ed, CEM
Thesis Committee Chair

Karen Andes, PhD
Thesis Committee Member

Rapid Response Team Functional Manual Development with the Guatemalan Ministry of Health and Social Assistance

By

Kimberly M. Hanson

B.S. Biomedical Science
Marquette University
2009

Thesis Committee Chair: Lise D. Martel, PhD, MPH, M.Ed, CEM

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2014

Abstract

Rapid Response Team Functional Manual Development with the Guatemalan Ministry of Health and Social Assistance

By Kimberly M. Hanson

Background: With the implementation of the 2005 International Health Regulations (IHR), development of public health rapid response teams has come to the forefront of political priorities. In Latin America, as an area of the world subject to nearly every type of natural disaster and several infectious agents, these teams become even more important. At the time the project began, the Guatemalan Ministry of Health and Social Assistance had identified and trained response team personnel for pandemic influenza, but wanted to expand team functions and formalize team member roles for all types of emergencies.

Objectives: The overarching purpose of the project was to create regional- and district-level public health rapid response team functional manuals to define the response activities of each team member, regardless of the public health emergency, and develop the Standard Operating Procedure for each activity.

Methods: A modified version of the U.S. Federal Plan Development Process was used to define the response activities of each team member throughout various phases on an emergency. Once finalized, existing departmental protocols and interviews with subject matter experts were used to develop the Standard Operating Procedure for each response activity.

Results: Two functional manuals were developed – one at the district level, the other at the regional level – complete with background and situational information, exhaustive activity lists for each response team, and Standard Operating Procedures for the majority of activities. Security features were built into each document to ensure the confidentiality of operationally sensitive procedures.

Discussion: This project employed the use of the modified Federal Plan Development Process for the first time in Latin America. The U.S. Centers for Disease Control and Prevention, through the International Emergency Preparedness Team, has used the process successfully in other countries around the world. With the success of its implementation in Guatemala, this process is potentially a viable option for emergency plan and manual development in other countries throughout the Central America region. However, one of the largest challenges will be to maintain the momentum created during the process in order to foster a culture of emergency preparedness, both within Guatemala and the region as a whole.

Rapid Response Team Functional Manual Development with the Guatemalan Ministry of Health and Social Assistance

By

Kimberly M. Hanson

B.S. Biomedical Science
Marquette University
2009

Thesis Committee Chair: Lise D. Martel, PhD, MPH, M.Ed, CEM

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2014

Acknowledgements

I would like to express my deepest appreciation for all of those who have made this thesis possible. Especially to my committee chair, Dr. Lise Martel, and committee member, Dr. Karen Andes, whose wonderful insights into emergency preparedness and Latin America have made this process a wonderful learning experience and relatively painless.

Furthermore, I would like to thank the entire International Emergency Preparedness Team at CDC. Their enthusiasm for the work they do around the world is infectious, and through the incredible opportunity of working with them I have found my true passion within the field. A very special thank you to my mentor, Luis Hernandez, without whose extraordinary support and guidance, none of this would have been possible.

Additionally, I would like to thank my friends and family who have supported me throughout this journey. From answering my late-night panicked phone calls, to my little brother's encouraging "Work on your thesis!!!" text messages, you all kept me going. And finally, words cannot express how thankful I am to my parents, Jeff and Ellen Hanson. Their unwavering love and support have been my rock and I am beyond lucky to have them in my life.

Table of Contents

List of Tables

1.0 Introduction

The function of public health rapid response teams (RRTs) is to quickly identify, investigate, and control outbreaks within a population before they have the opportunity to spread. Public health RRTs, especially in the international context, have recently become a priority for government entities. In an era of increased globalization, the benefits of multi-disciplinary RRTs easily outweigh the cost of staffing and training. The World Health Organization's (WHO) most current International Health Regulations (IHR) provides, for all signatory countries or States Parties, a legal mandate to integrate RRTs into health emergency response. While no specific support mechanisms, financial or otherwise, for the implementation of these regulations is included in the mandate, various agencies within the United States Government (USG) offer technical assistance to those States Parties requiring additional support for implementation.

The United States Centers for Disease Control and Prevention (CDC) houses the WHO Collaborating Center for Implementation of International Health Regulations Core Capacities and specifically focuses on technical assistance for the development of the Response Core Capacity – under which RRTs fall. The CDC field office in Guatemala works closely with the Guatemalan Ministry of Health and Social Assistance (MSPAS) across a wide spectrum of programs, including emergency preparedness and response activities. While MSPAS did have a basic structure for RRTs in place, technical support was requested from the CDC field office in Guatemala in order to build upon the existing structure and expand team response capabilities. Through this expansion of capabilities and the formalization of RRT procedures, the country as a whole will be better equipped to protect the health of its population in the event of a public health emergency.

1.1 Ministry of Health in Guatemala

The Guatemalan Ministry of Public Health and Social Assistance was created in 1969 in order to "guide, organize and support an amplified response which aims to integrate, strengthen, extend and diversify public health and hospital programs."[1] MSPAS is subdivided into various vice ministries, with the Office of Risk Management falling under the jurisdiction of the recently-created Vice Ministry of Primary Care.[2] The risk management team coordinates heavily with the Department of Epidemiology, Department of Zoonotic Diseases, and Vice Ministry of Hospitals for the development and coordination of public health RRTs.

Geographically, MSPAS divides the country up into 29 regions, or *Areas de Salud*, corresponding to the country's 22 official departments, with three of the largest or most populated departments divided into multiple *Areas* for better management.[3] Each *Area de Salud* is further subdivided into districts, or *distritos*, which generally correspond to the catchment area of an MSPAS health center. There are a total of 329 *distritos* within the country.[3]

1.2 Rapid Response Team / Equipo de Respuesta Inmediata

MSPAS has developed a structure for RRTs (Spanish acronym: ERIs) at both the regional (ERI-DAS) and district (ERI-Distrital) levels. The teams are multi-disciplinary and are made up of MSPAS-trained employees identified as leaders within their sector. The functional roles represented on each ideal RRT are based on recommendations from the Office of Risk Management's collaborating partners.

Each regional team is made up of one representative for each of the following roles:

- Epidemiologist
- Doctor

- Nurse
- Laboratory Technician
- Environmental Health Inspector
- Rural Health Technician
- Social Worker
- Vector-borne Disease Coordinator

Each district team is made up of one representative for each of the following roles:

- District Coordinator
- Doctor*
- Nurse
- Laboratory Technician
- Environmental Health Inspector
- Community Health Worker
- Social Security Extension Worker*
- Community Volunteer Coordinator

The activation of RRTs is based upon a surge capacity structure: district RRTs, as the most local teams, are expected to arrive first on the scene. When their capabilities are overwhelmed, the district RRT requests support from their supervising regional RRT. When the regional RRT is overwhelmed, they reach out directly to the Office of Risk Management. A national-level RRT (ERI-Nacional) is in the development process, but is not currently available

* All eight functional roles are represented on each of the 29 regional RRTs, however doctors and Social Security extension workers are not present in every district, and therefore not a part of every district RRT.

for response. In the event of a national emergency, the RRT system has the capability to be activated in reverse order, if necessary, for a centralized emergency response.

1.3 US Centers for Disease Control and Prevention – Central America Regional Office (CDC-CAR)

CDC officially established a satellite field office in Guatemala City, Guatemala in October 2005 in order to "strengthen the capacity to detect, prevent and control disease and respond to public health threats in Central America."[4] The CDC-CAR office serves as the headquarters for various regional CDC programs including: Global Disease Detection Center (GDD), International Emerging Infections Program (IEIP), Global HIV/AIDS (DGHA), Field Epidemiology Training Program (FETP), and International Emergency Preparedness Team (IEPT). Each CDC-CAR program has collaborated with various sectors of MSPAS as well as other Guatemalan and USG agencies and is viewed as a strategic partner for public health technical assistance throughout the country.

1.4 CDC - International Emergency Preparedness Team (IEPT)

The CDC IEPT is made up of five full-time team members (FTEs) based in Atlanta and four locally-employed staff (LES): one in China, two in Kenya, and one in Guatemala. The team specializes in emergency plan development, among other emergency preparedness activities, and has successfully employed a modified version of the US Federal Plan Development Process in several countries around the world. The IEPT LES based in Guatemala acts as the CDC-CAR IEPT Regional Emergency Coordinator and works directly with MSPAS as a technical advisor for public health emergency preparedness activities. These activities include emergency response assessment, emergency planning, Emergency Operations Center (EOC) development, and exercise development. Each spring, IEPT-Atlanta selects and trains an MPH-candidate in

emergency plan development and risk communication in preparation for an eight week practicum supporting the Emergency Coordinator in-country.

1.5 Problem Statement

At the time the project began, MSPAS had outlined the roles and responsibilities for both regional and district RRTs, but only in response to pandemic influenza. The Ministry noted that the same identified team members should be used to respond to any type of infectious disease outbreak or health-related consequence of natural disasters in accordance with the IHR (2005) Response Core Capacity. However, those functions were not defined. Additionally, while pandemic influenza response functions were identified, no standard operating procedures (SOPs) had been developed.

1.6 Project Purpose

The overarching purpose of the project was to adapt the US Federal Plan Development Process, employed by IEPT, in order to create regional- and district-level RRT functional manuals to define the response activities of each team member, regardless of the public health emergency, and develop the SOP for each activity.

2.0 Background

2.1 Guatemala

The Republic of Guatemala is located approximately 1500 miles south of the United States and shares land borders with Mexico, El Salvador, Belize and Honduras. It is the most populous country in Central America with over 14 million inhabitants, nearly 5 million of which are indigenous Maya, Xinka or Garifuna.[5] Administratively, the country is divided up into 22

departments. Spanish is recognized as the official language of the country, but 23 indigenous languages are recognized by the government as well.[6]

Due to Guatemala's location and composition, it is uniquely susceptible to nearly every type of natural disaster as well as infectious disease outbreaks. According to the United States Agency for International Development, Office of Foreign Disaster Assistance (USAID-OFDA) and Collaborating Centre for Research on the Epidemiology of Disasters (CRED) International Disaster Database, Guatemala is most often subjected to floods, tropical storms, volcanic eruptions, earthquakes, epidemics, droughts, and wildfires. From 1980 to 2010, tropical storms, floods and epidemics have been the primary killers at 52.6%, 21.2% and 15.1% of all reported disaster deaths, respectively.[7] The most common infectious disease outbreaks throughout the country include bacterial diarrhea, Hepatitis A, typhoid fever, dengue fever and malaria.[8] In a country with geographically isolated areas such as Guatemala, it is reasonable to assume that reported deaths, illnesses and property damage are underestimates of the true impact of an emergency.

The political history of Guatemala must be taken into account when considering how to address the health of the population before, during, and after an emergency. From 1960 to 1996 Guatemala suffered a brutal civil war resulting in more than 200,000 victims of State-sponsored violence including disappearances, torture, and murder.[9] Of the identified victims, over 80% were indigenous Maya.[10] Even nearly twenty years after peace accords were signed, many Mayan communities remain suspicious of or closed off to outsiders. In order to address this distrust, the government of Guatemala pursued decentralization of services – especially health services.[3, 9, 10] Beginning health infrastructure at the local level, with significant community

input, and working up from there has proven quite successful throughout the country, especially in times of emergency.[3]

The geography of Guatemala also accentuates the need for local capacity development in the event of an emergency. The mountainous country ranks 130th in the world for total roadways, with less than one third of said roads being paved.[11] In the event of flooding or tropical storms, these unpaved, mountainous roads can become impassible in mere minutes.[11] In a centralized response system, if teams and equipment are headquartered and stored in the capital of Guatemala City, mobilization of those resources to remote areas can be either severely delayed or completely impossible. By training and equipping regional and district level teams, MSPAS can aim to assess and address the health needs of the population in a shorter timespan which will ultimately lead to better health outcomes in emergencies.

2.2 International Health Regulations

The International Health Regulations (IHR) were originally implemented in 1969 as a way to address the control of international spread of infectious diseases.[12] Since then, they have undergone various revisions, with the most recent version adopted in 2005 and put into effect in 2007. IHR (2005) focuses on the capacity of State Parties to respond and control public health events of international concern (PHEICs) through the development of eight minimum public health core capacities: 1) National Legislation, Policy and Financing, 2) Coordination and National Focal Point Communications; 3) Surveillance; 4) Response; 5) Preparedness; 6) Risk Communication; 7) Human Resources; 8) Laboratory.[13]

Full implementation of IHR (2005) is a legal responsibility of each WHO Member State. A component of the IHR (2005) Response Core Capacity is the requirement of established and

trained epidemiologic rapid response teams. These teams "should be able to rapidly respond to events that may constitute a public health emergency of national or international concern."[13] While the primary focus of IHR (2005) may be to prevent, detect and respond to the spread of infectious diseases, these principles can, and should also be applied to situations resulting from natural disasters.[12]

According to the WHO IHR (2005), a RRT is defined as:

> A group of multisectoral/multidisciplinary persons that are ready to respond on a 24 hour basis to a public health event; trained in outbreak investigation and control, infection control and decontamination, social mobilization and communication, specimen collection and transportation, chemical event investigation and management and if applicable, radiation event investigation and management. The composition of the team is determined by the country concerned.[14]

Unfortunately, the terms 'multisectoral' and 'multidisciplinary' are left undefined within the framework, leaving the composition of each team to the respective countries, resulting in inconsistencies across States Parties.

In 2011, WHO published the IHR Core Capacity Monitoring Framework in an effort to better clarify expected capabilities of an IHR (2005) compliant State Party and provide benchmarks to monitor implementation progress.[13] Within the framework, country level indicators are given for each of the core capacities. The Response Capacity is measured through the following four indicators:

1. "Public health emergency response mechanisms are established."[13]
2. "Case management procedures are implemented for IHR relevant hazards."[13]

3. "Infection prevention and control (IPC) is established at national and hospital levels."[13]
4. "A programme for disinfection, decontamination and vector control is established."[13]

The progress of each indicator is measured numerically using a standard scale of <1 to 3.[13] The formation of RRTs falls under the first indicator of establishing public health emergency response mechanisms. Within the progress scale for that indicator, the scoring is as follows:

Table 1: Public health emergency response mechanism indicator progress scale

Score	Attributes that must be in existence
<1	Resources of rapid response during public health emergencies of national or international concern are accessible.
1	RRTs to respond to events that may constitute a public health emergency exist.
	SOPs and/or guidelines for RRT deployment are available.
2	Evaluations of response, including for timeliness and quality, are systematically carried out and response procedures are updated as necessary.
	Multidisciplinary RRTs can be deployed within 48 hours from first report of an urgent event.
3	Assistance is offered to other States Parties for developing their response capacities or implementing control measures.

Table recreated from indicators listed in WHO Checklist and Indicators for Monitoring Progress in the Development of IHR Core Capacities, 2011.

Due to the relatively recent development of IHR (2005) and its limited implementation to this point, there is very little in terms of research regarding the ideal makeup of a multidisciplinary team.[15] At this point, most Ministries of Health look to international organizations for guidance on RRT composition. Within the Latin American region, the Pan American Health Organization (PAHO), regional office of the WHO, maintains international disaster response teams that are largely considered an ideal model that could be scaled and

adapted to the level needed by a particular country.[16] Functional roles represented on the team may vary according to the exact type of disaster faced, but in general will have the following: Coordination, Administration and Procurement, Logistics, Water and Sanitation, Epidemiology, Health Services, and Information and Communications with representatives for Nutrition, Vector Control, Structural Engineering, Volcanology, Chemical Response or Bioterrorism as needed.[16] While these teams are designed for natural disaster response, many of these sectors would play an integral role in an outbreak response as well.

While much attention and resources are often paid to the Response Core Capacity, it is essential that complementary systems within other capacities are developed at the same time.[17] In order to be truly effective, RRTs must be part of a larger emergency management system with functioning surveillance and laboratory networks, adequate political support, funding mechanisms, and human resource development programs. Full IHR (2005) implementation aims to address all of these factors to ensure a sustainable, functioning emergency response system.

2.3 United States Federal Plan Development Process

The USG, under the Homeland Security Presidential Directive 8 (HSPD-8), is charged with establishing emergency operations plans at all levels of government.[18] For facilitation, USG has developed a standardized process for planning to ensure quality and consistency across plans and to manage the expectations of a planning team. According to the Integrated Planning System released by the US Department of Homeland Security in 2009, the Federal Plan Development Process (FPDP) is divided into five phases:

Phase 1: Understand the Situation. During this phase, planners should form a collaborative team of representatives from each plan stakeholder, estimate the resources that will be needed during the planning process, and conduct research on the current situation.

Phase 2: Determine Goals and Objectives. During this phase, the planning team conducts information analysis consisting of: identifying critical facts and assumptions; updating staff estimates; developing threat/hazard scenarios, objectives, mission statement, and tasks; identifying available resources, and developing courses of action (COAs). A COA is defined as "any sequence of activities that an organization may follow to accomplish a mission."[19]

Phase 3: Plan Development. During this phase, the planning team compiles all of the available information into a preliminary plan draft. If multiple COAs are developed for a single mission, analysis and comparison procedures take place to identify which COA completes the mission "with minimum resources in the shortest amount of time."[19] The draft is then circulated among communities of interest (CIOs) for review and comments.

Phase 4: Plan Preparation and Review. During this phase, feedback from all CIOs is collected and integrated into a second draft of the plan. If needed, the second draft may be circulated among CIOs again for further revisions. When all revision cycles have been completed, the plan is formatted and submitted to the appropriate federal agency for federal approval.

Phase 5: Plan Refinement through Training, Exercising and Execution. Though a plan may be federally approved and disseminated, the refinement process is a continuous cycle. A comprehensive series of plan training sessions and exercises should be developed and

implemented as soon as possible after plan dissemination. After Action Reports (AARs) and lessons learned from exercises and plan executions form the basis for plan revisions.

2.4 IEPT Plan Development Process

The majority of the IEPT has been trained in FPDP through the Homeland Security National Planners Course. As subject matter experts (SMEs) in international planning, they have employed a similar process when developing emergency plans with foreign government ministries. While the overall IEPT process is very similar to the phases of FPDP, some modifications must be made to make the process applicable to an international audience. Much of the terminology used throughout FPDP is reminiscent of its military roots and concepts often do not translate well in the international context. The main difference occurs in Phases 2 & 3 where COA development in FPDP is replaced with Activity List and SOP development in the IEPT process.[20]

IEPT has successfully implemented their planning process in Bangladesh, China, Egypt, India, Kazakhstan, Kenya, and Thailand both for internal CDC field office plans and external partner plans.[20] At the time of the project, the process had not been fully utilized or tested in the Central America region. However, the CDC-CAR IEPT Regional Emergency Coordinator, in collaboration with the Council of the Ministries of Health of Central America and the Dominican Republic (COMISCA), spearheaded an initiative to standardize the format of all emergency documentation to facilitate regional response, and to do so using the IEPT plan process and format. This initiative includes not only emergency plans but all supporting emergency preparation and response documentation, such as functional manuals. The impetus behind this standardization is the reality that the Central American region is much more likely to experience

multi-national public health emergencies and that a common format for emergency documentation will facilitate a faster, more coordinated response across national boundaries.

3.0 Methods

Prior to arrival in Guatemala, the student researcher was trained for four months by IEPT staff in emergency plan development and risk communications. The student researcher was also proficient in the language so that all work could be conducted in Spanish. In Guatemala, an initial meeting was held between the student researcher, the MSPAS Emergency Plan Coordinator, and a representative of the National Epidemiology Center (CNE) to discuss updating the national emergency plan for pandemic influenza. MSPAS had made significant progress on updating their plan, but they were concerned about the capabilities of their regional and district RRTs – especially in the event of a non-influenza public health emergency. At that point, the priority of the Ministry was the expansion of the functional roles of the RRTs at both the district and regional levels in compliance with IHR (2005) and ensuring that documentation of those roles was created.

MSPAS representatives confirmed that a roster of RRT members at both the district and regional levels did exist and team members were actively participating in influenza responses when called upon, but that all of the teams needed further training. A functional exercise for pandemic influenza response was held in May 2009, to which all district RRT members were invited, however no further trainings or exercises had taken place.

In accordance with CDC-CAR and COMISCA's initiative to standardize emergency response plans and manuals throughout the Central America Region, MSPAS representatives and the student researcher discussed and agreed that manuals would follow the FPDP standards and

be developed according to the modified process steps outlined by IEPT. This standardization allows multiple plans and manuals to function together for a more cohesive emergency response, either within a single country or the region as a whole. For the creation of the RRT functional manuals, the following steps were utilized.

3.1 Step 1: Mapping the project

During the initial meeting, a project timeline was created in order to maximize the student researcher's time in-country and complete as much of the project as possible before departure. It was agreed that sections requiring in-person consultations would be prioritized, while things such as editing and final formatting could be done electronically from the United States, if needed. Three follow-up meetings were scheduled to correspond with projected completion points within the project.

Table 2: Projected Project Schedule

Date	Meeting	Goals
June 18, 2013	Initial Meeting	Determine manual format Map project timeline Determine activity categories
June 26, 2013	Follow-up #1	Review & finalize background and objectives Review & finalize activity lists Collect protocols for SOP development
July 3, 2013	Follow-up #2	Review SOPs Interview additional sources (if needed)
July 10, 2013	Follow-up #3	Review progress Determine what will need to be done from the United States

3.2 Step 2: Determining activity categories

The core of an operational plan or manual is the comprehensive activity list. This list outlines, in chronological order, the actions to be taken during a specified period. However, in order to ensure an exhaustive but non-repetitive list, discrete categories of activities must be decided upon first. RRTs are expected to participate in preparatory and recovery actions as well as response, therefore the natural breakdown of activities was temporal. It was decided that the pre-emergency and recovery activities for either an outbreak or natural disaster would largely be the same, and therefore could be combined into one pre-emergency and one recovery section to minimize repetition. It was acknowledged that there may be specific activities that do not pertain to every emergency, but that RRT members would be trained to assess the current situation and move over unnecessary activities. The MSPAS representatives and the student researcher agreed on the following activity categories:

1. Before an outbreak or natural disaster
2. During an outbreak
3. During a natural disaster
4. After an outbreak or natural disaster

Activities would then be further subdivided by functional role in order to specify the exact actions that each RRT member is responsible for during each phase of an emergency.

3.3 Step 3: Developing and finalizing the activity list

Based on the agreed-upon categories and sub-categories, the student researcher used all existing MSPAS-RRT documentation, the WHO Emergency Response Framework, the PAHO Regional Emergency Response Team Field Manual, and input from the CDC-CAR IEPT

Regional Emergency Coordinator to create an exhaustive list of RRT response activities. Each activity consists of a singular action stated in measureable terms in order to ensure that activity completion can easily be determined. Additionally, each activity has a designated "point of contact", who is ultimately responsible for the completion of the activity. All activities were put into chronological order within each sub-category and numbered accordingly.

An electronic draft of the first activity list was sent to the Emergency Plan Coordinator and MSPAS-CNE representative for feedback. Comments and suggestions from the Emergency Plan Coordinator and the RRT Program Lead were incorporated into a second draft. The second draft activity list was reviewed and finalized by the Emergency Plan Coordinator and contained 154 total activities for district RRTs and 133 total activities for regional RRTs. Some activities from the district RRT manual are also contained within the regional RRT manual. These activities are contained in both because if the response capacity of the district RRT is overwhelmed, the task will fall to the regional RRT for completion. This activity delegation is noted in each of the SOPs to ensure proper communication and task hand-off.

3.4 Step 4: Creating SOPs

Once the activity lists for each manual were finalized, the development of SOPs (Spanish acronym: POE for *procedimiento operativo estándar*) began. The format of an SOP can vary, however CDC-CAR and COMISCA have decided on a standardized SOP table incorporating the US Incident Command System (ICS) in order to facilitate regional use and collaboration. Additionally, the use of ICS within the SOP clearly delineates responsibility among various sectors using common terminology and can reduce confusion in times of emergency.

Table 3: Standard Operating Procedure Template

Número de POE:			
Incidente			
Departamento			
División			
Actividad			
Punto de contacto			
Acción	**Tareas**	**Prioridad Alta (A) / Mediano (M) / Baja (B)**	**Plazo Corto (C) / Largo (L)**
Comando			
Operaciones			
Logísticas			
Financia			
Pre Información			

The table is divided into two overall sections - the first provides the identification information for the SOP, while the second contains the operational information necessary to carry it out.

3.4a SOP Identification Information

"Numero de POE": Indicates the number of the SOP which corresponds to the numbering system established in the activity list.

"Incidente": Identifies what type of incident the SOP is to be used for. In this case, the field contains the phase and type of emergency to which the activity applies.

"Departamento": Indicates the department responsible for the activity.

Division: Indicates the division within the department responsible for the activity. In this case, the field identifies whether the activity pertains to the regional or district RRT.

"Actividad": Contains the title of the activity. The wording corresponds exactly with that from the activity list to ensure consistency and easy identification.

"Punto de Contacto": Identifies the functional role within an RRT that is responsible for the monitoring and completion of the activity.

3.4b SOP Operational Information

"Comando": Identifies the trigger event for an activity. If no trigger event exists, the direct supervisor of the point of contact is included to indicate the chain of command.

"Operaciones": Lists the specific operational steps to complete the activity.

"Logisticas": Contains the logistical information needed to complete the activity such as additional points of contact, reporting frequency, number of samples needed, etc.

"Financia": Indicates if there is a financial component to completing the activity, for example purchasing sample transport materials, and to whom the fund request or bill should be directed.

"Pre-informacion": Lists any pre-existing information that is needed in order to complete the activity.

"Prioridad": Indicates the priority of activity completion: high, medium or low.

"Plazo": Indicates the expected duration of the activity: short-term or long-term.

The decision was made by the Emergency Plan Coordinator, RRT Program Lead, and the student researcher that SOPs would be developed for each activity. With the high turnover rate of Ministry staff, all felt that providing as much documentation and standardization of practices as possible would result in greater efficiency and continuity among RRTs over time. Additionally, SOPs would be developed from existing protocols whenever possible in order to ensure that procedures were familiar and therefore more likely to be followed. However, protocols specific

to outbreak or disaster response had been developed to varying degrees across all sectors of MSPAS with very little continuity.

Copies of all potentially-related protocols were collected by the Emergency Plan Coordinator and given to the student researcher. The documentation was reviewed and any portions applicable to various sections of SOPs were tagged using the comment functions of Microsoft Word and Adobe Reader with the following format [SOP#, SOP section, comments]. This process was completed twice to ensure continuity and minimize internal data collection error. Once the documentation was thoroughly reviewed, a template for each SOP was created and the tagged information added to its corresponding file. Information gaps on each table were highlighted and noted in a separate document to create an information gap list. The gap list was used to by the Emergency Plan Coordinator to identify SMEs to be interviewed in order to obtain the necessary information. Due to time constraints, the SOP development process was continued with identified SMEs by phone and email from the CDC-CAR office and all additional information was integrated into corresponding SOPs.

3.5 Step 5: Review and Disseminate

The final follow-up meeting with the Emergency Plan Coordinator took place as scheduled in the week before the student researcher's departure. All progress was reviewed and the remaining gaps within SOPs were identified. Formatting of the first full manual drafts was completed from Atlanta and sent to the Emergency Plan Coordinator for review. In the meantime, the Emergency Plan Coordinator worked directly with the RRT Program Lead to finish the remaining SOPs in order to be included in the final draft. Final versions of each manual were submitted to the RRT Program Lead for Ministry approval and dissemination.

3.6 IRB Approval

As this project consisted of manual development at the request of MSPAS, it was not considered human subject research and Emory University Institutional Review Board (IRB) approval was not required. The project was deemed to not be human subject research on the grounds of the interviews being about the organization and plans, and not about the respondents themselves.

4.0 Results

Due to the operationally sensitive nature of information contained, the following section will provide as much detailed information on the manuals as possible without infringing on the security restrictions set forth by MSPAS.

The final result of the project consists of two RRT functional manuals – one at the regional level, the other at the district level – defining the activities of each RRT member during the various phases of a public health emergency. The information in each manual can be broken down into two overarching sections: background information and response execution.

The background information of each manual follows the same format and provides all the necessary contextual material pertinent to RRTs. Each manual contains the following: 1) An introduction giving a brief overview of the roles of MSPAS and the RRTs at their respective levels, as well as demographic and priority threat information for Guatemala as a whole, 2) A justification section defining the legal mandate under which the RRTs were created and how they are utilized to support the MSPAS mission in the field, 3) The general objectives of the RRT

program at the national level, 4) The specific objectives of the RRT program at the regional and district levels, and 5) A list of all functional roles represented on each ERI level.

4.1 RRT Objectives

The objectives of the RRT program outlined by MSPAS are as follows:
General Objectives:

1. Promote, develop and strengthen the culture of risk management before emergencies and disasters.
2. Provide technical assistance at the various levels of care in addressing disasters and epidemics.

Specific Objectives:

1. Address disasters, outbreaks and epidemics in a standardized manner at all MSPAS levels: health posts, health centers and *Areas de Salud.*
2. Execute an immediate response to natural or man-made phenomena.
3. Avoid additional outbreaks or epidemics within a disaster-affected population.
4. Expand staff participation in health services in developing contingency and disaster plans at the local level.
5. Strengthen local response capacity through RRTs.

4.2 Activity Lists

The response execution portion of each manual contains operational information through the activity list and SOPs. Each activity is carefully worded to ensure measurability and is hyperlinked to its respective SOP. All activities are arranged in the chronological order in which

they should be undertaken and organized into four tables – corresponding to the four overarching activity categories. Each table identifies the phase and type of emergency, while each line within the table identifies a specific activity, its corresponding SOP number, and the RRT member responsible for its completion. In addition to sub-sections for each functional role, there is a section of activities that each member of the RRT is responsible to participate in – such as updating emergency plans and obtaining proper vaccinations. While each member of the RRT participates, the leader of each RRT is ultimately designated as the point of contact to ensure that the activity is completed. These activities fall to the District Coordinator for the district RRTs, and to the Epidemiologist for the regional RRTs. The following is a short example of the final activity list. The final activity list for the district RRTs can be found in Appendix B and the final activity list for the regional RRTs in Appendix C.

Table 4: Sample of Final Activity List

1. Antes de cualquier emergencia/desastre		
Parte Responsable	**POE**	**Función**
Todo ERI	TODO1.1	1. Desarrollar y actualizar los planes de emergencia, contingencias y desastres para su distrito.
	TODO1.2	2. Identificar los principales problemas potenciales de salud del distrito.
	TODO1.3	3. Participar en las actividades de capacitación y actualización.
	TODO1.4	4. Obtener todas las vacunas necesarias.

4.3 Standard Operating Procedures

Each activity is hyperlinked to its SOP through the POE numbering column of the activity list. Clicking on the number code opens the SOP in a new window. The majority of the SOPs were finalized before the student researcher returned to the United States, however, there were still a few to complete. Approximately 70% of the information needed for all SOPs was extracted from the existing protocol documentation and 20% from the follow-up interviews with MSPAS representatives and the CDC-CAR IEPT Regional Emergency Coordinator. The

remaining 10% of SOP gaps were awaiting feedback from the RRT Program Lead and remained unfinished at the time of the handover. An example SOP can be found in Appendix D.

As a security measure, MSPAS representatives originally requested that SOPs not be included in the actual manuals, but in separate documents for internal use. Through the use of hyperlinks, the manuals were designed so that SOPs were contained in digital folders linked to the manual, rather than in a separate document. This ensures that each SOP is only located in a single place and that any edits will be reflected in the final product without having to change multiple documents. By the inclusion or exclusion of folders when sending digital copies of the manual, MSPAS can either share all SOPs, no SOPs, or SOPs specific to an emergency type, emergency phase, or an RRT functional role. For example, if MSPAS only wants to share the SOPs for the Epidemiologist, that folder alone can be included in the digital copy and the recipient will be able to view the activities of other RRT members, but only have access to the SOPs that pertain to the Epidemiologist's activities.

Each manual relies heavily on the use of hyperlinks for navigation. In order to ensure that those hyperlinks continue to function with future updates and changes, the Emergency Plan Coordinator received training on how to make, edit, and remove hyperlinks within Microsoft Word. A short, visual document on hyperlinks was included with the digital copy of each functional manual for the Emergency Plan Coordinator.

4.4 Annexes

Each functional manual is supported with additional information through annexes. Each manual contains an annex for team contact information and a form for tracking available resources. A sample contact information sheet can be found in Appendix E and a sample

resource tracking form in Appendix F. During the final follow up meeting, the Emergency Plan Coordinator received a list of additional documents that could be added as annexes if deemed necessary by the RRT Program Lead. This list included, but was not limited to items such as: disease-specific procedures, other standardized forms, contact information for potential collaborating response agencies, and a timeline for training sessions.

5.0 Discussion, Recommendations and Conclusion

The ultimate goal of this project was to develop a set of manuals that will be used to expand the training and response capacity of existing RRT teams in Guatemala. As those who will likely be first on the scene during an emergency, it is essential that each team member knows what is expected of them and when to call in reinforcements. Additionally, some districts have not yet established an RRT and were waiting to do so until functional roles had been finalized. At this point, MSPAS can move forward with district RRT development in those particular areas to achieve full coverage.

5.1 Recommendations and Next Steps

The following step in any plan or manual design is the development of a comprehensive exercise program. Unless the manuals are tested through a series of tabletop, functional, and full-scale exercises, they cannot be revised and validated. MSPAS is currently in talks with CDC-CAR to create such an exercise program for their newly-developed EOC. It would be feasible to integrate the testing of the RRT manuals into this exercise program, but would require considerable input from the RRT Program Lead. In order to maximize the benefits of such a program, development of the national-level RRT and its manual should be a priority. The EOC

works at a national level, therefore the district-to-national surge capacity of the RRTs needs to be clearly defined before it can be integrated and tested.

The CDC-CAR IEPT Regional Emergency Coordinator is spearheading a collaboration between the MSPAS RRTs and the National Coordinator for Disaster Reduction (CONRED) RRTs. The CONRED teams function only at the national level and act more as immediate responders specializing in individual health and logistic areas, such as search and rescue, first aid, and establishing command and control. Integration of the two teams would allow them to combine the logistical support of CONRED, especially with regards to transport and supply procurement, with the population health focus of MSPAS. The leads of both programs are open to collaboration but a formal partnership has yet to be constructed.

5.2 Limitations

The main limitation of this project was not being able to work directly with RRT members. As is often the case, procedures are determined at a central level without consulting those who will actually carry them out. Having input from those on the ground offers a unique perspective into the feasibility of activities and can identify specific challenges before they become an issue. Ultimately, the student researcher was not able to meet with the RRTs due to time constraints, but this challenge can be overcome through a tabletop exercise (TTX) testing the manuals with actual RRTs. This format would allow MSPAS to gather valuable feedback from team members and integrate any necessary changes to the manuals in a non-emergency setting.

Project follow-up from the United States was an additional limitation. Shortly after the finalization of the RRT manuals, the Office of Risk Management within MSPAS underwent

considerable reorganization. The RRT program, while intact, has been shifted to a new department and the student researcher's primary contacts are no longer directly involved with the program. The transfer of responsibilities has not been made clear to those outside of MSPAS and therefore the focus of CDC-CAR's work with the Ministry shifted to other projects. However, CDC-CAR does continue to reach out to the new RRT department in hopes of continuing with progress made thus far.

5.3 The Future of Emergency Preparedness in Central America

Overall, the project can be considered a success in that the objective to expand and formalize RRT roles and responsibilities beyond pandemic influenza was achieved. The groundwork for the expansion of emergency preparedness and response capacity within MSPAS has been laid. Furthermore, the modified US Federal Plan Development Process, which had been employed in other areas of the world, was shown to be a successful option in Guatemala. The process has since been replicated with additional Guatemalan government ministries, as well as with the Ministries of Health of Panama and the Dominican Republic. The continued success and validation of this plan development process within Central America will facilitate the goal of a standard emergency plan format across the region, and will ultimately lead to a group of countries that are capable of protecting and responding to both their own people and their neighbors in the event of a public health emergency.

References

1. Ministerio de Salud Publica y Asistencia Social, *Acerca de MSPAS*, Guatemala City, 2013, [cited November 5, 2013]; Available from: http://mspas.gob.gt/index.php/en/mspas/acerca-de-mspas.html.
2. Diario de Centro America, *Acuerdo Gubernativo Numero 181-2013*, Guatemala City, Guatemala, 2013.
3. Cottom, H. *Análisis crítico del sistema nacional de salud en Guatemala*, Universidad Rafael Landívar: Quetzaltenango, Guatemala, 2004.
4. United States Centers for Disease Control and Prevention, *CDC-CAR Guatemala Fact Sheet*, 2013.
5. Instituto Nacional de Estadisticas, *Poblacion en Guatemala (demografia)*, Guatemala City, 2011, [cited November 24, 2013]; Available from: http://www.ine.gob.gt/np/poblacion/index.htm.
6. Congreso Nacional de Guatemala, *Ley de Idiomas Nacionales*, in *Decreto Numero 19-2003*, Centro Nacional de Analisis y Documentacion Judicial: Guatemala City, Guatemala, 2003.
7. *Guatemala - Disaster Statistics*. PreventionWeb, 2013, [cited February 16, 2014]; Available from: http://www.preventionweb.net/english/countries/statistics/?cid=70.
8. CIA World Factbook, *Guatemala*. 2013, [cited February 19, 2014]; Available from: https://www.cia.gov/library/publications/the-world-factbook/geos/gt.html.
9. Ruano, A.L. *The role of social participation in municipal-level health systems: the case of Palencia, Guatemala.* Glob Health Action, 2013. **6**: p. 20786.

10. Hautecoeur, M. M.V. Zunzunegui, and B. Vissandjee, *[Barriers to accessing health care services for the indigenous population in Rabinal, Guatemala]*. Salud Publica Mex, 2007. **49**(2): p. 86-93.

11. Puri, J. *Transport and Poverty in Guatemala: A Profile Using Data from the ENCOVI 2000,* in *International Initiative for Impact Evaluation*, U.o. Maryland, Editor. 2002.

12. Minguez Gonzalo, M. *[The New International Health Regulations (2005 IHR)]*. Rev Esp Salud Publica, 2007. **81**(3): p. 239-46.

13. World Health Organization, *Checklist and indicators for monitoring progress in the development of IHR core capacities in states parties*. Geneva, 2011.

14. World Health Organization, *International Health Regulations 2005*, Geneva, 2005.

15. Mitchell, T.J., Lindsey; Lovell, Emma; Comba, Eva, *Disaster Risk Management in Post-2015 Development Goals*. Overseas Development Institute, 2013.

16. Pan American Health Organization, *Field Manual: PAHO/WHO Regional Disaster Response Team*, Washington DC, 2005.

17. Ijaz K, K.E., Arthur R, Angulo F, Dowell SF, *International Health Regulations—what gets measured gets done.* Emerg Infectious Diseases, 2012. **18**(7).

18. Tierney, K., *Recent Developments in U.S. Homeland Security Policies and Their Implications for the Management of Extreme Events,* in *Handbook of Disaster Research*. 2007, Springer New York. p. 405-412.

19. United Stated Department of Homeland Security, *Integrated Planning System*, Washington DC, 2009.

20. Martel, L. *IEPT International Planning Process,* Atlanta, 2013.

Appendix A: Acronyms

Acronym	Meaning
AAR	After Action Report
CDC	United States Centers for Disease Control and Prevention
CDC-CAR	CDC Central America Regional Office
CIO	Communities of Interest
CNE	Centro Nacional de Epidemiologia
COA	Course of Action
COMISCA	Comité de Ministerios de Salud de Centroamérica
CONRED	Coordinadora Nacional para la Reducción de Desastres
CRED	Collaborating Centre for Research on the Epidemiology of Disasters
DGHA	Division of Global HIV/AIDS
EOC	Emergency Operations Center
ERI	Equipo de Respuesta Inmediata
FETP	Field Epidemiology Training Program
FPDP	Federal Plan Development Process
FTE	Full-Time Equivalent
GDD	Global Disease Detection
HSPD	Homeland Security Presidential Directive
ICS	Incident Command System
IEIP	International Emerging Infections Program
IEPT	International Emergency Preparedness Team
IHR	International Health Regulations
IPC	Infection Prevention and Control
IRB	Institutional Review Board
LES	Locally-employed Staff
MPH	Master of Public Health
MSPAS	Ministerio de Salud Pública y Asistencia Social
OFDA	Office of Foreign Disaster Assistance
PAHO	Pan American Health Organization
PHEIC	Public Health Events of International Concern
POE	Procedimiento Operativo Estándar
RRT	Rapid Response Team
SME	Subject Matter Expert
SOP	Standard Operating Procedure
USAID	United States Agency for International Development
USG	United States Government
WHO	United Nations World Health Organization

Appendix B: Final Activity List – ERI-Distrital

1. Antes de cualquier emergencia/desastre

Parte Responsable	POE	Función
Todo ERI	TODO1.1	1. Desarrollar y actualizar los planes de emergencia, contingencias y desastres para su distrito.
	TODO1.2	2. Identificar los principales problemas potenciales de salud del distrito.
	TODO1.3	3. Participar en las actividades de capacitación y actualización.
	TODO1.4	4. Obtener todas las vacunas necesarias.
Coordinador(a) de Distrito	CORD1.1	1. Capacitar y actualizar en las estrategias de abordaje de brotes y planes de contingencia.
Medico Clínico	MED1.1	1. Coordina el desarrollo del plan con los servicios de salud de su jurisdicción.
	MED1.2	2. Coordina el desarrollo del plan con los centros de salud de municipios colindantes y otras instituciones.
	MED1.3	3. Informa a su jefatura de área el estado actualizado del plan de desastres.
	MED1.4	4. Verifica la disponibilidad de recursos de cualquier tipo.
Enfermera profesional	ENF1.1	1. Reporta las actividades de preparación al director del centro de salud.
	ENF1.2	2. Confirmar todos los Auxiliares de Enfermería y Guardianas de Salud disponibles.
Auxiliares de Enfermería y/o Guardianes de Salud	AUX1.1	1. Identificar a los dirigentes de los diferentes grupos sociales locales.
	AUX1.2	2. Fortalecer a la población en riesgo con pláticas de Educación Sanitaria y otras estrategias de Información, Comunicación y Educación.
	AUX1.3	3. Hacer un inventario de suministros y revisar los principios de auxilios primeros.
Profesional QB o Técnico laboratorista	LAB1.1	1. Hacer un inventario de suministros de muestras y solicitar los que falta.
	LAB1.2	2. Determinar los métodos mejores del transporte de muestras.
	LAB1.3	3. Actualizar contactos al LNS.
Inspector de saneamiento ambiental (ISA)	ISA1.1	1. Mapear riesgos ambientales locales.
	ISA1.2	2. Elaborar planes de acción en función de los distintos riesgos ambientales locales.
Técnico en salud rural	TSR1.1	1. Apoyar el ISA con el mapear de riesgos y elaborar de planes.
	TSR1.2	2. Crear materiales educativas de salud ambiental.
Personal de ASS/PSS	ASSPSS1.1	1. Asume todas las actividades de cualquier parte falta el ERI.
Voluntarios de la comunidad	VOL1.1	1. Proporciona plan educacional a la población bajo su cargo.
	VOL1.2	2. Formar y prueban canales de comunicación en toda la comunidad.

2. Durante un Brote

Parte Responsable	POE	Función
Todo ERI	TODO2.1	1. Realizar visitas a la Comunidad conjuntamente con su equipo de trabajo.
	TODO2.2	2. Realizar una evaluación rápida de las necesidades de salud del distrito.
	TODO2.3	3. Recoger toda la información producida en la comunidad/hospital objeto de abordaje.
	TODO2.4	4. Aplicar las medidas de contención en casos necesarios.
Coordinador(a) de Distrito	CORD2.1	1. Solicitar convocatoria de los Integrantes del ERI-Distrital.
	CORD2.2	2. Declara localmente el estado de alerta y alarma respectiva.
	CORD2.3	3. Establecer y coordinar una Sala Situacional de Salud.
	CORD2.4	4. Coordinar acciones y reuniones de ERI-distrital.
	CORD2.5	5. Asegurar la seguridad del ERI.
	CORD2.6	6. Comunicar con ERI-DAS y solicitar apoyo cuando sea necesario.
	CORD2.7	7. Coordinar con CONRED, MAGA u otras instituciones de respuesta para logísticas de la respuesta.
Medico Clínico	MED2.1	1. Definir el caso.
	MED2.2	2. Determinar la Situación de Salud del distrito.
	MED2.3	3. Decide el envío de equipos especiales a sitios de emergencia.
	MED2.4	4. Solicitar el uso de los recursos pre-establecidos de las autoridades locales.
	MED2.5	5. Determinar las medidas de contención.
	MED2.6	6. Dar seguimiento al manejo clínico y control de infección asegurando su cumplimiento.
	MED2.7	7. Prever asistencia médica a la población en el sector afectado.
	MED2.8	8. Instalar de puestos de salud móviles de emergencia.
	MED2.9	9. Otorga tratamientos antivirales de acuerdo a disponibilidad y necesidad.
	MED2.10	10. Reportar situación medica al Coordinador semanalmente.
Enfermera profesional	ENF2.1	1. Apoyar al Médico en aspectos clínicos y comunitarios en el abordaje la emergencia.
	ENF2.2	2. Coordinar los Auxiliares de Enfermería y Guardianas de Salud.
	ENF2.3	3. Reporta todos los casos sospechosos y confirmados al medico clínico.
	ENF2.4	4. Coordinar servicios médicos fuera del sitio principal (si hay).
	ENF2.5	5. Asume la autoridad del medico al ausentarse este.
Auxiliares de Enfermería y/o Guardianes de Salud	AUX2.1	1. Apoyar la enfermera profesional en aspectos clínicos.
	AUX2.2	2. Coordina la ayuda voluntaria de cualquier tipo.
	AUX2.3	3. Registra todos los casos sospechosos y confirmados de la enfermedad.
	AUX2.4	4. Asume la autoridad de la enfermera profesional al ausentarse este.

Profesional QB o Técnico laboratorista	LAB2.1	1. Coordina la toma y envió de muestras al LNS.
	LAB2.2	2. Colaborar con LNS y laboratorios internacionales para identificar el agente causal.
	LAB2.3	3. Contactar el Coordinador de Enfermedades Transmitidas por Vectores del Área cuando sea necesario.
	LAB2.4	4. Reportar situación laboratorio al Coordinador.
Inspector de saneamiento ambiental (ISA)	ISA2.1	1. Consultar mapas del área y define área de riesgo.
	ISA2.2	2. Realizar toma y envío de muestras ambientales.
	ISA2.3	3. Investiga y controla fuentes de contaminación y riesgos ambientales.
	ISA2.4	4. Monitorear la aplicación de las normas, reglamentos y leyes con respeto a la situación ambiental.
	ISA2.5	5. Realizar control en el manejo de desechos sólidos.
	ISA2.6	6. Reportar situación ambiental al Coordinador.
Técnico en salud rural	TSR2.1	1. Apoyar al ISA en actividades de muestras y control de contaminación.
	TSR2.2	2. Crear mensajes de la situación para comunicar con la comunidad.
	TSR2.3	3. Proveer educación en salud ambiental, métodos de transmisión y prevención.
	TSR2.4	4. Reportar la situación de salud rural al Coordinador.
Personal de ASS/PSS	ASSPSS2.1	1. Implementar componentes de Atención Integral a la Mujer y la Niñez.
	ASSPSS2.2	2. Apoyar el técnico en salud rural en las campañas educativas.
	ASSPSS2.3	3. Reportar actividades al Coordinador.
	ASSPSS2.4	4. Asume todas las actividades de cualquier parte falta el ERI.
Personal voluntario de la comunidad	VOL2.1	1. Monitorizar y reportar rumores de enfermedad a los auxiliares de enfermería.
	VOL2.2	2. Apoyar el técnico en salud rural en las campañas educativas de hogares.
	VOL2.3	3. Cumple con recomendaciones proporcionadas por el servicio de salud.
	VOL2.4	4. Asegura que la comunidad tenga la información correcta y lo más actualizada.

3. Durante un Desastre Natural

Parte Responsable	POE	Función
Todo ERI	TODO3.1	1. Realizar visitas a la Comunidad conjuntamente con su equipo de trabajo.
	TODO3.2	2. Realizar una evaluación rápida de las necesidades de salud del área afectada.
	TODO3.3	3. Recoger toda la información producida en la comunidad.
Coordinador(a) de Distrito	CORD3.1	1. Solicita convocatoria de los Integrantes del ERI-Distrital.
	CORD3.2	2. Declara localmente el estado de alerta y alarma respectiva.
	CORD3.3	3. Establece y coordinar una Sala Situacional de Salud.
	CORD3.4	4. Establece un sistema de comunicación entre ERI-DAS, ERI-Distrital y la población afectada.
	CORD3.5	5. Coordina acciones y reuniones del ERI Distrital.
	CORD3.6	6. Asegura la seguridad del ERI.
	CORD3.7	7. Comunica con ERI-DAS y solicitar apoyo cuando sea necesario.
	CORD3.8	8. Coordinar con CONRED u otras instituciones de respuesta para logísticas de la respuesta.
Medico Clínico	MED3.1	1. Determinar la Situación de Salud.
	MED3.2	2. Solicitar el uso de los recursos pre-establecidos de las autoridades locales.
	MED3.3	3. Decide el envío de equipos especiales a sitios de emergencia.
	MED3.4	4. Coordina la asistencia médica de acuerdo a las Normas Esfera.
	MED3.5	5. Instalar de puestos de salud móviles de emergencia.
	MED3.6	6. Establecer sistema de vigilancia para enfermedades infecciosas comunes después de desastres.
	MED3.7	7. Establece el proceso de manejo de cadáveres.
	MED3.8	8. Reporta la situación medica al coordinador diariamente
	MED3.9	9. Activa las funciones de respuesta al brote cuando sea necesario.
Enfermera profesional	ENF3.1	1. Apoya al Médico Clínico en aspectos clínicos y comunitarios en el abordaje la emergencia.
	ENF3.2	2. Solicita información para la coordinación de puestos de primeros auxilios.
	ENF3.3	3. Coordina los auxiliares de enfermería y Guardianes de Salud.
	ENF3.4	4. Solicita al personal de enfermería adicional con experiencia en trauma cuando sea necesario.
	ENF3.5	5. Asume la autoridad del medico al ausentarse este.
Auxiliares de Enfermería y/o Guardianes de Salud	AUX3.1	1. Apoyar la enfermera profesional en aspectos clínicos.
	AUX3.2	2. Coordina la ayuda voluntaria de cualquier tipo.
	AUX3.3	3. Registra todos los victimas.
	AUX3.4	4. Apoya a los equipos de rescate que se presentan.
	AUX3.5	5. Refiere personas que necesiten tratamiento de emergencia por lesiones secundarias.
	AUX3.6	6. Refiere personas que necesiten tratamiento para las enfermedades no transmisibles.
	AUX3.7	7. Asume la autoridad de la enfermera profesional al ausentarse este.

Profesional QB o Técnico laboratorista	LAB3.1	1. Comunica diariamente con el medico clínico con respeto a casos posibles de enfermedades infecciosas.
	LAB3.2	2. Coordina la toma y envió de muestras al LNS de casos sospechosos.
	LAB3.3	3. Activa funciones del brote con un caso confirmado.
Inspector de saneamiento ambiental (ISA)	ISA3.1	1. Consulta mapas del área y define área(s) de riesgo.
	ISA3.2	2. Coordina la evacuación de la gente de áreas de riesgo.
	ISA3.3	3. Realiza toma y envío de muestras ambientales.
	ISA3.4	4. Investiga y controla fuentes de contaminación y riesgos ambientales.
	ISA3.5	5. Monitorea la aplicación de las normas, reglamentos y leyes con respeto a la situación ambiental.
	ISA3.6	6. Realiza control en el manejo de desechos sólidos.
	ISA3.7	7. Apoyar el clínico medico en el manejo de cadáveres.
	ISA3.8	8. Reporta situación ambiental al Coordinador diariamente.
Técnico en salud rural	TSR3.1	1. Compruebe que se están cumpliendo las Normas Esfera para las necesidades básicas.
	TSR3.2	2. Establecer puesto y sistema de distribución de materiales necesarios a la población.
	TSR3.3	3. Apoya al ISA en actividades de evacuación, toma de muestras y control de contaminación.
	TSR3.4	4. Determinar ubicaciones de nuevas áreas de asistencia para victimas.
	TSR3.5	5. Determina un sitio para el almacenamiento e identificación de cadáveres.
	TSR3.6	6. Cree mensajes de la situación para comunicar a la comunidad.
	TSR3.7	7. Vigila que las comunidades cuiden su medio ambiente.
	TSR3.8	8. Monitorea la situación mental de la gente del área.
Personal de ASS/PSS	ASSPSS3.1	1. Implementa componentes de Atención Integral a la Mujer y la Niñez.
	ASSPSS3.2	2. Implementa Atención a la demanda por morbilidad y urgencias.
	ASSPSS3.3	3. Apoya el técnico en salud rural en las campañas educativas.
	ASSPSS3.4	4. Reporta actividades al Coordinador.
	ASSPSS3.5	5. Asume todas las actividades de cualquier parte falta el ERI.
Personal voluntario de la comunidad	VOL3.1	1. Monitoriza y reportar rumores de cualquier injuria/enfermedad a los auxiliares de enfermería.
	VOL3.2	2. Apoya la evacuación de gente de áreas de riesgo.
	VOL3.3	3. Apoya la identificación de las heridas y cadáveres.
	VOL3.4	4. Apoya la distribución de materiales necesarias.
	VOL3.5	5. Asegura que la comunidad tenga la información correcta y lo más actualizada.

4. Después de cualquier emergencia/desastre

Parte Responsable	POE	Función
Todo ERI	TODO4.1 TODO4.2 TODO4.3	1. Realizar un análisis FODA de la respuesta. 2. Actualizar los planes de emergencia, contingencias y desastres según al análisis FODA. 3. Recopilar toda la información en un informe final de la respuesta.
Coordinador(a) de Distrito	CORD4.1 CORD4.2 CORD4.3	1. Coordinar todas las actividades de recuperación. 2. Desactivar la Sala Situacional de Salud. 3. Mandar informe final de la respuesta al nivel del área.
Medico Clínico	MED4.1 MED4.2 MED4.3 MED4.4	1. Supervisar la regresa de equipos especiales y personal adicional. 2. Coordinar el tratamiento de seguimiento de pacientes que lo necesita. 3. Supervisar la desinstalación de puestos de salud adicionales o móviles. 4. Reponer las reservas de medicamentos y suministros usados.
Enfermera profesional	ENF4.1	1. Registrar todas las pacientes que necesitan atención medica prolongada.
Auxiliares de Enfermería y/o Guardianes de Salud	AUX4.1 AUX4.2	1. Establecer métodos de contacto para la atención medica de seguimiento. 2. Monitorizar a los pacientes que recuperan y a los crónicos.
Profesional QB o Técnico laboratorista		No hay función individual; consulte funciones de **Todo ERI**
Inspector de saneamiento ambiental (ISA)	ISA4.1 ISA4.2	1. Continua la toma de muestras ambientales. 2. Asegurar que la población tiene acceso permanente a agua potable y alojamiento seguro.
Técnico en salud rural	TSR4.1	1. Proveer educación en temas de recuperación de la emergencia específica (almacenamiento de agua, etc.)
Personal de ASS/PSS	ASSPSS4.1	1. Asume todas las actividades de cualquier parte falta el ERI.
Voluntarios de la comunidad		No hay función individual; consulte funciones de **Todo ERI**

Appendix C: Final Activity List – ERI-DAS

1. Antes de cualquier emergencia/desastre

Parte Responsable	POE	Función
Todo ERI	TODO1.1	1. Desarrollar y actualizar los planes de emergencia, contingencias y desastres para su Área de Salud
	TODO1.2	2. Identificar los principales problemas potenciales de salud de la población afectada.
	TODO1.3	3. Participar en las actividades de capacitación y actualización con enfoque de riesgo y epidemiológicas.
	TODO1.4	4. Obtener todas las vacunas necesarias
Epidemiólogo	EPI1.1	1. Capacitar y actualizar en las estrategias de abordaje de brotes y planes de contingencia.
	EPI1.2	2. Prueba las canales de comunicación dentro el ERI-DAS
	EPI1.3	3. Hacer una lista de cada ERI-Distrital
Medico Clínico	MED1.1	1. Coordina el desarrollo del plan con los servicios de salud de su jurisdicción.
	MED1.2	2. Coordina el desarrollo del plan con los centros de salud de municipios colindantes y otras instituciones.
	MED1.3	3. Informa a su jefatura de área y a requerimiento de esta, el estado actualizado del plan de desastres.
	MED1.4	4. Verifica la disponibilidad de recursos del Área de cualquier tipo
Enfermera profesional	ENF1.1	1. Reporta las actividades de preparación al director del Área de Salud.
	ENF1.2	2. Confirmar todo el personal de enfermería del Área
Profesional QB o Técnico laboratorista	LAB1.1	1. Hacer un inventario de suministros de muestras y solicitar los que falta.
	LAB1.2	2. Determinar los métodos mejores del transporte de muestras.
	LAB1.3	3. Actualizar contactos al LNS.
Inspector de saneamiento ambiental (ISA)	ISA1.1	1. Mapear riesgos ambientales del Área.
	ISA1.2	2. Elaborar planes de acción en función de los distintos riesgos ambientales locales.
Técnico en salud rural	TSA1.1	1. Apoyar el IAS con el mapear de riesgos y elaborar de planes.
	TSA1.2	2. Creer materiales educativas de salud ambiental.
Trabajadora(o) social	SOC1.1	1. Identificar a los dirigentes de los diferentes grupos sociales locales.
	SOC1.2	2. Fortalecer a la población en riesgo con pláticas de Educación Sanitaria y otras estrategias de Información, Comunicación y Educación.
Coordinador de Enfer. Transmitidas por Vectores	VECT1.1	1. Hacer un inventario de suministros de muestras y solicitar los que falta.

2. Durante un brote

Parte Responsable	POE	Función
Todo ERI-DAS	TODO2.1	1. Realizar visitas al sitio conjuntamente con su equipo de trabajo.
	TODO2.2	2. Realizar una evaluación rápida de las necesidades de salud del Área.
	TODO2.3	3. Recoger toda la información producida en la comunidad/hospital objeto de abordaje.
	TODO2.4	4. Aplicar las medidas de contención en casos necesarios.
Epidemiólogo	EPI2.1	1. Solicitar convocatoria de los Integrantes del ERI del Área de Salud.
	EPI2.2	2. Realizar análisis de la Situación de Salud de la comunidad en forma conjunta con el ERI Nacional.
	EPI2.3	3. Establecer y coordinar una Sala Situacional de Salud.
	EPI2.4	4. Determinar la fuente del brote.
	EPI2.5	5. Determinar e implementar las medidas de control inmediato y contención necesarias a su nivel.
	EPI2.6	6. Asegurar la seguridad del ERI-DAS.
	EPI2.7	7. Comunicar con ERI Nacional y solicitar apoyo cuando sea necesario.
	EPI2.8	8. Coordinar acciones y reuniones de ERI-DAS y ERI-Distrital.
	EPI2.9	9. Coordinar con CONRED, MAGA u otras instituciones de respuesta para logísticas de la respuesta.
Medico Clínico	MED2.1	1. Definir el caso.
	MED2.2	2. Declara localmente el estado de alerta y alarma respectiva, ya sea de un brote o evento adverso.
	MED2.3	3. Decide el envío de equipos especiales a sitios de emergencia.
	MED2.4	4. Solicitar el uso de los recursos re-establecidos.
	MED2.5	5. Dar seguimiento al manejo clínico y control de infección asegurando su cumplimiento.
	MED2.6	6. Prever asistencia médica a la población en el sector afectado.
	MED2.7	7. Instalar de puestos de salud móviles de emergencia.
	MED2.8	8. Otorga tratamientos antivirales de acuerdo a disponibilidad y necesidad.
	MED2.9	9. Reportar situación médica al epidemiólogo semanalmente.
Enfermera profesional	ENF2.1	1. Apoyar al Médico Clínico en aspectos clínicos y comunitarios en el abordaje la emergencia.
	ENF2.2	2. Coordinar el personal de enfermería del Área.
	ENF2.3	3. Registra y reporta todos los casos sospechosos y confirmados al médico clínico.
	ENF2.4	4. Coordinar servicios médicos fuera del sitio principal (si hay).
Profesional QB o Técnico laboratorista	LAB2.1	1. Coordina la toma y envió de muestras al LNS.
	LAB2.2	2. Colaborar con LNS y laboratorios internacionales para identificar el agente causal.
	LAB2.3	3. Reportar situación laboratorio al epidemiólogo.

Inspector de saneamiento ambiental (ISA)	ISA2.1 ISA2.2 ISA2.3 ISA2.4 ISA2.5 ISA2.6	1. Consultar mapas del área y define área de riesgo. 2. Realizar toma y envío de muestras ambientales. 3. Investiga y controla fuentes de contaminación y riesgos ambientales. 4. Monitorear la aplicación de las normas, reglamentos y leyes con respeto a la situación ambiental. 5. Realizar control en el manejo de desechos sólidos. 6. Reportar situación ambiental al epidemiológico.
Técnico en salud rural	TSA2.1 TSA2.2 TSA2.3	1. Apoyar al ISA en actividades de muestras y control de contaminación. 2. Proveer educación en salud ambiental, métodos de transmisión y prevención. 3. Monitorizar las actividades del ERI-Distrital.
Trabajadora(o) social	SOC2.1 SOC2.2 SOC2.3	1. Promover la utilización de medidas de protección personal, familiar y colectiva. 2. Creer mensajes de la situación para comunicar con la comunidad. 3. Proveer educación comunitaria en métodos de transmisión y prevención de enfermedades infecciosas.
Coordinador de Enfer. Transmitidas por Vectores	VECT2.1 VECT2.2 VECT2.3 VECT2.4	1. Colaborar con LNS para determinar métodos (vectores) de transmisión. 2. Realizar actividades de control vectorial. 3. Monitorear los tipos y densidades de vectores del brote. 4. Reportar situación vectorial al epidemiólogo.

3. Durante un desastre natural

Parte Responsable	POE	Función
Todo ERI-DAS	TODO3.1	1. Realizar visitas al área afectado conjuntamente con su equipo de trabajo.
	TODO3.2	2. Realizar una rápida evaluación de las necesidades del área afectada.
	TODO3.3	3. Recoger toda la información producida en el área afectada.
Epidemiólogo	EPI3.1	1. Solicita convocatoria de los Integrantes del ERI del Área de Salud.
	EPI3.2	2. Realiza análisis de la Situación de Salud del Área.
	EPI3.3	3. Establece y coordinar una Sala Situacional de Salud.
	EPI3.4	4. Establece un sistema de comunicación entre ERI-DAS, ERI-Distrital y la población afectada.
	EPI3.5	5. Coordina acciones y reuniones de ERI DAS y ERI-Distrital
	EPI3.6	6. Asegura la seguridad del ERI.
	EPI3.7	7. Comunica con ERI Nacional y solicitar apoyo cuando sea necesario
	EPI3.8	8. Establece un sistema de monitoreo de enfermedades comunes post-desastre.
	EPI3.9	9. Coordinar con CONRED u otras instituciones de respuesta para logísticas de la respuesta
	EPI3.10	10. Activa las funciones de respuesta al brote cuando sea necesario.
Medico Clínico	MED3.1	1. Declara localmente el estado de alerta y alarma respectiva.
	MED3.2	2. Solicitar el uso de los recursos pre-establecidos de las autoridades locales.
	MED3.3	3. Decide el envío de equipos especiales a sitios de emergencia.
	MED3.4	4. Coordina la asistencia médica de acuerdo a las Normas Esfera.
	MED3.5	5. Instalar de puestos de salud móviles de emergencia.
	MED3.6	6. Reporta casos sospechosos o confirmados de enfermedades infecciosas.
	MED3.7	7. Establece el proceso de manejo de cadáveres.
	MED3.8	8. Reporta situación médica al epidemiológico diariamente.
Enfermera profesional	ENF3.1	1. Apoya al Médico Clínico en aspectos clínicos y comunitarios en el abordaje la emergencia.
	ENF3.2	2. Solicita información para la coordinación de puestos de primeros auxilios.
	ENF3.3	3. Informa de lo actuado ante el director del centro de salud.
	ENF3.4	4. Coordina los auxiliares de enfermería y guardianes de salud.
	ENF3.5	5. Solicita al personal de enfermería adicional con experiencia en trauma cuando sea necesario.
Profesional QB o Técnico laboratorista	LAB3.1	1. Comunica con el médico y epidemiológico con respeto a casos posibles de enfermedades infecciosas.
	LAB3.2	2. Coordina la toma y envió de muestras al LNS de casos sospechosos.
	LAB3.3	3. Activa funciones del brote con un caso confirmado.

Inspector de saneamiento ambiental (ISA)	ISA3.1 ISA3.2 ISA3.3 ISA3.4 ISA3.5 ISA3.6 ISA3.7 ISA3.8	1. Consulta mapas del área y define área(s) de riesgo 2. Coordina la evacuación de la gente de áreas de riesgo. 3. Realiza toma y envío de muestras ambientales. 4. Investiga y controla fuentes de contaminación y riesgos ambientales. 5. Monitorea la aplicación de las normas, reglamentos y leyes con respeto a la situación ambiental. 6. Realiza control en el manejo de desechos sólidos. 7. Apoyar el clínico médico en el manejo de cadáveres. 8. Reporta situación ambiental al epidemiológico/director diariamente.
Técnico en salud rural	TSA3.1 TSA3.2 TSA3.3 TSA3.4 TSA3.5	1. Compruebe que se están cumpliendo las Normas Esfera para las necesidades básicas. 2. Apoya al ISA en actividades de evacuación, toma de muestras y control de contaminación. 3. Vigila que las comunidades cuiden su medio ambiente. 4. Determina un sitio para el almacenamiento e identificación de cadáveres. 5. Monitorizar las actividades del ERI-Distrital.
Trabajadora(o) social	SOC3.1 SOC3.2 SOC3.3 SOC3.4 SOC3.5 SOC3.6	1. Promover la utilización de medidas de protección personal, familiar y colectiva. 2. Establecer puesto y sistema de distribución de materiales necesarios a la población. 3. Determinar los mejores métodos de comunicación dentro del área. 4. Crear mensajes de la situación para comunicar con la gente afectada. 5. Monitorea la salud mental de la gente del área. 6. Reportar las actividades de las comunidades al epidemiológico.
Coordinador de Enfer. Transmitidas por Vectores	VECT3.1 VECT3.2	1. Comunica con el médico y epidemiológico con respeto a casos posibles de enfermedades transmitidas por vectores. 2. Identificar posibles hábitats o fuentes de vectores cerca la población afectada.

4. Después de cualquier emergencia/desastre

Parte Responsable	POE	Función
Todo ERI	TODO4.1 TODO4.2 TODO4.3	1. Realizar un análisis FODA de la respuesta. 2. Actualizar los planes de emergencia, contingencias y desastres según al análisis FODA. 3. Recopilar toda la información en un informe final de la respuesta.
Epidemiólogo	EPI4.1 EPI4.2 EPI4.3	1. Coordinar todas las actividades de recuperación. 2. Desactivar la Sala Situacional de Salud. 3. Mandar informe final de la respuesta al nivel nacional.
Medico Clínico	MED4.1 MED4.2 MED4.3 MED4.4	1. Supervisar la regresa de equipos especiales y personal adicional. 2. Coordinar el tratamiento de seguimiento de pacientes que lo necesita. 3. Supervisar la desinstalación de hospitales móviles y puestos de auxilios primeros. 4. Reponer las reservas de medicamentos y suministros usados.
Enfermera profesional	ENF4.1	1. Registrar todas las pacientes con enfermedades crónicas o los que necesitan atención prolongada.
Profesional QB o Técnico laboratorista		No hay función individual; consulte funciones de **Todo ERI**
Inspector de saneamiento ambiental (ISA)	ISA4.1 ISA4.2	1. Continua la toma de muestras ambientales. 2. Asegurar que la población tiene acceso permanente a agua potable y alojamiento seguro.
Técnico en salud rural	TSA4.1	1. Proveer educación en temas de recuperación de la emergencia específica (almacenamiento de agua, etc.)
Trabajadora(o) social	SOC4.1	1. Establecer métodos de contacto para la atención médica (física o mental) de seguimiento.
Coordinador de Enfer. Transmitidas por Vectores		No hay función individual; consulte funciones de **Todo ERI**

Appendix D: Example SOP

Número de POE: MED2.4			
Incidente	Durante un brote		
Departamento	MSPAS-SIAS		
División	ERI-Distrital		
Actividad	Solicitar el uso de los recursos pre-establecidos de las autoridades locales.		
Punto de contacto	**Medico Clínico**		
Acción	**Tareas**	**Prioridad Alta (A) / Mediano (M) / Baja (B)**	**Plazo Corto (C) / Largo (L)**
Comando	Autoridades locales	**A**	**C**
Operaciones	1. Determinar cuáles recursos necesitan para la respuesta. 2. Contactar la autoridad en cargo de cada recurso necesario y activar el acuerdo de uso. 3. Organizar el transporte o recogido de recursos con la autoridad cuando sea necesario.		
Logísticas	Depende de la severidad del brote.		
Financia	Gastos de uso o transporte deben determinarse en el acuerdo de uso preliminar.		
Pre Información	Formulario de recursos disponibles; información de contacto		

Appendix E: Sample Contact Information Form

ERI-Distrital Lista de Contactos		
Nombre	**Dirección**	**Número de teléfono**
COORDINADOR DEL DISTRITO		
MEDICO CLINICO		
ENFERMERA PROFESIONAL		
AUXILIARES DE ENFERMERIA Y/O GUARDIANES DE SALUD		
TECNICO LABORATORIO		
INSPECTOR DE SANEAMIENTO AMBIENTAL		
TECNICO EN SALUD RURAL		
PERSONAL DE ASS/PSS		
VOLUNTARIOS DE LA COMUNIDAD		

Appendix F: Sample Resource Tracking Form

Formulario de Recursos Disponibles

Autoridad Local	Recursos disponibles	¿Transporte necesario? Sí / No	Si es así, quien se transportará	¿Quién cubre los gastos? (agencia)	Punto de Contacto			
					Nombre	Número de teléfono		Correo Electrónica