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Lise D. Martel   25 November 2013

EMERGENCY PREPAREDNESS OF SIX CENTRAL AMERICA MINISTRIES OF HEALTH

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Emergency Preparedness of Six Central America Ministries of Health

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An abstract of
A Thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
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2013

Abstract

Emergency preparedness plays a crucial role in saving lives and protecting the health of the population during disasters. The Ministry of Health (MOH) plays a central and coordinating role for the health sector in disasters. Efforts to improve emergency preparedness should be based on a systematic evaluation of existing response capacity and gaps in preparedness. In an effort to promote a scientific process, after determining that no existing tool could adequately assess and compare the emergency preparedness of MOHs of Central America, the CDC and COMISCA developed an instrument that could be used in all countries of Central America. The instrument includes questions organized around eight functional areas of public health emergency preparedness. The tool was used to systematically evaluate the emergency preparedness of the MOHs of Central America, and identify areas in which improvements can be made.

Overall, the MOH of Nicaragua was the most prepared and Belize was the least prepared. Each country showed a wide range of variation between scores for the different elements. Overall, Surveillance Systems emerged as the strongest of the elements across countries. Training, Exercises, and Evaluation was the weakest element for all countries but one. Recommendations were made to improve emergency preparedness at the country and regional level.

Keywords: emergency preparedness, Ministry of Health, emergency management, emergency response

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Chapter 1 – Introduction

Overview

The current public health theoretical framework for disasters encourages the use of standardized tools to scientifically assess emergency preparedness. A literature review revealed that none of the existing tools were adequate to measure the emergency preparedness of the Ministries of Health (MOHs) of Central America. A tool was developed in 2012 to fill this gap. The purpose of this study was to conduct a systematic evaluation of the emergency preparedness of the MOHs of Central America using this new tool.

Theoretical Framework

Emergency preparedness plays a crucial role in saving lives and protecting the health of the population during disasters. The public health field views disasters as basic elements of environments and constructed features of human systems, rather than as extreme and unpredictable events for which people cannot prepare (Oliver-Smith, 1996). It defines emergency preparedness as proactive planning efforts designed to structure the disaster response prior to its occurrence (Keim & Giannone, 2006; Kent, 1992; Veenema, 2003). This perspective has encouraged the development of a growing body of disaster preparedness research and interventions aiming to prevent mortality and morbidity, and to protect public health services and infrastructure (ECHO, 2002; Ebi & Schmier, 2005; FEMA, 2004; Redwood-Campbell & Abraham, 2011). The public health sector's interest in emergency preparedness has focused on actions that improve authority, command and control, communications, logistic functions, mass care, shelter management, rapid assessment, workforce training, and the provision of equipment and supplies to the providers of public health services and the general population (e.g., Keim, 2001; Keim & Giannone, 2006; Keim & Rhyne, 2001). Nevertheless, the focus has been on the implementation of intervention and very little attention was given to developing tools that can be used across countries to

assess emergency preparedness in general, and more specifically, the emergency preparedness of Ministries of Health (MOHs). A literature review found four assessment tools used by two public health authorities, the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), to evaluate emergency preparedness in the domestic and international context, but the tools needed to be combined and heavily modified to provide a tool that could be used to assess the emergency preparedness of the six MOHs of Central America.

Rationale

Providing scientific evidence to support public heath interventions is a crucial step in ensuring that are interventions are effective and in fostering the establishment of public health as a science. Efforts to improve emergency preparedness should be based on a systematic evaluation of existing response capacity and gaps in preparedness. For many years, the CDC has been working in Central America and has played a significant role in assisting the MOHs in improving their laboratory, epidemiology, and surveillance capacity. Outbreak response rather than emergency preparedness has been the main focus of the CDC's work. The Council of Ministers of Health from Central America and the Dominican Republic (COMISCA) is a political body of the Central American Integration System (SICA), which has been in existence since 2007 (COMISCA, 2013). COMISCA is responsible for identifying and solving regional health problems. In recent years, COMISCA has shown a growing interest in utilizing good science to make its political decisions. In 2012, the CDC partnered with COMISCA to support the Central American MOHs in their efforts to prepare for emergencies. The MOHs requested assistance to improve on their emergency preparedness. In an effort to promote a scientific process, after determining that no tool currently existed to properly assess and compare the emergency preparedness of the MOHs of Central America, the CDC and COMISCA developed an instrument that could be used in all countries of the region. Its aim was to assess the MOHs current capacities, and identify gaps in preparedness at the country and regional levels.

Problem Statement

Up to now, a systematic evaluation of the emergency preparedness of the MOHs of Central America was never conducted.

Purpose

The purpose of this study was to assess the emergency preparedness of the MOH of six countries of the Central America region, and identify areas in which improvements can be made.

Research Questions

The assessment conducted in the six countries aimed at answering important questions regarding the emergency preparedness of each country and of the region. These questions include the following:

1. What is the current state of emergency preparedness of the MOH of each country?
2. What are the major gaps in emergency preparedness for each country?
3. How does the emergency preparedness of each country compare to the others?
4. What could be done from a country-based perspective to improve emergency preparedness of the MOH?
5. What could be done regionally to improve on emergency preparedness?

Summary

Disasters are basic elements of environments and constructed features of human systems for which people can prepare. Preparedness should be based on scientific evidence provided by standardized assessment tools. A tool was developed in 2012 to assess the emergency preparedness of the MOHs of Central America. Using this tool, the current study defines the state of emergency preparedness of six MOHs of Central America, identifies gaps within and between countries, and provides recommendations to fill these gaps.

Chapter 2 – Review of the Literature

Overview

Central America is a region highly vulnerable to geological and weather-related disasters. The claim that emergency preparedness can greatly reduce the impact of disasters on the public's health should be supported by scientific evidence. The paucity of tools to measure emergency preparedness has made it difficult to develop this scientific body of evidence. A tool was developed to assess the emergency preparedness of the MOHs of Central America.

Central America's Vulnerability to Disasters

From 1975 to 2010, the number of disasters worldwide has more than quadrupled. Between 2002 and 2011, natural disasters alone killed 107,000 people and affected an additional 268 million (Annual Disaster Statistical Review, 2012). Central America is a region of the world that is prone to disasters (De Ville de Goyet, 1995). From 1992 to 2011, four of the seven countries of Central America ranked among the top ten countries most affected by extreme weather events. Between 1980 and 2006, the region suffered an average of 21 disasters per year (Harmeling & Eckstein, 2013).

With current trends in climate change, natural disasters are expected to increase in frequency and magnitude (Murray & Ebi, 2012). Central America's extensive coastal area is especially vulnerable to extreme-weather events such as hurricanes (Keim, 2011). Its geotectonic characteristics and geographic location also increase its risk of being affected by floods, earthquakes, and landslides (LCR, 2010a). In the last ten year, there has also been an increase in the occurrence of chemical and technological accidents and epidemics (COMISCA & CDC, 2012b). Finally, all of these factors are exacerbated by the poverty of the region's population (LCR, 2010a).

Figure 1.

Map of Central America including the 6 countries covered by this assessment

Note: Retrieved from http://www.teachingforchange.org/ask-me-about-central-america

Belize

Belize is highly susceptible to natural disasters such as tropical storms, flooding, and drought. It is located in one of the most active hurricane regions of the world (LRC, 2010b). It is hit by a major storm on average every three years (LCR, 2010b). Between 1931 and 2007, Belize was hit by 18 disasters: including 14 hurricanes or tropical storms, three floods, and one cold wave (Innovate Belize, 2012). Many of the hurricanes such as Hurricane Mitch (1998), Tropical Storm Chantal (2001), Hurricane Dean (2007), Tropical Storm Arthur (2008) and Hurricane Richard (2010) resulted in extensive flooding (FAO, 2011). Belize's population is highly vulnerable to disasters because of the modest transportation infrastructure, high poverty, and concentration of urban centers in low-lying coastal areas (LCR, 2010b).

Costa Rica

Situated at the subduction zone of two plates, Costa Rica is one of the most earthquake-prone in the world. Its mountain ranges with nine active volcanoes also make it one the most volcanically active countries in the world. Seventy-eight percent of Costa Rica's population and 80% of its GDP is in areas

exposed to high risk from multiple hazards (LCR, 2010a). In recent years, the frequency of floods has also been increasing and represents the main source of losses in the country. For example, in 2009, heavy rains caused floods and landslides in 65 of the 81 counties. Tropical storms and hurricanes are also a concern. In 2010, Tropical Storm Tomas had an economic impact of US$280 million and killed 26 people. Hurricane Mitch also caused US$98 million in damage. In addition, the fast-growing metropolitan population has forced low-income families to relocate to higher-risk areas (LCR, 2010a).

Guatemala

Guatemala ranks as the 5th country with highest economic risk exposure to three or more hazards because 83.3% of this gross domestic product is located in areas at risk of disasters (Dilley et al, 2005). Guatemala is also situated at the conjuncture of three tectonic plates. There are approximately 28 volcanoes in the country, four of which are active and pose a threat at the present time (LCR, 2010a). Guatemala is one of the most densely populated and poorest countries of Latin America. Between 1902 and 2005, Guatemala was subjected to 62 natural disasters which affected approximately 6 million of this population of 13 million (LCR, 2010a). Between 1997 and 2010, 749,991 Guatemalans were affected by storms and 113,596 by drought (World Bank, 2008). Thirty percent of the country's land and 1733 of its communities are at high risk for flooding (LCR, 2010a).

Honduras

Honduras is the second largest and second most populated country of Central America. It is also the third poorest country of the Western Hemisphere (Jansen et al, 2006). Two-thirds of Hondurans have a per capita income of less than US$1.50 a day. The country was hit by 50 natural disasters between 1980 and 2008, affecting 3,601,379 people (LCR, 2010a). Honduras main natural disasters are tropical storms (E.g., 1974 Hurricane Fifi, 1998 Hurricane Mitch, and 2005 Hurricane Stan) (LCR, 2010a). Hurricane Mitch destroyed 70 percent of the country's crop and transport infrastructure (BBC, 2009).

The country also experiences landslides. For example, during Hurricane Mitch, 25 villages were entirely destroyed by landslides (LCR, 2010a).

Nicaragua

Nicaragua ranks second among countries most affected by tropical storms. The country is sitting on two tectonic plates and is therefore subject to earthquakes. The country also has five volcanoes distributed along its central mountain range. Large parts of the country are susceptible to flooding that often results in landslides. Rapid increase in its urban population in the last fifty years has placed a rapidly increasing number of people at high risk of being affected by disasters. Finally, about 85% of houses in Nicaragua are self-constructed. These constructions rarely meet construction codes and are located in high-risk areas (LCR, 2010a).

Panama

Panama is vulnerable to disasters because of its geographical location and geotectonic characteristics. The Isthmus of Panama is only 60 to 90 km wide between the Caribbean Sea and the Pacific Ocean. Its mountain range is well known for its slope instability, intense rainfall, and tectonic activity (LCR, 2010a). The country is subjected to frequent earthquakes, their related aftershocks, and soil liquefaction. For example, in 2003, a 6.0 earthquake near the Costa Rican border was followed by more than 60 aftershocks and widespread soil liquefaction (LCR, 2010a).

Measuring Emergency Preparedness

Emergency preparedness plays a crucial role in saving lives and protecting the health of the population during disasters. Yet, there is little scientific evidence to support this claim. The current paucity of tools available to measure a baseline and progress, and guide preparedness activities, has made it difficult to study emergency preparedness. Still, four tools have been developed by the CDC and the World Health Organization (WHO) to evaluate emergency preparedness in the domestic and

international context. These four tools all contained elements that could be used in the creation of the

Emergency Preparedness Assessment Tool (EPAT) that was developed to measure the emergency

preparedness of the MOHs of Central America.

Four existing national and international tools

The Public Health Preparedness Capabilities (PHPC): National Standard for State and Local

Planning is a national tool that was developed by the CDC. It outlines standards for public health

preparedness capability-based planning. The tool provides non-rated lists of capabilities grouped under

15 core functional elements that are tested through tabletop exercises. The exercises are used to measure

emergency preparedness and help emergency response planners identify gaps in preparedness and define

priorities for interventions. The 15 public health preparedness functional elements of this instrument are:

1) community preparedness, 2) community recovery, 3) emergency operations coordination, 4)

emergency public information and warning, 5) fatality management, 6) information sharing, 7) mass

care, 8) medical countermeasure dispensing, 9) medical material management and distribution, 10)

medical surge, 11) non-pharmaceutical interventions, 12) public health laboratory testing, 13) public

health surveillance and epidemiological investigation, 14) responder safety and health, and 15) volunteer

management.

The Global Assessment of National Health Sector Emergency Preparedness and Response tool

was developed by WHO and used to assist decision makers develop, update, and disseminate technical

guidelines and standards for disaster risk reduction and emergency preparedness. It uses a simple yes

and no format to grade respondents' answers, and provides a comment section at the end of each section.

The tool is divided into nine functional elements: 1) policy and legislation, 2) institutional arrangements,

3) vulnerability assessment, 4) health sector plan, 5) training and education, 6) monitoring and

evaluation, 7) international cooperation and partnerships, 8) non-government, and 9) human resources.

The Emergency Operation Center Assessment was developed by the CDC. The tool follows the CDC's emergency operations center guidelines and is modeled after the National Incident Management System used across the United States to organize disaster response. The Emergency Operation Center Assessment uses a Likert scale from one to five and provides a comment section for each question of the following nine functional elements: 1) emergency operation center, 2) security, 3) personnel, 4) sustainability, 5) survivability, 6) communications and networks, 7) procedures, 8) training, and 9) basic life support.

The Gap Analysis of Global Disease Detection Center (GDD) tool was developed by the CDC to assess the emergency preparedness of its Global Disease Detection Centers around the world. The tool was used in Guatemala, Thailand, Kenya, China, Kazakhstan, and Egypt. It uses a Likert scale from zero to five and provides a comment section to describe the strengths and weaknesses of each rated item. This assessment tool includes eight functional elements: 1) planning, 2) the emergency plan, 3) command and control, 4) infrastructure and equipment, 5) training, 6) communications, 7) logistics, and 8) coordination with stakeholders.

The Emergency Preparedness Assessment Tool for Central America

The Emergency Preparedness Assessment Tool (EPAT) was developed using many elements from the four tools that have been developed by the CDC and the World Health Organization (WHO) to evaluate emergency preparedness in the domestic and international context.

Comparison between the four tools

Functional elements of the four tools were compared by contrasting the specific items listed under each element to identify equivalent terms. Items common to all four tools were retained and a name was selected for the functional element under which they could be grouped. The four elements common to all four tools were: 1) emergency plans, 2) command and control, 3) communications, and 4) training and exercises.

Emergency plans were mentioned in all of the tools. The Public Health Preparedness Capabilities (PHPC) tool grouped items for this element under Community Preparedness. The WHO tool had a section entitled Health Sector Plan. The Emergency Operation Center tool has a section dedicated to plans. The GDD tool separates the planning process from the actual plan components. In all assessment tools specific sections of a plan were mentioned and assessed for completion and use.

Command and control was included in five sections of the PHPC tool: 1) Emergency Operations Coordination, 2) Medical Surge, 3) Public Health Surveillance and Epidemiological Investigation, 4) Community Preparedness, and 5) Medical Countermeasures. The WHO assessment describes command and control as a quintessential part of an emergency preparedness and response plan. The EOC and GDD tools have a section dedicated to command and control.

The logistics, messages, and infrastructure of communication are themes present in the four assessment tools. PHPC focuses on the importance of messaging in a section called Emergency Public Information and Warning. WHO focuses on the importance of communication between and among non-governmental and institutional organizations. The EOC and GDD tools have a specific functional element for communication.

Training and exercises are covered in a dedicated section in all tools but the PHPC. The PHPC includes a Skills and Training section in each of its functional element to stress the importance of practicing all emergency preparedness element prior to an emergency.

All other functional elements which were not present in all of the four assessment tools were discussed with the representatives of the MOHs and emergency preparedness subject matter experts to assess their potential usefulness. From these, three additional functional elements needed to address the Ministries regional and country concerns were added: 1) logistics and operational process, 2) medical coordination, and 3) surveillance systems. Also, the MOHs requested that the element Communication

be separated into two different elements: 1) communication infrastructure, and 2) public information and risk communication. Also, evaluation was added to the element of training and exercises (Oppert, 2013).

The Emergency Preparedness Assessment Tool

A tool was finally developed in 2012 by the Centers for Disease Control and Prevention (CDC), and the Council of Ministers of Health from Central America and Dominican Republic (COMISCA, Spanish acronym).The Emergency Preparedness Assessment Tool (EPAT) assesses eight functional elements: 1) public health emergency plan, 2) command and control, 3) communication infrastructure, 4) public information and risk communication, 5) logistics and operational processes, 6) medical coordination, 7) training, exercises, and evaluation, and 8) surveillance systems (Oppert, 2013).

The International Health Regulations

Efforts to promote emergency preparedness in Central America are guided by the legally-binding International Health Regulations (IHR) agreement. The IHR were adopted by the Health Assembly in 1969. The 1969 regulations initially covered six diseases that might require quarantine. They were amended in 1973 and in 1981 to reduce the number of covered diseases from six to three (yellow fever, plague, and cholera) and to mark the global eradication of smallpox. In consideration of growing international travel and trade, and the emergence and re-emergence of some international diseases, a new version of the Regulations was produced in 2005 (CDC, 2012; WHO, 2013). The purpose of the 2005 version is to "prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade" (WHO, 2008b). One hundred and ninety-six countries are states parties to the IHR. The six countries assessed in this project are all signatories of this agreement (WHO, 2008b).

Summary

Items common to four existing tools created by the CDC and the WHO were used to develop the Emergency Preparedness Assessment Tool (EPAT). Additional items were added to answer the specific assessment needs of the region. EPAT assesses emergency preparedness according to eight functional areas. The assessment supports emergency preparedness as defined by the International Health Regulations.

Chapter 3 – Methodology

Overview

The Emergency Preparedness Assessment Tool (EPAT) was used to assess the emergency preparedness of the MOH of six countries of Central America. The tool uses both qualitative and quantitative measures. The assessment was administered to a focus group in each country. Scores for each functional element were added and percentages calculated. Qualitative information was used to explain quantitative results.

Instrument

EPAT was used to assess the emergency preparedness of the MOH of six countries of Central America: Belize, Costa Rica, Honduras, Guatemala, Nicaragua, and Panama. EPAT assessed each Ministry on eight functional elements: 1) Public Health Emergency Plan, 2) Command and Control, 3) Communication Infrastructure, 4) Public Information and Risk Communication, 5) Logistics and Operational Processes, 6) Medical Coordination, 7) Training, Exercises, and Evaluation, and 8) Surveillance Systems (Oppert, 2013; COMISCA and CDC, 2012a, b, c, d).

Quantitative measure

EPAT is divided in eight functional elements. Each element is composed of questions graded on a Likert scale from zero to two according to the following ratings:

0 = Does not exists

1 = In progress but incomplete

2 = Complete and functional

Scores for the questions under each functional element are added. The lowest possible score for each element is 0 and the highest score varies between 10 and 28 points depending on the number of questions (Table 1). Low score indicates a greater need for improvement for the element of emergency

preparedness. The possible highest total preparedness score calculated by adding all the scores of the functional elements is 128.

Table 1.

Number of questions and maximum score for each element

Functional Element	Number of questions	Maximum score possible
Public Health Emergency Plan	7	14
Command and Control	9	18
Communication Infrastructure	6	12
Public Information and Risk Communication	8	16
Logistics and Operational Processes	14	28
Medical Coordination	5	10
Training, Exercise, and Evaluation	6	12
Surveillance Systems	9	18
Total	64	128

Qualitative measure

A comment section divided into strengths and weaknesses was provided for each question.

Procedures

COMISCA and the CDC contacted their point of contact at each of the MOHs. Points of contact were asked to participate to a conference call where COMISCA and the CDC shared the assessment. Points of contact had the opportunity to ask questions relating to the assessment and to the selection of participants. Each point of contact was asked to identify individuals that could best answer questions relating to the eight functional elements of the assessment. There was no pre-established limit on the number of participants. Emphasis was placed on ensuring that the group would hold the expertise necessary to answer all questions. Participants were selected by the MOH points of contact and contacted individually by phone or in person to maximize buy-in and participation. The MOH points of

contact had the authority to ensure that staff would be freed from regular duty by their supervisor. Support from supervisors was confirmed. Participants were asked to bring with them any existing supporting document (e.g., plans and standard operating procedures) they might use to attest of the emergency preparedness of their MOH. Reminders were sent on the two work days prior to the beginning of the week-long meeting. Meetings were planned and organized by the MOH representative of each country (i.e., Belize, Costa Rica, Guatemala, Honduras, Nicaragua, and Panama).

On the first day of the meeting in each country, participants introduced themselves to each other. Then, two facilitators, one from COMISCA and one from the CDC, introduced the questionnaire on a large screen. Each question was read with the group. Members of the group discussed each question. Comments were captured on the qualitative part of the questionnaire for all to see. When comments were exhausted, the group was asked to rate the question and review the comments. The question was debated until a consensus could be reached. Extra time was spent collecting comments on individual questions and elements with low scores to ensure that the institutional memory that could provide explanation and solutions was captured.

Table 2.

Number of participants per country

Country	Acronym	Number of participants
Belize	BZ	12
Costa Rica	CR	15
Guatemala	GT	13
Honduras	HN	12
Nicaragua	NI	11
Panama	PA	14

Data Analysis

Scores for each question and each element were compiled in an excel spreadsheet. For each country, scores of individual questions were added for each element. The composite score was divided by the maximum possible score to obtain the percentage attained. Scores of each question and composite score of each element were compared across all six countries to define commonalities in strengths and in areas in need of improvement. Lower score indicated a lower capacity, and therefore a greater need for remedial interventions.

Summary

EPAT was used to assess the emergency preparedness of the MOH of six countries of Central America. A focus group in each country answered qualitative and quantitative questions. Scores for each functional element were added and percentages calculated. Scores were compared within and across countries to define gaps in preparedness. Qualitative information was used to explain quantitative results.

Chapter 4 – Results

Overview

This section presents both quantitative and qualitative results. Table 3 presents a comparative summary of the percentage of capacity of all countries across the eight elements. Tables 4 to Table 11 present comparative data for each of the separate elements. Below each table, additional information retrieved from the qualitative data is presented.

Public Health Emergency Plan

Quantitative results

Table 3.

Capacity percentage for each element by country

Element	Percentage of capacity						
	BZ	CR	GT	HN	NI	PA	Mean
Public Health Emergency Plan	58	92	83	75	75	17	67
Command and Control	78	100	72	94	100	78	87
Communication Infrastructure	0	50	75	50	100	50	54
Public Information and Risk Communications	63	94	44	69	88	63	70
Logistics and Operational Processes	57	100	89	79	79	71	79
Medical Coordination	50	80	80	30	100	30	62
Training, Exercises, and Evaluation	0	42	50	17	50	0	27
Surveillance Systems	89	94	89	100	100	89	94
Overall mean percentage score	49	81	74	64	86	50	67

Note: highest (green) and lowest (red) scores for each country. BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama.

Overall, the MOH of Nicaragua was the most prepared (86% preparedness achievement), and Belize was the least prepared (49%). Each country showed a wide range of variation between scores for the different elements. Belize was weakest in communication infrastructure and training, exercises, and evaluation, and strongest in surveillance systems. Costa Rica self-assessed as 100% prepared for the elements of Command and Control and Logistics and Operations Processes. Its lowest score (42%) was for the element of Training, Exercises, and Evaluation. Guatemala's highest mean scores were for Logistics and Operational Processes (89%) and Surveillance Systems (89%), and lowest mean score for Public Information and Risk Communications (44%). Honduras was most prepared in its Surveillance Systems (100%) and least in Medical Coordination (30%). Nicaragua had the most perfect preparedness scores (Command and Control, Communication Infrastructure, Medical Coordination, and Surveillance Systems) and was weakest in Training, Exercises, and Evaluation. Finally, Panama was strongest in Surveillance Systems (89%) and weakest in Training, Exercises, and Evaluation.

Overall, Surveillance Systems emerged as the strongest of the elements across countries. To the exception of Costa Rica, this element received the highest score of all elements for each country, and none of the countries had a score lower than 89%. At the opposite end of the spectrum, Training, Exercises, and Evaluation was the weakest element for all countries but one (i.e., Guatemala). The highest score for that element was 50%.

Table 4.

Score for questions of the Public Health Emergency Plan element

Element 1: Public Health Emergency Plan	Rating					
	BZ	CR	GT	HN	NI	PA
Is there a public health emergency response plan for the MOH?	1	2	2	2	2	0
Is the emergency response plan linked to the National Emergency Plan?	0	2	2	2	2	1
Is the emergency response plan linked to the regional humanitarian network?	2	2	2	1	0	0
Is the emergency plan annually updated?	1	1	0	0	1	0
Are there standard operating procedures linked to assigned positions within the organization?	1	2	2	2	2	1
Does the plan incorporate emergency humanitarian assistance plans for support from external stakeholders?	2	2	2	2	2	0
Element total rating (out of 14)	7	11	10	9	9	2

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Public Health Emergency Plan potential maximum score was 14. Costa Rica scored the

highest (11) and Panama the lowest (2) on this element. Except for Panama, all countries had a plan to

incorporate emergency humanitarian assistance plans of external stakeholders. Four out of six countries

had standard operating procedures, and an MOH plan that is linked with the National Emergency Plan.

None of the countries updated the plan annually.

Qualitative results

Belize

Participants indicated that even if Belize does not currently have a complete Public Health

Emergency Plan that is updated every year and that is linked with the national plan, the country has a

well-developed H1N1 influenza response plan that has many useful elements that could easily be

adapted to other emergencies as well. Belize has a legal framework that makes the National Emergency

Management Organization (NEMO) the lead for preparedness and response efforts during national

emergencies. With the support of PAHO/WHO, NEMO has been working on the development of a hurricane disaster plan for Belize and prepared reports on previous hurricane experiences that could also be used in the planning efforts.

Belize is currently working in collaboration with the Coordination Center for Natural Disaster Prevention in Central America and the Dominican Republic (CEPREDENAC – Spanish acronym) and the Caribbean Disaster Emergency Management Agency (CDEMA) Network in Barbados to ensure that its plan will be linked to the plans of other countries of Central America and of the Dominican Republic. Despite the fact that the existing national plan is not updated annually in a systematic way, it is periodically reviewed and updated after a disaster. One weakness is that the private sector is not included in these revisions.

Costa Rica

The National Plan for Risk Management is a strategic plan that puts into action risk management policies through management and subsystems within a National Risk Management System that defines institutional responsibilities for the allocation, organization, control and verification of resources. Institutional responsibilities are described in the Risk Management Plan. Costa Rica's National Contingency Plan for Public Health Events was developed within the framework of the International Health Regulations (IHR) and followed the design and implementation strategy defined by the 2010-2015 National Risk Management Plan of Costa Rica. During emergencies, the plan is implemented by the National Liaison Center, who coordinates with the National Emergency Commission (CNE). Other stakeholders involved in the operationalization of the plan during emergencies include: the MOH, the Costa Rican Social Security Fund, the National Animal Health Service- SENASA, Water and Sewer, and INCIENSA. The National Plan is aligned with the Central America Policy for Integrated Disaster Risk Management lead by CEPREDENAC. The National Contingency Plan for Public Health Events

states that procedures for each of the positions and roles at the regional and entry points have been

developed and defined as part of the National Plan for Risk Management.

Costa Rica has made substantial advances in integrating external stakeholders to its planning

efforts. For example, national laboratories have identified international reference laboratories that can

provide the required support for human and animal health. Still, despite its planning framework,

coordinating body and plans, Costa Rica still needs to strengthen the planning and coordination of

emergencies among health facilities at the local level.

Guatemala

Guatemala's Decree 109-96 "Law of the National Coordinator for Reduction of Natural or

Human-Made Disasters" established the National Commission for Disaster Reduction's (CONRED –

Spanish acronym) responsibility in preparing emergency plans in coordination with the institutions that

ensure the restoration and quality of public services and lifelines in case of disasters. Guatemala's 2003

National Plan for Emergencies, Contingencies, and Disasters follows CONRED's National Response

Plan. CONRED's National Response Plan is synchronized with the Multi-Year Plan 2010-2013 of the

Central American Policy of Disaster Risk Integrated Management conducted by CEPREDENAC. The

National Plan contains standard operating procedures that are linked to assigned positions and defines

the role of staff at hospitals and at the local level. Despite the fact that there is no formal schedule

established to update Guatemala's national plan, three reviews of the plan were conducted between 2003

and 2008, but the results of these reviews were not integrated to the plan.

Honduras

Honduras' National Plan of the Permanent Contingency Commission (COPECO) is linked to the

Health Secretariat National Emergency Plan and is supported by the National System for Risk

Management Law (SINAGER – Spanish acronym). COPECO's National Plan establishes the Chancery

of the Republic and the MOH as lead in ensuring coordination between Honduras and other countries of

Central America during a public health emergency.

Despite the fact that the National Plan has been reviewed over the years, no specific timeframe to

do so has been established. A complete update was conducted in 2010. The plan defines the roles of the

MOH from managerial to operational level. The Plan's implementation has been strengthened through

its application to frequent emergencies. The National Plan ensures coordination with external

stakeholders through the Technical Secretariat for International Cooperation (SETCO – Spanish

acronym) and the Secretariat of Foreign Affairs. The Secretariat of Foreign Affairs can help

coordination through its membership to the Coordination Center for Humanitarian Aid at COPECO's

level.

Nicaragua

Nicaragua was one of the first countries of Central America to have a plan for disaster response.

The Health Sector Plan is coordinated with the National Plan. The National Plan allows for the

coordination of response activities with other countries of Central America and with the Dominican

Republic through the Chancellery of the Republic. The Health Sector Plan is the responsibility of the

MOH, General Directors, and SILAIS. Despite the fact that local emergency plans are updated annually

in a systematic way, the National Plan is not, even if it has been updated from time to time to reflect

lessons learned from previous events. Nicaragua's National Plan includes Standard Operating

Procedures (SOPs) for all organizational levels of the MOH. The MOH participates to the coordination

process with international organizations through the National System for Disaster Prevention,

Mitigation, and Response (SINAPRED – Spanish acronym).

Panama

The MOH of Panama does not have an emergency plan but has a document from 2006 that provides guidelines on how to react during emergencies. An integrated plan for health disaster response has been in progress since 2011. The plan promises to include environmental, water, and health concerns for natural disasters and epidemiological emergencies. Despite the fact that during emergencies, the MOH activities are coordinated with the national response, there is no document to formalize that process. Some SOPs exists but have not been organized in a systematic way through a plan. Support and coordination with external stakeholders is managed by PAHO's Regional Program for Emergencies and Disasters in collaboration with UNETE, OCHA, and the CDC.

The responsibility of the MOH plan falls under the Vice Minister of Health and his General Secretary. The Head of the SISED department is responsible for the implementation of the plan at the operational level. SISED is responsible for providing advice to MOH on the implementation of risk management activities, and is the liaison with SINAPROC in national emergencies and disasters.

Command and Control

Quantitative results

Table 5.

Score for questions of the Command and Control element

Element 2: Command and Control	Rating					
	BZ	CR	GT	HN	NI	PA
Has command and control staff been identified at the national level?	1	2	1	2	2	2
Has command and control staff been identified at the regional level?	2	2	2	1	2	2
Has command and control staff been trained?	1	2	1	2	2	2
Are job action sheets developed?	2	2	0	2	2	0
Is there a unified command concept?	2	2	2	2	2	2
Is there a system in place for information collection and management?	2	2	1	2	2	2
Are there protocols and standards in place to support emergency preparedness and response within the nation and region?	2	2	2	2	2	2
Is there good knowledge of the triggers that activate foreign disaster humanitarian assistance for public health emergencies?	2	2	2	2	2	0
Is there an MOH Emergency Operations Center (EOC) or situation room dedicated to linking with stakeholders during a national emergency?	1	2	2	2	2	2
Element total rating (out of 18)	15	18	13	17	18	14

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Command and Control element potential maximum score was 18. Costa Rica and Nicaragua scored the highest (18) and Guatemala the lowest (13) on this element. All countries have protocols and standards in place to support emergency preparedness and response at the national and regional level. All countries also have an MOH Emergency Operations Center (EOC), and to the exception of Belize, all countries consider this EOC to be fully functional. All countries have adopted a fully functional unified command system. All also have command and control staff identified at the national and regional level even if half of the countries rated this item in need of improvement. All received some

level of training, even if improvement could be made in this area for two of the countries. Four of the six countries had well developed job action sheets for their command and control staff, but Guatemala and Panama had none.

Qualitative results

Belize

Belize's political and legal framework establishes NEMO as the lead agency for emergency response. NEMO's mission is to ease the impact of emergencies and disasters on the country and its people. NEMO coordinates 10 operating committees. The concept of unified command and control has been applied at all levels of the MOH through NEMO. Personnel with command and control functions have been identified in the health regions and their information is updated every year due to the high staff turnover. The training of the staff is coordinated at the national level. The national plan contains standing operating procedures (SOPs) for hurricanes.

The MOH has an electronic system in place to collect and manage information. A warning system via email sends information in real time to NEMO and to the EOC of the MOH to be analyzed and used for decision making. Trigger mechanisms to activate foreign disaster humanitarian assistance and protocols to support emergency preparedness at the national and regional level have been developed for hurricanes only. NEMO is responsible for declaring an alert or national hurricane emergency. The MOH is responsible for the declaration of all other emergencies.

Costa Rica

In Costa Rica, the Emergency Law that was approved in 1969, created the National Emergency Commission (CNE – Spanish acronym). In 1999, the Commission changed its name to the National Committee for Risk Prevention and Emergency Response. Since 1986, Costa Rica's political and legal framework makes CNE the governing body in risk prevention and preparedness to emergency situations.

CNE coordinates the response with national institutions and with the Coordinating Center of Health Operations (CCO – Spanish acronym).

During emergencies, the CCO is activated. CCO, composed of representatives of the MOH and of the Costa Rican Social Security Fund, provides health situational awareness during emergencies. Through its EOC called Situation Room, it is linked to an epidemiological alert system and a national emergency alert system coordinated by CNE. Over the recent years, Costa Rica has made progress in the professionalization, modernization, and specialization of its command and control functions.

The National Contingency Plan for Public Health Events, specifies the command and control for each of the regions. The command and control personnel's performance at the regional level is limited by lack of human resource capacity that results in staff being responsible for both management and operational roles during an emergency. Command and control staff has been trained in concepts of incident command system (ICS) but training is not conducted in a systematic way.

Job actions sheets are described in the Manual of Procedures of the National Committee for Emergencies and Disasters (MACOE – Spanish acronym). Costa Rica implements unified command and control as defined by the National Plan for Risk Management. Information collection and management is coordinated by the health sector through the situation room and distributed to members of the COE. Protocols to support emergency preparedness and response at the national and regional level are described in the National Contingency Plan for Public Health Events.

When activated, the COE decides if foreign assistance is necessary through the Technical Advisory Committee for International Assistance (CATAI).

Guatemala

Guatemala's political and legal framework establishes the National Commission for Disaster Reduction (CONRED – Spanish acronym) as the lead for coordinating response activities during health and public health emergencies.

Despite the fact that both the National Plan for Emergencies, Contingencies, and Disasters, and the National Plan for Response identify command and control staff at the national level, in practice, many gaps interfere with optimal implementation of a functional command and control function. At the regional level, governors and mayors serve as delegates in the municipalities.

The sporadic training of the command and control staff, coupled with a high turnover, had made it difficult to maximize the functionality of the command and control function. The MOH EOC serves as a liaison between the MOH and CONRED.

Information collection and management is accomplished through two systems: The Managerial Health Information System (SIGSA – Spanish acronym) and the Epidemiological Response Alert Subsystem (SARE – Spanish acronym). Triggers for the activation of foreign humanitarian assistance are included in the National Plan for Response. Foreign assistance is coordinated with the Humanitarian Aid Coordination Center. The National Liaison Center is responsible for declaring health emergencies. In cases when the situation cannot be clearly defined, CONRED declares the emergency and the MOH activates the EOC.

Honduras

Honduras' political and legal framework establishes the Permanent Contingency Commission (COPECO – Spanish acronym) as the lead agency during emergencies. COPECO coordinates activities closely with the MOH in all disasters, including public health emergencies. COPECO has an organizational structure that includes command and control protocols, interagency coordination, communications system and public information management.

Command and control staff is identified through the National Committee for Emergencies and Disasters (COE – Spanish acronym). Regional level staff has been identified in the Emergency National Plan. Training for Command and Control staff are carried out on a regular basis at the regional and local levels rather than at the national level.

Routine epidemiological data is collected through the Health Surveillance Department (DGVS – Spanish acronym). The information is analyzed on a weekly basis. Information from the local level is submitted to the regional level every week, and then forwarded to the national level. During emergencies, additional information on shelter monitoring and damage assessment is obtained through EDAN-SALUD. An alert-response system is also implemented at the national level to record unusual events.

During the emergency, information collected by DGVS is communicated daily to the Department of Disasters in the Health Secretariat. Triggers to activate foreign assistance are determined by COPECO and supported by The Pan American Health Organization (PAHO).

Nicaragua

Nicaragua's political and legal framework establishes the National System for Disaster Prevention, Migration, and Response (SINAPRED – Spanish acronym) as the lead agency for coordination of response to emergencies at the national level. SINAPRED coordinates closely with the MOH and has the command and control protocols, inter-institutional coordination and communications and public information management systems to do so. The command and control function is clearly established at all levels of the MOH and unified incident command has been tested through the numerous responses. Command and control staff has been identified at the national and local levels of the Ministry.

Training is provided in a systematic way at the regional and local levels. Foreign humanitarian assistance is conducted in accordance to guidelines and procedures defined by the MOH. The documents regulate medical teams' requirements, donations and regulation of medical devices. The EOC, which work through the Situation Room, is activated during emergencies and is linked to the epidemiological alert of national emergencies issued by SINAPRED. The MOH is responsible for activating the EOC

during epidemiological emergencies. For other types of disasters, alerts and activation is initiated by SINAPRED. At the local level activities are coordinated by the SILAIS directors.

Panama

Panama has identified national and regional level command and control staff. At the regional level, the Regional Health Director and his deputy are in charge. Training in command and control are conducted at the regional level when requested and when SISED determines they are needed. A training plan is in place. Turnover of staff promotes frequent training.

Responses are supported by rapid response teams organized at the central, regional, and local levels. Teams are composed of environmental health specialists, clinical laboratorians, food technicians, medical staff, epidemiologists, and veterinarians. Currently, the MOH does not have defined procedures to activate foreign disaster humanitarian assistance. Decisions are made at the Chancery of the Republic level. The MOH is working with PAHO to define activation procedures.

Communication Infrastructure

Quantitative results

Table 6.

Score for questions of the Communication Infrastructure element

Element 3: Communication Infrastructure	Rating					
	BZ	CR	GT	HN	NI	PA
Are there national standards to communicate during public health emergencies?	0	2	2	2	2	1
Are there communications systems in place for operational support and response?	0	2	1	1	2	1
Does communications staff receive regular training?	0	1	2	1	2	1
Are the systems regularly tested?	0	1	2	2	2	1
Is redundancy assured?	0	0	1	0	2	0
Are there Standard Operating Procedures (SOPs) to guide the communication process	0	0	1	0	2	2
Element total rating (out of 12)	0	6	9	6	12	6

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Communication Infrastructure element potential maximum score was 12. Nicaragua was the only country with a perfect score. Belize, with a score of 0, scored the lowest on this element. All countries except Belize had national standards to communicate during emergencies. Standards were in need of improvement in Panama but considered fully functional in the four other countries. Both the communication system in place and the training of communication staff could be improved or developed in four of the six countries. Redundancy of communication infrastructure was the element in need of most improvement with only one country having adequate redundancy, one having limited redundancy and four having none at all. SOPs are also lacking in three of the six countries.

Qualitative results

Belize

Communication systems supporting emergencies exist in Belize but depend on other entities outside of the MOH. Communication is mainly done through line and mobile phones, and the internet. Only the National Emergency Office has radio communication with nationwide coverage at the MOH EOC. The MOH relies on the military, the National Emergency Management Organization (NEMO), and the police for radio communication. At the national level, NEMO has a guide for communication processes but this information is not available at the MOH level. The MOH considers communication infrastructure to be one of its major weaknesses.

Costa Rica

The National Contingency Plan for Public Health Events describes communication processes defined to meet the characteristics and needs of each region. There are currently no SOPs to guide the communication process, but there is a 9-1-1 system in place. There is a telephone book of all institutions, and a directory of PAHO with international contacts. Notifications are conducted by decree and by phone. Training has only been conducted for technicians who work directly with radio communications. Institutions can communicate internally, but it is difficult to communicate between agencies. The health sector uses telephones and internet for communication, however, telephones are personal and the network depends on telecommunication companies. During disasters, phones are often saturated and communication is interrupted. There is a hospital radio network in the Costa Rican Social Security Fund which is only used by the emergency commission to coordinate patient transfers. Their frequency is not exclusive to the hospitals and the coverage is not 100%.

Guatemala

In Guatemala, national communication standards are established and known by all levels of the MOH. Likewise, the National Commission for Disaster Reduction (CONRED – Spanish acronym) has communication standards and protocols. The MOH has a radio communications system, which is supported through an agreement with the Ministry of National Defense but the system has limited national coverage. Much of the communication is conducted through telephone, email, intranet, and internet. Training for communication staff, especially on the management of emergency situation is rare, and staff has a high turnover.

There is no redundant communications system at the MOH. CONRED has a backup system for communication at the national level. Currently, an agreement is being negotiated with the Ministry of National Defense to get their support in resolving the communication infrastructure gaps. Communications take place routinely, not just in exercises but also in the frequent real events, however, there are no SOP´s to manage communications.

Honduras

At the national level, there are processes to communicate at all levels of the Health Secretariat, and they are known by the technical staff in charge of communications. The Health Secretariat´s communication network is highly efficient and works through all organizational levels by internet, fax and telephone lines. However, the radio communication network is not fully implemented at the national level, due to equipment and funding limitations for maintenance.

Implementing a backup communications system to ensure communications nationwide has been a challenge. Training for communication infrastructure is not performed regularly due to the lack of funds; however, it is considered an important area to be strengthened.   The communication network for emergencies is the same one used for epidemiological surveillance and is coordinated with the Department of National Emergencies. Communication processes are constantly exercised through the

event notification of the epidemiological surveillance. This communication infrastructure has proved to be efficient and pertinent during emergencies.

Nicaragua

The Ministry of National Defense supports the MOH with communication and liaison infrastructure, specifically in radio communications. There is also a very effective communications network that works through internet, fax and telephone lines. Implementing a backup communications system ensuring national communications when the system that is already established fails, and implementing systematically training activities for the staff remain a challenge.

The national level communication system has 80% of coverage through the radio network. The rest of the coverage in emergency events is provided by the army in the most vulnerable zones. There are difficulties with the relay towers used in the country. These towers are not completely subsidized by the MOH and some of them need to be repaired, or have been rendered unusable by previous disasters. There is currently no sustainable financial capacity to maintain this network.

There is not an exclusive network for emergencies. The MOH uses the system in place for the daily communication of epidemiological surveillance. Therefore, the systems are constantly being tested through daily events. Coverage of the epidemiological surveillance system is being expanded and sentinel sites are being strengthened.
There is redundancy, not only with radios, but also in communications by landline, mobile phone, and the internet.

Panama

The MOH has national standards to communicate during emergencies and these are applied. The MOH's communications network relies on the internet, fax and telephone lines. The Ministry of National Defense supports the radio communications and liaison infrastructure, in case of national

emergency or disaster. Implementing a backup communications system to ensure communication at a national level when the system in place fails and establishing a systematic training program have been a challenge.

Deficiencies in the coverage of the communications network among health facilities are addressed through external support from other institutions, such as the armed forces. Privately owned cell phones and internet are also often used but can easily fail when communication systems get saturated. Coverage of cell phones is not total, so it is necessary to use different companies in order to have nationwide access.

Regional communication is supported by the national level. The MOH has operating procedures in place, which are coordinated with SINAPROC and the Civil Protection Office. There is a national program for radio operators, which is distributed in all regions to be adapted and developed, however, it has not been conducted at all levels of the MOH, and is not yet carried out in a systematic way. The training is offered to SISED national, regional, and local coordinating personnel, nurses, physicians, and information technology specialists who serve as liaison with central SISED.

Public Information and Risk Communication

Quantitative results
Table 7.

Score for questions of the Public Information and Risk Communication element

Element 4: Public Information and Risk Communication	Rating					
	BZ	CR	GT	HN	NI	PA
Have public information staff been identified and trained at the national level?	2	2	1	1	2	1
Have public information staff been identified and trained at the regional level?	2	1	0	1	1	0
Is there a written communication plan?	0	2	0	1	2	1
Have a national and a back-up risk communication liaison been identified?	0	2	1	0	2	1
Are risk communication needs and standards coordinated with PAHO and other international health entities?	1	2	1	2	2	2
Are there mechanisms in place for risk communication and the distribution of messages to MOH?	1	2	2	2	2	2
Are there mechanisms in place for risk communication and the distribution of messages to the general population?	2	2	2	2	2	1
Is there a database of pre-existing (canned) messages that can easily be modified during an emergency?	2	2	0	2	1	2
Element total rating (out of 16)	10	15	7	11	14	10

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Public Information and Risk Communication element potential maximum score was 16.

Costa Rica scored the highest (15) and Guatemala the lowest (7) on this element. All countries had

mechanisms in place for risk communication and distribution of messages to the MOH and to the

general population. For both the distribution of messages to the MOH and to the general population only

one country did not self-evaluate as fully prepared. All six countries affirmed that risk communication

needs and standards were coordinated with PAHO and other international health entities but two

countries express a need for improvement. All countries have identified a trained public information

staff at the national level but for half of the countries, there was still a need for improvement before this

item is considered fully functional. At the regional level, only one of the six countries had a fully

operational trained identified public information officer. Three countries needed improvement and two did not have any. Only two of the six countries had a fully developed written communication plan or had a national and a back-up risk communication liaison. Of the other four countries, two had a less developed plan or were in the process of identifying a national and a back-up risk communication liaison. Four of the six countries have fully developed canned messages. Only Guatemala has none at all.

Qualitative results

Belize

The MOH of Belize has mechanisms in place for risk communication, not only internally, but also to reach the general population. The risk communication plan prepared for H1N1 provides guidelines that can be adapted and implemented for other public health emergencies. Trainings have been held on H1N1 risk communication.

Health inspectors, public health officers, health educators, hospital administrators, directors of health services, and nurses who can generate public information and risk communication at the national and regional levels have been identified. A national risk communication liaison and a back-up have been identified. No risk communication plan has been established yet. PAHO is providing support for defining risk communication needs and standards, and doing so, is strengthening Belize's International Health Regulations activities.

Mechanisms for risk communication and the distribution of messages to the MOH are established in the communications plan prepared for the influenza H1N1 emergency. Risk communication and the distribution of messages to the general population are carried out through the Government Press Office. Radio stations provide support at the local and national levels, and disseminate educational messages on health topics, at no cost. The press provides support at the national

level. There is a database of pre-existing messages that is used during emergencies. Messages are only

translated from English into Spanish. They should also be translated into other languages frequently

used in the country, such as German, Chinese, and Mayan.

Costa Rica

Costa Rica's Risk Communication Plan includes the human and animal health sector, and the

delivery of messages to the general public. Those who are responsible for generating public information

are clearly identified. A communication plan has been prepared and is awaiting validation. A national

risk communication liaison and a back-up have been identified in each of the institutions of the COE,

however, the Institute for the Investigation of Health and Nutrition of Costa Rica (INCIENSA – Spanish

acronym) representative is still pending. PAHO supports the country in defining its risk communication

needs and standards.

Trainings have been conducted at the national level for a spokesperson. The spokesperson is

selected by the MOH. Trainings need to be conducted frequently due to the high turnover. At the

regional level, public information staff has been identified, but the lack of training sometimes results in

an inadequate dissemination of the message.

Risk communication and the distribution of messages to the MOH are achieved through the

media, and pre-contracted spaces, and other agreements with private entities. There is a database of pre-

determined messages. Risk communication mechanisms are established according to three phases: 1)

preparation, set up of the action plan on risk communication according to their context and resources,

strategic alliances, material preparation, and dissemination of information with emphasis on prevention,

2) communication response, activation of the key communication actors network, and intensification of

mass media messages at strategic points, and 3) post-event evaluation of communication activities at

different levels, to adjust communication.

Guatemala

The Guatemala MOH has mechanisms for risk communications, not only internally, but also for the general population. Implementing a backup communications system at the national level, with capacity to continue working properly during emergencies; establishing training activities in a systematic way; and preparing technical guidelines for communications management have been a challenge. Risk communication for general population is officially carried out by the MOH. The MOH defines who will be the official spokesman, depending on the event. Spokespersons are not always trained properly because staff has a high turnover and training is infrequent. There is no designated or trained staff to disseminate public information at the regional or local level.

Guatemala's MOH does not have a communications plan, however, the MOH has a communication plan for influenza that was implemented during the pandemic, and contains elements that could be adapted to other public health emergencies. At the national level, the staff serving as liaison for risk communications has been identified, but their alternate has not been, since there is not enough staff trained for such purpose. The MOH of Guatemala has requested assistance from PAHO to develop its risk communication capacity.

The Communications Department of the MOH has developed risk communication mechanisms and coordinates communication directly with the National Epidemiology Center. The Department of Health Promotion and Education (PROEDUSA - Spanish acronym), has mechanisms in place for the dissemination of information. Educational messages prepared for the population are adapted to the characteristics and language of the target population. At the national level, the Department of Communications does not have a database of pre-existing educational messages. When there is an emergency, the necessary material is prepared. At local levels, there are some files with material previously reproduced that are used when necessary.

The National Commission for Disaster Reduction (CONRED – Spanish acronym) has a data base with pre-existing messages, performs risk communication with bulletins, and releases in the traditional media: radio, written and televised media, webpages, and social networks (i.e., Facebook and Twitter). The MOH provides emergency risk communication on its webpage and also disseminates information through written documents, radio and televised media. Training activities on risk communication have been performed at the national level.

Honduras

The Health Secretariat´s communication network is highly efficient and works through all MOH levels by the internet, fax and telephone lines. Risk communication personnel have been identified at the central and regional level, but training is not performed regularly, due to lack of funds. In 2009, a number of trainings were offered for influenza, and staff was able to apply that knowledge to other emergencies.

There is a generic communication plan. A risk communication liaison and back-up have been identified at the national level. There has been extensive collaborative work between the Honduras MOH and PAHO to improve on the risk communication of the country. Many risk communication documents were created. Risk communication during emergencies is carried out through the personnel in charge of communications, with direct instructions from the Health Secretary and his advisors. Distribution of prevention messages or situation status is done from the national to the local level. The MOH risk communication for the general population is carried out through paid spaces in the papers, radio or TV, and includes information from the General Office of Health Surveillance and the Department of National Emergencies. Pre-existing messages have been used for several years. Risk communication is usually drafted from technical level reports and handed to the Secretary of Health, who in turn, reports to the Communications Office of the Health Secretariat. Then, the information is disseminated at the national level using the communication network at all MOH levels.

Nicaragua

Nicaragua has risk communications mechanisms, not only internally in the MOH, but also for the general population. Public Information staff has been identified and trained at the national level. There is a process in place by which the information is reviewed before being disseminated. First, the technical level confirms and validates the information, then it goes to the Council, and finally to the official spokesperson. The information is also submitted to the MOH to be disseminated. There is a pre-existing database of risk communication messages ready for printing. Messages for the general population are designed according to the target population into local language. There is a lack of human resources and adequate equipment to perform the work internally at the MOH. Radio break models are also kept for some events, and there is a minimal stock of printed material. Risk communication is achieved through radio, TV, loudspeakers, brochures, posters, and the MOH website.

Training for communication staff is not well organized. There is a manual with generic guidelines for public communication which can be adapted to several events. A national level risk communication liaison and alternate are in place at all organizational and communication levels. PAHO and UNICEF worked jointly to increase Nicaragua's risk communication capacity.

A mechanism to communicate official information to the general population and across institutions is in place. A spokesperson is chosen, and national channels are set in a stipulated time. The spokesperson is from the National System for Disaster Prevention, Migration, and Response (SINAPRED – Spanish acronym) in disasters or the MOH in a health event. The dissemination method better accepted by the target population is used. For example, using drawings in the message is more accepted in some regions, and using pictures is more accepted in others. The message is also culturally adapted and validated with local people. There are no resources (human, technical, nor financial) for the design, preparation, and reproduction of audiovisual and printed materials for dissemination.

Panama

A draft of Panama's risk communications plan and mechanisms for distribution within the MOH and to the general population has been developed and is under review. There is a public information coordinator at the national level who is in charge of preparing interviews and releases. Staff has also been identified and trained at the regional level. Local and regional risk communication staff comes from the central level, due to the small number of staff available at local and regional levels. Journalists serve as back-up liaison in several regions but many have not received training in risk communication. When liaisons are not available in a region, the National MOH provides a liaison who then works with the support of the local media. Nine health regions have a communication liaison and five regions do not. As demonstrated in the H1N1 response, the MOH works in coordination with PAHO, in accordance with their guidelines, during emergencies. The MOH has mechanisms for communication and distribution of messages to all staff. An electronic bulletin is distributed through the MOH's intranet. Information flows efficiently immediately after being submitted. However, not all staff members currently use the intranet. Information is disseminated nationwide to the general population through the health promotion office. Radio, which as great coverage throughout the country, is the most commonly used mean of dissemination. TV ads, posters, and handouts are also used. Loudspeakers on ambulances or on personal vehicles are also used in remote areas. The protocol to take out a MOH vehicle makes it difficult to have transportation available, especially after working hours, hence the reliance on personal vehicles. The Health Promotion Department of the MOH has a pre-existing database that is used during emergencies. An increase in the number of radio operators is considered necessary, as well as improvements in the radio communications network, in order to have 24 hour coverage.

Logistics and Operational Processes

Quantitative Results

Table 8.

Score for questions of the Logistics and Operational Processes element

Element 5: Logistics and Operational Processes	Rating					
	BZ	CR	GT	HN	NI	PA
Receiving, Staging, and Storing Public Health Assets						
Is there a warehouse(s) identified to receive donated and existing medical materials?	2	2	2	2	2	2
Does the warehouse(s) have temperature control capacity?	2	2	2	2	1	2
Is there a plan in place to manage incoming medical materials?	2	2	2	2	2	2
Are there security measures in place at the warehouse(s)?	0	2	2	2	2	2
Is the warehouse(s) easily accessible?	1	2	2	2	2	2
Is the warehouse(s) removed from high-risk areas?	0	2	0	2	0	1
Are warehouse staff identified and trained?	1	2	2	2	2	0
Is a warehouse(s) communication plan in place?	0	2	2	0	2	0
Distributing Oral Medications or Vaccinations						
Is a distribution manager identified and trained?	2	2	2	2	2	2
Are there pre-determined distribution sites?	2	2	2	2	2	2
Are trucking resources available for MOH distribution?	1	2	2	1	1	1
Is there a security plan in place for the distribution of resources?	0	2	2	0	0	2
Are there mechanisms in place to ensure surge capacity?	2	2	1	1	2	0
Do the distribution sites have communication capacity?	1	2	2	2	2	2
Element total rating (out of 28)	16	28	25	22	22	20

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Logistics and Operational Processes element potential maximum score was 28. Costa Rica scored the highest with a perfect score. Belize scored the lowest (16) on this element. All countries had a fully functional warehouse identified to receive donated and existing medical materials, a plan in place to manage incoming medical materials, an oral medication or vaccination distribution manager identified and trained, and pre-determined oral medication and vaccination distribution sites. All countries except one had a fully functional warehouse with temperature control capacity. All but one warehouse were fully accessible and had communication capacity at the oral medication and vaccination distribution sites. Three of the six countries warehouse were situated in high-risk areas for disasters, did not have a communication plan in place, or did not have a security plan in place for the distribution of resources. All but two countries reported having access to limited trucking resources for oral medication and vaccination distribution by the MOH.

Qualitative results

Belize

In Belize, medical care during emergencies is coordinated through clearly identified points of contact in charge of requesting supplies and materials following the procedures listed in the existing plan. The MOH has two national warehouses to receive and store supplies and donations for emergencies. One is located in the District of Belize, the other in Belmopan. Both warehouses have the capacity to provide a temperature controlled environment. However, there is no redundant system to ensure electricity in case of power outage. The warehouses are surrounded by fences but access to the warehouses is poorly controlled. The warehouses are located in areas easily accessible, but the warehouse located in the District of Belize is located in an area at high risk of flooding. Warehouse staff has been identified and has received some training but more training is still needed to ensure that supplies and medicines are managed according to the established plan.

A nurse trained on vaccine management and administration is in charge of the distribution of oral medications and vaccines. In the regions, pre-selected warehouses are used to distribute goods to the assigned establishments. Trucks are available for the transport of medicines; however, they do not have temperature control. In large disasters, providers are required to deliver supplies and medicines. Communication at distribution points is performed through landlines and mobile phones, but in disasters the telephone lines and towers often collapse, leaving the country, or at least part of it, without communication.

Costa Rica

The MOH Technical Advisory Committee for International Assistance (CATAI – Spanish acronym) is responsible for the management, reception, storage, and distribution of medicine and vaccines. Costa Rica has a policy in place that defines when the country will require a donation and what is needed. The Costa Rica Social Security (CCSS – Spanish acronym) generally has the capacity to fulfill logistical and operational needs to respond to public health emergencies and disasters. However, on occasion, additional supplies, drugs, and vaccines have been required, and the MOH explicitly and timely requested support from other organizations to ensure proper storage and avoid receiving donations that do not respond to the needs of the country. The reception and warehousing of supplies is performed in national stores. When the national stores' capacity is exceeded, the MOH rents additional warehouses with climate control and other safety features. Security officers are hired to guard stores and warehouses. Warehouses are located in easily accessible places away from high-risk areas. Staff of regular warehouses has been trained, and when additional warehouses are rented, trained staff is transferred to the new location. There is a communication mechanism in place for mobilization or reception of material, when necessary.

Multiple decision makers are involved in decisions regarding the logistics and management of medical supplies. The process is cumbersome and complicated. National and regional warehouses for

distribution have been identified. They are used according to the type of event, location and accessibility. The MOH has trucks and logistics in place for the distribution of drugs and vaccines. The warehouses have contingency plans to supply electricity in case of a power failure. Security personnel safeguard the assets on the site. CCSS is working at reducing the bureaucracy and streamlining logistics procedures.

Guatemala

The Guatemalan MOH is responsible for and has procedures in place for managing, receiving, storing, and distributing materials, vaccines, and medication during disasters. The MOH relies on CONRED and on the Ministries of Foreign Affairs Coordination Center of Humanitarian Aid (CCAH - Spanish acronym) for issues related to medicine and vaccines, and on CONRED and on the Ministry of Defense for transportation. The MOH warehouse is equipped with a surveillance system but a security plan needs to be developed and efforts need to be made to prevent theft during transportation to the warehouse, and after materials, medication, and vaccines are stored. The warehouse is located at the airport, and easily accessible by road. There is no plan in place to ensure the maintenance of a cold chain and a redundant source of electricity during emergencies. The National Immunizations Program of the MOH administratively manages vaccines. The distribution of donations is carried out from the Central Warehouse to health areas. The donations are distributed to the districts. The districts ensure the distribution to the local level. CONRED coordinates transportation with the MOH and obtain trucks from private sources when needed. The MOH has its own surge capacity but relies on other organizations such as CCAH to augment its capacity during large disasters. Mechanisms in place have been successfully used for the recent distribution of influenza vaccine. The approach was decentralized, using local levels capacity. It was successful in reaching vulnerable groups.

Honduras

The Health Secretariat of Honduras carries out the management, reception, storage and distribution of materials, medications, and vaccines during emergencies. If the distribution of assets exceeds their capacity, they request support from the Permanent Contingency Commission (COPECO – Spanish acronym). The Health Secretariat has access to a warehouse in which space has been allocated to receive donated and store existing medical materials. The warehouse has adequate temperature control and is easily accessible by road. There is no plan in place to document management, reception, storage, and distribution activities, but frequent responses ensures that staff are aware of the activities that need to be performed. The MOH and the COPECO warehouse staff occasionally receive training (e.g., training on the Humanitarian Supply Management System). Turnover of warehouse staff is low. During an emergency, a direct communication line is established between the Health Secretariat and the warehouse.

Oral medications and vaccines are distributed between the national and the regional levels through a well-established network of warehouses. The MOH sometimes directly delivers the oral medications and vaccines to every region hospital and health center, but the MOH trucks' availability to distribute medicines and vaccines is limited by financial-related challenges, such as maintenance expenses, fuel supply, and transportation expenses. Hospitals and health centers might have to drive to the city and pick up the supplies. During emergencies, COPECO coordinates communications, and the need for air and sea transportation.

Nicaragua

The Center of Health Supplies (CIPS - Spanish acronym) manages medical supplies and donations during emergencies. The main warehouse is connected to three stores and 17 warehouses. Storage space is insufficient to respond to the country's needs and only one of the sites provide temperature control for medicines and vaccines, which makes it necessary to rapidly move supplies.

The main warehouse is equipped with an external security system. Security improvements are needed inside the facilities. The warehouse is located on a road that is easily accessible but is in a high-risk area near a gas station, and an earthquake fault line. The warehouse is equipped to properly communicate with the CIPS during emergencies.

Due to a high turnover, frequent staff training is necessary. Staff received regular training for the distribution of oral medications and vaccines. The MOH directly delivers the supplies and medicines to health areas in the interior, and to the hospitals. There is a warehouse or pre-selected location for delivery of supplies in each region, to ensure distribution at the local level. There is an insufficient number of trucks with temperature control for transport of medications and vaccines.

Panama

The MOH has the appropriate infrastructure to ensure logistical and operational processes for the management, reception, storage, and distribution of medical assets. The MOH's challenges include properly training of staff in charge of receiving and storing public health assets, as well as, establishing a communications plan in the warehouse. A warehouse has been identified for the receiving, staging, and storing of medical supplies. Additional warehouse are also available throughout Panama City. The main warehouse has temperature control and standard security measures. It is located at the central facilities of the MOH, and is accessible through a number of roads in a low risk area. The lack of a communication plan for the warehouse slows notification and delays proper transfer of supplies.

A trained professional medicine administrator serves as distribution manager and ensures proper training of regional and local staff. Staff is also trained at the national and regional level on security measures needed to ensure the protection of supplies. Oral medications and vaccines are centrally distributed from the General Warehouse. The MOH has limited air-conditioned transportation.

Medical Coordination

Quantitative results

Table 9.

Score for questions of the Medical Coordination element

Element 6: Medical Coordination	Rating					
	BZ	CR	GT	HN	NI	PA
Have points of contacts been established and listed at all hospitals?	2	2	2	2	2	2
Is there a plan for surge capacity at the national level?	0	2	2	0	2	0
Is there a plan for surge capacity at the regional level?	0	1	1	0	2	0
Is there a plan for surge capacity at the local (municipal) level?	1	1	1	0	2	0
Is there a plan in place for medical facilities to request supplies and materials?	2	2	2	1	2	1
Element total rating (out of 10)	5	8	8	3	10	3

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Medical Coordination element potential maximum score was 10. Nicaragua scored the highest with a perfect score. Honduras and Panama scored the lowest with a score of three. All countries have points of contacts been established and listed at all hospitals. Four countries have a fully functional plan in place for medical facilities to request supplies and materials, the two others have a plan that still need improvement but exists. Three of the six countries do not have any plan in place for surge capacity at the national nor the regional level.

Qualitative results

Belize

During emergencies, medical care is coordinated through pre-identified points of contact and follows an establish plan to request materials and supplies. Regional Directors are the points of contact in each region, as well as in operative levels or polyclinics. There is no written plan in place to ensure

surge capacity at the national, regional, nor local level, but upon request, necessary staff from local levels is redistributed, and support from neighboring regions is requested.

The National Emergency Management Organization (NEMO) is responsible for making requests and managing donations and international aid during disasters. NEMO coordinates directly with the MOH. Coordination and support among regions is fairly easy, due to the close communication that exist between them. Still, when international aid is required, delays in receipt are caused by bureaucratic processes.

Costa Rica

Costa Rica has established focal points and a plan in place for the medical coordination of supplies and medical services at the central level during emergencies. At the hospital level, the contact points are the Institutionalized Program Commission on Emergencies of the Social Security Fund (PIE - Spanish acronym), and the surveillance committee. Rotation of qualified personnel is high. There is currently no plan in place to ensure surge capacity at the regional level or in the health regions, but efforts have been made to increase coordination between hospitals by providing radios. Health facilities maintain an emergency operations plan.

Guatemala

Coordination of medical care in hospitals is carried out through two points of contact: The Director and the lead epidemiologist. In cases that require an increase of response capacity in health areas or at the local level, response plans are prepared and implemented. Planning for management of supplies and materials in medical services are carried out through the National Commission for Disaster Reduction (CONRED – Spanish acronym).

Honduras

Honduras' points of contact in hospitals are usually the person running the institution, and an epidemiologist. Health units respond to emergencies, however, they are lacking a written plan. Medical facilities can request supplies and materials using a standard form.

Nicaragua

Points of contact are clearly identified for medical care coordination during emergencies, and there is a plan to expand the capacity to request supplies and materials at the central level and in the health areas. Guidelines are in place to ensure that one SILAIS can support another. During emergencies, staff from the MOH is sent to support the regions. When needed, capacity is supplemented through the private sector. There are also agreements with neighboring countries in frontier areas. The MOH is considering using comprehensive health brigades from the community to strengthen the work in health facilities when they exceed their capacity. In medical facilities, the strategy has been to reassign staff such as physicians, hygienists, nurses, administrative support, social communicator, and mental health staff to fill emergency needs, rather than rely on surge capacity. In general, there is a very good medical coordination with the army and the police during emergencies.

Panama

In Panama, each hospital has an International System of Health for Disasters and Emergencies (SISED – Spanish acronym) coordinator who serves as point of contact during emergencies, carries out the hospital plan, and ensures rapid information management. There are no plans for surge capacity at the national, regional or local level. The Department of Service Provision uses the Humanitarian Supply Management System (SUMA – Spanish acronym) to coordinate requests for supplies from the regions. The MOH is in the process of refining its national plan to address response and disaster preparations at the national level.

Training, Exercises, and Evaluation

Quantitative results

Table 10.

Score for questions of the Training, Exercises, and Evaluation element

Element 7: Training, Exercises, and Evaluation	Rating					
	BZ	CR	GT	HN	NI	PA
Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response trainings?	0	1	2	2	2	0
Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response exercises?	0	1	2	0	1	0
Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response evaluation of capacity, trainings and exercises?	0	1	2	0	1	0
Is there a training plan?	0	1	0	0	2	0
Is there an exercise plan?	0	0	0	0	0	0
Are emergency exercises regularly conducted?	0	1	0	0	0	0
Element total rating (out of 12)	0	5	6	2	6	0

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Training, Exercises, and Evaluation element potential maximum score was 12. Costa Rica and Nicaragua scored the highest with a score of six. Belize and Panama scored the lowest with a score of zero. None of the countries have an exercise plan in place and five of the six countries do not conduct emergency exercises regularly. Only one country has a well-developed training plan. Half the countries do not have a person assigned to lead, plan, and oversee public health emergency preparedness and response exercises or a person to lead, plan, and oversee public health emergency preparedness and response evaluation of capacity, trainings, and exercises.

Qualitative results

Belize

The MOH is preparing a plan for trainings, drills, and simulations, and activities to monitor and evaluate them. No specific person or position has been chosen to develop an Employee Assistance Program (EAP) at the national level. Drills are managed by the National Emergency Management Organization (NEMO). Coordination with the MOH needs to be strengthened.

Costa Rica

There is a strong coordination between the MOH and the National Emergency Commission (CNE – Spanish acronym) to participate to joint trainings, exercises, and simulations. A plan still needs to be developed. Training, exercises, and evaluation activities in Costa Rica are managed by the National Liaison Center (NLC), which is responsible for the organization and programming of trainings, as well as for managing and requesting support from other institutions. The NLC maintains in the Guide for the Evaluation of Health Needs in Disaster Situations (EDAN – Spanish acronym) a list of people trained by the Emergency Operations Center (EOC) on triage, pre-hospital care in emergencies, and communications. Each institution also has a list of trained people. These lists have not been consolidated at the national level. Trainings are conducted on different subjects related to public health disasters and emergencies, depending on the job of every institution. People who need to receive training are well identified, and the Costa Rica Social Security (CCSS – Spanish acronym) is working with them to address their training and exercise needs.

The work carried out to strengthen the International Health Regulations (IHR) also supports the training needs. Simulations on subjects related to disasters have been occasionally carried out, mostly at country entrance points such as airports, seaports, and borders. The passing of legal and illegal

immigrants to North America are potential vehicles of diseases that are infrequent or unknown in the region.

Guatemala

The MOH collaborate with the National Commission for Disaster Reduction (CONRED – Spanish acronym) to jointly participate in training activities, exercises, and simulations. The MOH does not currently have an established plan for training activities, drills, simulations, and the corresponding monitoring and evaluation. Trainings are conducted according to requests and available funds. Lack of funds forced the cancellation of a simulation program.

Trainings, exercises, and simulations are planned and carried out through the CONRED's Office of Incident Command. Activities are evaluated by an external entity to ensure unbiased and objective results. Trainings are often cancelled because of the development of a real emergency at the time for which the exercise was planned.

Honduras

The Health Secretariat and the Permanent Contingency Commission (COPECO – Spanish acronym) coordinate training participation, exercises, and drills but do not have an established plan for training, drills, simulations, and their corresponding monitoring and evaluation. Table-top exercises are more often conducted than simulations or drills because of their low cost which accommodate the lack of budget available.

Nicaragua

A liaison at the technical unit for disasters has been assigned to lead, plan, and oversee public health emergency preparedness and response trainings. The MOH is working on preparations for response in private institutions and has conducted training in 11 private hospitals.

The MOH's efforts are hindered by limited funding to develop a technical training plan and to conduct extensive training, exercises, simulations, and evaluation. Still, some exercises and simulations are held by the MOH in coordination with the National System for Disaster Prevention, Migration, and Response (SINAPRED – Spanish acronym) and when funds are available, exercises, and simulations are organized and conducted in the health units.

PAHO provides technical and financial support for the implementation of the existing training plan. However, there is not a specific funding allotment, which makes the planning difficult. Exercises and simulations in hospitals and first level of care are sporadic and dependent on donors' contributions.

Panama

The International System of Health for Disasters and Emergencies (SISED – Spanish acronym) and the Pan American Health Organization (PAHO) supports the preparation of simulations, drills, and exercises. However, the process has not been systematized. The MOH does not have an existing training plan, but each region presents its needs in the annual operating plan, and develops a schedule of proposed activities.

Trainings are provided when regions require them. SISED tries to support the regions with training activities but resources are limited and insufficient to meet all requests.

Surveillance Systems

Quantitative results

Table 11.

Score for questions of the Surveillance Systems element

Element 8: Surveillance Systems	Rating					
	BZ	CR	GT	HN	NI	PA
Is there a national surveillance system that regularly collects population-based disease data?	2	2	2	2	2	2
Is there an early warning system?	1	2	2	2	2	2
Are there case definitions developed and agreed upon nationally for the early warning system?	2	2	2	2	2	2
Is there a lab component to the surveillance system?	2	2	2	2	2	2
Is there adequate lab capacity in the country to test, ship, and report samples?	2	2	2	2	2	2
Is there a system to rapidly expand the financial resources of the embassy, Non-Governmental Organizations (NGOs), and other country mission stakeholders?	2	2	2	2	2	2
Can the data collected in the early warning system be viewed and analyzed at the local level?	2	2	1	2	2	1
Is there a multi-disciplinary (e.g. water/sanitation, lab, health) rapid response team to investigate potential outbreaks?	1	2	1	2	2	2
Is there a community-based component to the surveillance system?	2	1	2	2	2	1
Element total rating (out of 18)	16	17	16	18	18	16

Note: BZ = Belize, CR = Costa Rica, GT = Guatemala, HN = Honduras, NI = Nicaragua, PA = Panama, 0 = does not exist, 1 = in progress but incomplete, 2 = complete and functional.

The Surveillance Systems element potential maximum score was 18. All country scores were between sixteen and eighteen. All countries had fully functional national surveillance system that regularly collects population-based disease data. All countries also have case definitions developed and agreed upon nationally for the early warning system, and have a lab component to the surveillance system. In addition, all have adequate lab capacity in the country to test, ship, and report samples.

Finally, all have a system to rapidly expand the financial resources of the embassy, Non-Governmental Organizations (NGO's), and other country mission stakeholders.

All countries had an early warning system, and five of the six countries' system were fully functional. All countries also had data collected in the early warning system that could be viewed and analyzed at the local level. For four of the six countries, the system was fully functional. Similarly, all six countries had some level of multi-disciplinary rapid response team to investigate outbreaks, four of which were fully functional. Finally, all had a community-based component to the surveillance system, four of which were fully functional.

Qualitative results

Belize

The country has a health information system, which automatically sends epidemiological alerts in real time, and is the official source of information for decision making in public health emergencies. The Belize Health Information System (BHIS) provides individual information of patients in real time at all levels of the MOH. Surveillance is carried out in hospitals and health regions. Epidemiological alerts are sent whenever a case meets the alert level definition. Notifications are sent via e-mail to those in charge of local response and to decision makers. Case definitions of diseases prioritized for surveillance in the country are used. They are in the National Surveillance Manual, and are based on international surveillance standards.

At the national level, the laboratory provides confirmation support. There is a close relation with the Caribbean Epidemiology Center (CAREC), where samples are confirmed. CAREC is a PAHO certified center. Belize has very close relation with the Embassies of Mexico, Brazil, and Venezuela, and with the MOH of Mexico, PAHO and the CDC.

The MOH has regional teams that investigate potential outbreaks (e.g., influenza surveillance). Similarly, at the community level, community disaster response teams (CDRTs) investigate potential outbreaks. The CDRTs include health educators and community members, who are volunteer collaborators.

An early warning system maintains information on preventable and communicable diseases. Sources for the data include health institutions,-post disaster rescue teams, laboratories, and national hospitals. The early warning system does not document the risks of diseases due to vulnerabilities. The system is periodically monitored, and trainings on system management are frequently performed in order to promote adequate system management. In general, the private sector does not provide information on cases of epidemiological report.

Costa Rica

In Costa Rica, the surveillance system is defined by a pending decree that includes a chapter on the International Health Regulations, and highlights the important role performed by the laboratory in health surveillance. The decree does not include mechanisms to perform the evaluation of the surveillance system but it includes the investigation of rumors at the local level.

The development of an early warning system has been favored through the IHR, and operational procedures have been developed, which helped the National Liaison Center making international reports, but a full system is not in place yet. Nationally approved case definitions are included in a working document of the CCSS. Protocols are being developed for radiological and chemical emergencies. SENASA also has protocols for diseases under surveillance, including established case definitions for the clinical management of radiological cases. The surveillance data is received from public and private health services, education, laboratory, migration, private companies, SENASA, the judiciary, and the media. Currently, participation of laboratories in epidemiological surveillance is not mandatory, weakening the country's surveillance capacity. The early warning system documents the

risks of diseases due to vulnerabilities through health determinants. In order to achieve more timely

information dissemination, more work is needed to ensure the integration of the health sector

information system to an electronic platform. Surveillance data is collected in the early warning system

and viewed and analyzed at the local level through the Local Inter-institutional Commission of Health

Surveillance (CILOVIS). Timely reporting, analysis, field investigations, and outbreak detection should

still be strengthened through training.

The National Reference Laboratory (NRL) handles human specimens, and the National Animal

Health Laboratory (LANASEVE) processes animal samples. When needed, samples are sent to external

laboratories. Both laboratories have been trained by the International Air Transport Association,

(IATA).

In cases where the MOH needs to rapidly expand financial resources of the embassy, NGO's,

and other country mission stakeholders, the Minister of Health requests donations at the national level

through the CATAI.

A multi-disciplinary team that can investigate potential outbreaks according to the IHR

guidelines exists, however, more remains to be done to finalize procedures and provide training to staff.

Also, members of the rapid response team have other assignments, which sometimes limit their

availability to respond in a timely manner during emergencies. The early warning system includes all the

diseases stated in the decree on the IHR.

Guatemala

The MOH collects national surveillance population-based disease data through the Health

Managerial Information System (SIGSA - Spanish acronym). The system includes morbidity and

mortality data from hospitals, as well as information on malnutrition and water surveillance. During

emergencies, SIGSA provides early warning system data that can be used to plan the early response.

The Epidemiological Alert Subsystem (SARE) is implementation at all of the MOH levels to strengthen

preparedness and response to emergencies. SARE uses standardized case definitions and includes

protocols for the integration of the laboratory testing component. It focuses on data related to the IHR

international notifiable diseases and events defined as epidemiological surveillance priorities for the

country. The data collected is available but analysis is not routinely performed at the local level.

Requests for emergency financial support are processed through the CCAH. The CCAH receives

technical support from the CDC and PAHO. Also, a fund maintained by CONRED makes it possible for

the MOH to have rapid access to funds during emergencies.

The surveillance system is supported by rapid response teams and community-based

participation. Rapid response teams are used at the local level to investigate outbreaks. The teams are

multidisciplinary and are led by an epidemiologist. More work is needed to ensure that the work and

knowledge of the rapid response teams is evaluated, and that additional training to address identified

areas in need of improvement is offered. The surveillance system also allow for community-based

participation to rumor notification and control. Contributing members to rumor control include teachers,

mayors, and neighbors. Their input is coordinated by the municipality representative, who chairs the

Health Commission in the municipalities.

Honduras

In Honduras, the Health Surveillance General Office (DGVS – Spanish acronym) regularly

collects population-based disease data. The data is analyzed every week. Local level surveillance sites

submit the information to the regional level every week, and then the notification is submitted to the

national level. The information is collected through previously set forms, and disaggregated by gender

and age groups. Frequencies and trends are analyzed by local technicians, as well as at the regional and

national levels.

An early warning system has been implemented to register all unexpected and unusual events at

the national level. Surveillance of shelters and assessment of damage and needs are activated during

national emergencies. The information is submitted through the same mechanism as routine

surveillance. The health surveillance and needs assessment are conducted using tools from *EDAN-*

SALUD. During an emergency, local levels are responsible for collecting data and for immediate

response. The data analysis is part of the health surveillance routine process. Communication and

feedback is provided daily by the DGVS to the Department of Disasters at the Health Secretariat.

The early warning surveillance system is under the responsibility of the National Emergency

Commission (CNE – Spanish acronym). Its focal point is the Health Surveillance General Director. Case

definitions are used at all levels. The system is linked with the DGVS Head Office of the National

Laboratory. The Laboratory reports surveillance results directly to the DGVS, in a timely manner.

Recent years' advances in electronic surveillance have improved the capabilities of the system. The

laboratories sometimes receive assistance from external laboratories when dealing with unusual

diseases. When expanding financial resources of the embassy, NGO's, and other country mission

stakeholders is needed, the request is directly managed by the Health Secretary, in coordination with the

Permanent Contingency Commission.

Rapid response teams are present at all levels, and are responsible for investigating and taking

action in a timely manner. They always communicate with their superior level, and if necessary, ask for

support.

The early warning system includes information about: 1) immuno-preventable diseases, 2)

foodborne and waterborne diseases, 3) acute respiratory infections, 4) meningeal infections, 5) vector-

borne diseases, and 6) intoxications. The system also captures information on: dysentery, hepatitis,

leptospirosis, snake bites, animal bites, rabies transmitters, infant mortality, maternal mortality, and

death of children of one to four years old.

At an institutional level, health staffs led by epidemiologists from the local and regional levels,

other key actors as part of the health surveillance network, and the media participate to the surveillance

effort. Additionally, the Health Secretariat is part of the network coordinated with COPECO. The

system is not oriented to account for vulnerability or to consider risk surveillance. The success of the

system depends on optimizing coordination among country level actors and organisms, and other

regional institutions (e.g., the CDC, PAHO, COMISCA, and CEPREDENAC) working on emergencies

and disasters in Honduras.

Nicaragua

There are two national surveillance information systems in Nicaragua. One provides information

daily and the other weekly. The weekly system generates an epidemiological bulletin which

disseminates information to all levels of the MOH. There is an office in the central level, which receives

the data from Local Systems of Integral Attention in Health (SILAIS – Spanish acronym), where local

level data is collected. There is an online system with reports of the previous day, and also of weekly

events (SISNIVEN). Some SILAIS have difficulty sending information due to internet failure, which

makes it difficult the timely delivery of information.

Diseases documented by the early warning system include: 1) immuno-preventable diseases, 2)

vector borne disease transmission, and 3) diseases due to lack of hygiene and sanitary measures, such as

diarrhea and cholera. The early warning system is activated immediately before any event and is made

official by the MOH. There is an epidemiological surveillance manual with case definitions at the

national level. Data is routinely collected for the early warning system at the local level. Information

from daily event notification, community surveillance, and rumors from informal sources such as radio,

TV, the media, local health systems, and hospitals is compiled. Rumors are investigated. The system

takes into consideration vulnerabilities, monitoring risk areas, and detecting most vulnerable areas to

prevent outbreaks and epidemics. National, regional, local and even community teams, led by an

epidemiologist, investigate outbreaks. Community participation is encouraged at all levels.

The epidemiological surveillance system keeps close communication with the laboratory, at all of the MOH levels. There is also a liaison with private health institutions. Sometimes they have delays with the information, most of all, when results are negative. A project with the National Diagnosis and Reference Center (CNDR) has been put in place to strengthen the surveillance system. The project might make it possible for CNDR to become a National Research Institute for Public Health. The CNDR and regional laboratories have the capacity of testing, shipping, and reporting samples. The MOH is still experiencing difficulties sending supplies and reagents to some regions of the not so easily accessible areas of the country.

During emergencies, the expansion of medicine and vaccine capacity is achieved through coordination and management by the CNE, with PAHO or the CDC. Communication and support management is also obtained through the chancelleries of each country.

Over the last few years, Nicaragua's surveillance system has improved. Community participation and communication with other institutions have been strengthened. The NLC has also been strengthened with the IHR. Still, a better integrated information platform is needed to meet the vision proposed by an MOH resolution aimed to unify information systems.

Panama

Panama has a national surveillance system able to identify an outbreak and epidemics at the local level in a timely manner. An electronic surveillance system (SISVIG) is being implemented, which will provide information in real time. The system works at all levels of the MOH, and is managed by epidemiologists in the 14 health regions, in each of the public hospitals, in the Social Security Fund, as well as, locally through a coordinator. Panama's early warning system has national coverage and allows for timely decision making. The system functions 24 hours a day, seven days a week. All case definitions used in the early warning system are in the national epidemiology guide (2004), on the webpage of the MOH. A community-based notification system, staffed with voluntary collaborators

(COLVOL) provides information on unusual epidemiological events happening at the community level. COLVOL maintains contact with vector control inspectors, or with the regional point of contact. The inspector, having verified the information, notifies the Region Director, who delegates the inspector to verify the COLVOL notification, and schedules a visit if the information is true. Because the community-based system is based on volunteer, it is difficult to ensure quality control and retention of staff. Sources of surveillance data include daily activity records from the MOH, Social Security, and local public hospitals at the local level. It also includes: 1) notifications made by private hospitals, 2) reports from the Controller General of the Republic who manages national statistics, mortality data from death certificates, and census, and 3) births and deaths certificate data from the Civil Registry.

There is a flowchart for warning of immediate and mandatory notification diseases. Decree 268 of August 2001 requires notification of any disease or event. There is local monitoring every week, and data are submitted to the central level every Tuesday. If there is a critical case, it is investigated within 48 hours. The national epidemiology guide is used to teach staff on proper procedures. Work remains to be done to ensure that information collected by the MOH, Social Security, and the agriculture surveillance network (agriculture and animal surveillance) are linked and analyzed jointly. These systems are currently functioning as separate systems. The documents of regulations and proceedings of the epidemiological national surveillance system for Influenza-Like Illnesses (ILI) or influenza, bronchopneumonia, pneumonia and bronchitis, as well as cholera, are under legal advice, to be then published in the official journal, and uploaded to the internet. They were already socialized and disseminated through the MOH, the Social Security Fund, and private hospitals.

The laboratory is of great support for all events. It is divided in two: 1) the Central Reference Laboratory, which receives all water, food, bacteriological and bacteriological samples, and 2) the Research Laboratory (Gorgas Memorial Institute of Health Studies) research projects which deal with virological samples. The central laboratory resides inside the research laboratory. Some analyses are

carried out at the local level, but because local staff is lacking an epidemiology background, the local level coordinator has been trained to perform this task. All regions have laboratories, but the central laboratory is used most of all for quality control and cultures because their protocols conform to the Central American Reference Center. When the Panama National Laboratory capacity is exceeded, specimens are sent to the CDC in Atlanta or the CDC is asked to provide reagents for the test.

There are several multi-disciplinary rapid response teams, at the central, regional, and local levels. In case of any emergency or event, the team travels to carry out the research. If it is a critical event, a second and a third deployment of teams can support or replace the previous teams.

Summary

The Emergency Preparedness Assessment Tool (EPAT) was successfully used to assess the emergency preparedness of six countries of Central America: 1) Belize, 2) Costa Rica, 3) Honduras, 4) Guatemala, 5) Nicaragua, and 6) Panama. MOHs were assessed across eight functional elements: 1) Public Health Emergency Plan, 2) Command and Control, 3) Communication Infrastructure, 4) Public Information and Risk Communication, 5) Logistics and Operational Processes, 6) Medical Coordination, 7) Training, Exercises, and Evaluation, and 8) Surveillance Systems.

Overall, the MOH of Nicaragua was the most prepared and Belize was the least prepared. Each country showed a wide range of variation between scores on the different elements. Belize was weakest in Communication Infrastructure and Training, Exercises, and Evaluation, and strongest in Surveillance Systems. Costa Rica is well prepared in Command and Control and Logistics and Operations Processes but is weak in Training, Exercises, and Evaluation. Guatemala scored high in Logistics and Operational Processes and Surveillance Systems, but low in Public Information and Risk Communications. Honduras was most prepared in its Surveillance Systems and least in Medical Coordination. Panama was strongest in its surveillance systems and weakest in its Training, Exercises, and Evaluation.

Nicaragua had perfect preparedness scores on four elements but was weak in Training, Exercises, and Evaluation.

Overall, Surveillance Systems emerge as the strongest of the elements across countries. This element received the highest score of all elements for five of the six countries, and none of the countries had a score lower than 89%. At the opposite end of the spectrum, Training, Exercises, and Evaluation was weak in every country, with the highest score at 50%.

Chapter 5 – Conclusion

Overview

Results of the EPAT assessment are encouraging and highlight the focus placed on emergency preparedness in Central America. Much remains to be done. This section state conclusions for each of the functional areas and proposes recommendations to address the identified gaps. It proposes future steps that can be taken to continue to improve on emergency preparedness nationally and regionally.

Discussion

Assessing the emergency preparedness of the MOH of Central America using EPAT provided a useful emergency preparedness baseline for the region and for each country. The qualitative comments provided useful insights that can be used to plan future activities aiming at filling the preparedness gaps that were identified.

Until the 1980's, the world's efforts were almost solely focused on emergency response and mostly ignored the potential benefits of emergency preparedness. The fact that all six countries assessed are actively working on all of the EPAT's eight elements is encouraging. The high level of emergency preparedness of all countries' surveillance systems reflects well the emphasis that has been placed on this core function of public health, both with the regular surveillance systems and early warning surveillance systems. Surveillance scores need to remain high for all countries to make it possible to rapidly detect and respond to epidemics. Surveillance systems are dynamic in nature and constantly need to be improved upon and modified to reflect the changing epidemiologic reality. The area in most need of improvement regarding surveillance systems is in the development of rapid response teams that can go to the field to investigate outbreaks.

The development of emergency plans is not generally thought of as a core function of public health. In addition, plans require constant updates, revisions, and practice. Because the development of

plans does not fall under the responsibility of a defined specialty of public health (e.g., surveillance, laboratory, or epidemiology), it is often difficult to determine whose responsibility it is to maintain the plan and test it. Still, all countries have some type of emergency plan that can be used to make decisions during emergencies. All countries also have extensive standard operating procedures and all but one of the MOH have a plan for handling support from external stakeholders during a disaster and have linked their plan to the national emergency plan. Not surprisingly, the area in need of most improvement is in ensuring that the plan gets updated at least annually. In regards to plans, Panama was especially weak, but it already has taken measures to fill its gaps in preparedness.

Command and Control is an area of strength in the region. All countries have a functional Emergency Operations Center (EOC), all have adopted a unified incident command system, and have identified command and control staff at the national and regional level. Establishing a unified Incident Command System (ICS) can be very tedious and take a lot of time. The fact that it already exists, not only in some of the countries but in all of them, makes it much easier to continue to improve on this element. ICS provides a common language and structure that makes it easier to share resources efficiently across countries. Areas in most needs for improvement for Command and Control were in developing job action sheets and in providing continuous training that compensate for a high turn-over of command and control staff.

In regards to Communication Systems, the whole region experiences considerable challenges. The score of 0 for Belize does not reflect an absence of communication systems but rather the fact that communication does not fall under the responsibility of the MOH. Most of the improvements needed are in the area of developing standard operating procedures and ensuring redundancy of systems.

Public Information and Risk Communication is made easier in Central America by the fact that all countries share a common language. All countries coordinate needs and standards with PAHO and have identified public information staff. Still, only two of the countries have a written communication

plan. Some countries, such as Belize, have developed a plan or resources specific to a type of disaster (e.g., H1N1).

In regards to Logistics and Operational Processes, all countries have a fully functional warehouse identified to receive medical materials, a plan in place to manage incoming medical materials, an oral medication or vaccination distribution manager identified and trained, and pre-determined oral medication and vaccination distribution sites. All countries except Nicaragua have a fully functional warehouse with temperature control capacity. Still, of high concern is the fact that three of the six countries warehouses are in a high-risk area for disasters and do not have a communication or security plan in place for the warehouse.

Medical coordination is an area in need of considerable improvement for most countries. Even if all countries have well established points of contact in their hospitals, and all have a plan to request supplies, most do not have a well establish plan to ensure surge capacity of staff at the local, national or regional level. This could result in having supplies but not being able to use them rapidly during an event because of lack of staff.

The element of training, exercises, and evaluation consistently ranked as lowest but might not be the area of most pressing need of improvement. The gaps for the element might be more a reflection of the constant state of emergency in which each country lives. In many countries of Central America, disasters and emergencies overlap each other and are so frequent that they make the planning of exercises difficult if not impossible. Exercises are regularly cancelled because of conflict with a response. Perhaps a new model which allow for the collection of pertinent information usually collected during exercises would be more appropriate than the development of an exercise and evaluation program that can be implemented around the frequent disasters and emergencies.

Future Steps

Emergency preparedness is an endless and fluid process. As such, all of the eight elements covered by the EPAT could be improved upon. In regards to the surveillance systems, efforts could be made to ensure the sharing of expertise across countries and the development of rapid response teams that can easily deploy to investigate outbreaks.

In the area of plan development, Panama is the country where most improvement is needed. The MOH has already taken actions to fill the existing gaps. Improvement in the development of plans might be especially important considering the presence of the Panama Canal and because of it, its heightened vulnerability to maritime accidents and greater opportunity to detect and prevent the spread of diseases worldwide. The MOHs of all six countries need to define who is responsible for the maintenance and updating of their plan.

For command and control, because all countries use an incident command system, job action sheets could easily be shared and slightly modified to the need of the country. The common structure would also make it possible to organize regional trainings that would relieve individual countries from having to conduct their own, and simultaneously allow for a greater sharing of expertise across countries. The same could be said of communication systems, and public information and risk communication. The region would have much to gain from developing regional communication systems rather than country specific ones and looking at its neighboring countries for system redundancy. Pre-developed public information, risk communication messages, and trainings for spokespersons could be shared and adapted to the country situation.

In regards to logistics and operational processes, even if all countries have a fully functional warehouse identified to receive medical materials, the fact that three of the six countries warehouses are in a high-risk area for disasters and do not have a communication or security plan in place for the warehouse are of great concern. Efforts should be made to identify alternate locations for the

warehouses at risk. Communication and security are essential to the proper and efficient utilization of the warehouses, and therefore should be considered a priority.

For medical coordination, focus should be placed on ensuring surge capacity, first at the local level, and then at the national and regional level. Efforts should be made to identify groups of already trained staff in the retired or volunteer population that could easily augment the capacity of hospital with minimal training.

Instead of trying to establish a training, exercises, and evaluation program, efforts should be made to use the frequent responses to document the effectiveness of plans, the most pressing job action sheets, the functionality of the communication systems, and the appropriateness of risk communication materials. A small group of planners with medical or public health background could be identified and solely focus on documenting the response to augment preparedness without interfering with the response. For example, the group could observe people assigned to a command and control role and develop the draft of a job action sheet and standard operating procedures that matches what was actually done during the event.

From a broader perspective, one of the best consequences of conducting this assessment in the six countries was the development of an awareness and willingness to share information between the MOHs of the region. Central America is a perfect candidate for the transition from a national to a regional model of emergency preparedness because of its relatively small geographical area and population, and its similarities between countries in language and culture. There is much to gain from sharing successes, challenges, resources, and experiences. In our global world, the impact of diseases and disasters transcend the artificial limitations of country definition and their borders. By working together in the development of regional and global emergency preparedness we have an opportunity to protect the health and lives of people on a local, national, regional, and global scale.

Summary

Results of the EPAT assessment are encouraging and highlight the focus placed on emergency preparedness in Central America. The high level of emergency preparedness of all countries' surveillance systems reflects well the emphasis that has been placed on this core function of public health. The region also demonstrates good emergency preparedness in the functional area of command and control. The element of training, exercises, and evaluation consistently ranked as lowest but is not the area of most pressing need of improvement because of the practice offered by frequent disasters in the region. Specific steps can be taken to improve country-specific and regional emergency preparedness. A regional and global approach to emergency preparedness is key to protecting health and saving lives from the local to the global scale.

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Appendix A: Definition of Terms

Term	Acronym	Definition
Emergency Operation Center	EOC	Physical location where information is coordinated during an emergency. The EOC includes people, equipment, and systems necessary for this coordination
Emergency Management Agency or Organization	EMA or EMO	Organization responsible for the coordination of emergency activities at the national level. E.g., NEMO is Belize or FEMA in the United States
Job Action Sheets		Description of the functions filled by a position at the EOC
Standard Operating Procedure	SOP	Step-by-step description of all the actions needed to accomplish a specified activity

Appendix B: Acronyms

Acronym	Definition
BHIS	Belize Health Information System
BZ	Belize
CAREC	Caribbean Epidemiology Center
CATAI	Costa Rica Technical Advisory Committee for International Assistance
CCAH	Guatemala Ministry of Foreign Affairs Coordination Center of Humanitarian Aid
CCO	Costa Rica Coordinating Center of Health Operations
CCSS	Costa Rica Social Security
CDC	Centers for Disease Control and Prevention
CDEMA	Caribbean Disaster Emergency Management Agency
CDRT	Belize Community Disaster Response Teams
CEPREDENAC	Coordination Center for Natural Disaster Prevention in Central America and the Dominican Republic
CILOVIS	Costa Rica Local Inter-Institutional Commission of Health Surveillance
CIPS	Nicaragua Center of Health Supplies
CNDR	National Diagnosis and Reference Center
CNE	National Emergency Commission
COE	National Committee for Emergencies and Disasters
COMISCA	Council of Ministers of Health from Central America and the Dominican Republic
CONRED	Guatemala National Commission for Disaster Reduction
COPECO	Honduras Permanent Contingency Commission
CR	Costa Rica
DGVS	Honduras Health Surveillance General Office
EAP	Employee Assistance Program
EDAN - SALUD	Guide for the Evaluation of Health Needs in Disaster Situations
EOC	Emergency Operations Center
EPAT	Emergency Preparedness Assessment Tool
GT	Guatemala
HN	Honduras
IATA	International Air Transport Association
ICS	Incident Command System
IHR	International Health Regulations
ILI	Influenza-Like Illnesses
INCIENSA	Institute for the Investigation of Health and Nutrition of Costa Rica
LANASEVE	Costa Rica National Animal Health Laboratory
MACOE	Manual of Procedures of the COE
MOH	Ministry of Health
NEMO	Belize National Emergency Management Organization

Acronym	Definition
NGO	Non-Governmental Organization
NI	Nicaragua
NLC	Costa Rica National Liaison Center
OCHA	Office for the Coordination of Humanitarian Affairs
PA	Panama
PAHO	Pan-American Health Organization
PIE	Costa Rica Institutionalized Program Commission on Emergencies of the Social Security Fund
PROEDUSA	Guatemala Department of Health Promotion and Education
SARE	Guatemala Epidemiological Alert Sub-System
SENASA	Costa Rica National Animal Health Service
SETCO	Honduras Technical Secretariat for International Cooperation
SIGSA	Guatemala Health Managerial Information System
SILAIS	Nicaragua Local Systems of Integral Attention in Health
SINAGER	Honduras' National System for Risk Management Law
SINAPRED	Nicaragua National System for Disaster Prevention, Migration, and Response
SINAPROC	National System of Civil Protection
SISED	Panama International System of Health for Disasters and Emergencies
SISNIVEN	Nicaragua Vital Statistic System
SISVIG	Panama Electronic Surveillance System
SOP	Standard Operating Procedure
SUMA	Honduras Humanitarian Supply Management System
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Appendix C: Questionnaire

Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
1. Public Health Emergency Plan				
1.1 Is there a public health emergency response plan for the MOH?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.2 Is the emergency response plan linked to the National Emergency Plan?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.3. Is the emergency response plan linked to the regional humanitarian network?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.4 Is the Public Health Emergency Plan annually updated?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.5 Are there standard operating procedures linked to assigned positions within the organization?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.6 Does the plan incorporate emergency humanitarian assistance plans for support from external stakeholders?	☐	☐	0 1 2	• Strengths: • Weaknesses:
1.7 Who are the stakeholders?				
1.8 General comments on public health emergency plan section:				• Strengths: • Weaknesses:
2. Command and Control				
2.1 Has command and control staff been identified at the national level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.2 Has command and control staff been identified at the regional level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.3 Has command and control staff been trained?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.4 Are job action sheets developed?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.5 Is there a unified command concept?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.6 Is there a system in place for information collection and management?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.7 Are there protocols and standards in place to support emergency preparedness and response within the nation and region?	☐	☐	0 1 2	• Strengths: • Weaknesses:

Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
2.8 Is there good knowledge of the triggers that activate foreign disaster humanitarian assistance for public health emergencies?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.9 Is there a MOH EOC or situation room dedicated to inking with stakeholders during a national emergency?	☐	☐	0 1 2	• Strengths: • Weaknesses:
2.10 What are the triggers for activation?				
2.11 General comments on command and control section:				• Strengths: • Weaknesses:
3. Communications Infrastructure				
3.1 Are there national standards to communicate during public health emergencies?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.2 Are there communications systems in place for operational support and response?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.3 Does communications staff receive regular training?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.4 Are the systems regularly tested?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.5 Is redundancy assured?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.6 Are there SOP's to guide the communication process?	☐	☐	0 1 2	• Strengths: • Weaknesses:
3.7 What types of communication systems are in place for operational support and response?				
3.8 Who receives communications training?				
3.9 General comments on communications infrastructure section:				• Strengths: • Weaknesses:

Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
4. Public Information and Risk Communication				
4.1 Have Public Information staff been identified and trained at the national level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.2 Have Public Information staff been identified and trained at the regional level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.3 Is there a written communication plan?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.4 Have a national and a back-up risk communication liaison been identified?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.5 Are risk communication needs and standards coordinated with PAHO and other international health entities?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.6 Are there mechanisms in place for risk communication and the distribution of messages to MoH?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.7 Are there mechanisms in place for risk communication and the distribution of messages to the general population?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.8 Is there a database of pre-existing (canned) messages that can easily be modified during an emergency?	☐	☐	0 1 2	• Strengths: • Weaknesses:
4.9 What are the risk communication mechanisms in place?				
4.10 General comments on public information and risk communication section:				• Strengths: • Weaknesses:

5. Logistic and Operational Processes				
A. Receiving, Staging and Storing Public Health Assets				
Item	**Y**	**N**	**Rating ***	**Comments** ***Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)**
5A.1 Is there a warehouse(s) identified to receive donated and existing medical materials? **If No go to section 5B**	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.2 Does the warehouse(s) have temperature control capacity?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.3 Is there a plan in place to manage incoming medical materials?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.4 Are there security measures in place at the warehouse(s)?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.5 Is the warehouse(s) easily accessible? If no go to section 6	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.6 Is the warehouse(s) removed from high-risk areas?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.7 Are warehouse staff identified and trained?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5A.8 Is a warehouse(s) communication plan in place?	☐	☐	0　1　2	• Strengths: • Weaknesses:
B. Distributing Oral Medications or Vaccinations				
5B.1 Is a distribution manager identified and trained?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5B.2 Are there pre-determined distribution sites?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5B.2.1 Direct delivery - MOH delivers directly to every region hospital and health center	☐	☐	0　1　2	• Strengths: • Weaknesses:
5B.2.2 Indirect delivery - MOH delivers to a regional warehouse where each hospital and health center have to come and pick up the supplies	☐	☐	0　1　2	• Strengths: • Weaknesses:
5B.3 Are trucking resources available for MOH distribution?	☐	☐	0　1　2	• Strengths: • Weaknesses:
5B.4 Self pick up - Each hospital and health center has to come to the city and pick up the supplies	☐	☐	0　1　2	• Strengths: • Weaknesses:

B. Distributing Oral Medications or Vaccinations (continued)				
Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
				•
5B.5 Is there a security plan in place for the distribution of resources?	☐	☐	0 1 2	• Strengths: • Weaknesses:
5B.6 Are there mechanisms in place to ensure surge capacity?	☐	☐	0 1 2	• Strengths: • Weaknesses:
5B.6 Do the distribution sites have communication capacity?	☐	☐	0 1 2	• Strengths: • Weaknesses:
5AB. General comments on logistics and operational process section:				• Strengths: • Weaknesses:

Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
6. Medical Coordination				
6.1 Have points of contacts been established and listed at all hospitals?	☐	☐	0 1 2	• Strengths: • Weaknesses:
6.2 Is there a plan for surge capacity at the national level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
6.3 Is there a plan for surge capacity at the regional level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
6.4 Is there a plan in place for medical facilities to request supplies and materials?	☐	☐	0 1 2	• Strengths: • Weaknesses:
6.5. General comments on medical coordination section:				• Strengths: • Weaknesses:
7. Trainings, Exercises, and Evaluation				
7.1 Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response trainings?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.2 Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response exercises?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.3 Has a person been assigned to lead, plan, and oversee public health emergency preparedness and response evaluation of capacity, trainings and exercises?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.4 Is there a training plan?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.5 Is there an exercise plan?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.6 Are emergency exercises regularly conducted?	☐	☐	0 1 2	• Strengths: • Weaknesses:
7.7. General comments on training, exercises and evaluation section:				• Strengths: • Weaknesses:

Item	Y	N	Rating *	Comments *Rating : (0 = nothing in place, 1 = in progress, 2 = fully in place)
8. Surveillance Systems				
8.1 Is there a national surveillance system that regularly collects population-based disease data?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.2 Is there an early warning system?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.3 Are there case definitions developed and agreed upon nationally for the early warning system?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.4 Is there a lab component to the surveillance system?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.5 Is there adequate lab capacity in the country to test, ship, and report samples?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.6 Is there a system to rapidly expand the financial resources of the embassy, NGO's, and other country mission stakeholders?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.7 Ca the data collected in the early warning system be viewed and analyzed at the local level?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.8 Is there a multi-disciplinary (e.g. water/sanitation, lab, health) rapid response team to investigate potential outbreaks?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.9 Is there a community-based component to the surveillance system?	☐	☐	0 1 2	• Strengths: • Weaknesses:
8.10 What diseases are documented by the early warning system?				
8.11 What are the sources of surveillance data?				
8.12. General comments on surveillance systems section:			• Strengths: • Weaknesses:	
General comments on assessment				