



CASE 3

Hospitals Don't Burn: Caribbean Island Regional Hospital¹

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INTRODUCTION

Adrianus Vlugman (“Ton”), a senior advisor for the Pan American Health Organization (PAHO) in the Office of Caribbean Program Coordination (CPC), sat at his desk in Bridgetown, Barbados looking over his notes. He was preparing a report following the recent fire evacuation drill on June 19th, 2014 at the Caribbean Island Regional Hospital. Overall, the drill had been moderately successful but there were some issues that could have become dangerous if it had been a real emergency. His task now was to prepare recommendations that would help improve the hospital’s disaster management plan and future drills. With only a few hours left before the debriefing meeting, Ton needed to finalize his recommendations.

THE CARIBBEAN ISLAND REGIONAL HOSPITAL

The island is located off the north-east coast of South America. The official language of the country is Dutch, however over 15 other languages are also spoken. The interior of the island is mostly rainforest, and the majority of the population lives on the northern coast.

The district where the hospital is located is on the North-West coast, 250 km from the capital city, and has a population of around 37,000 people. The Caribbean Island Regional Hospital, rebuilt and inaugurated in 1959, is the only hospital in the western district of the island and services a total population of around 60,000. Since the 1950s, the hospital underwent many changes and expansions in order to service the growing population. Funding and loans from the government and international agencies enable the hospital to stay up to date with medical equipment and services provided.

The Caribbean Island Regional Hospital is a public hospital and offers many specialties including, gynecology, surgery, urology, anesthesia, internal medicine, and pediatrics. However,

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the hospital has a difficult time keeping their specialists because they cannot compete with the higher wages at the larger hospitals. There are a total of twenty-four departments, five wards (male, female, children, maternity, and medium-care), seventy-eight beds, and five ambulances. The hospital is built on a single level with no stairs or elevators.

PAN AMERICAN HEALTH ORGANIZATION

Founded in 1902, PAHO is the oldest international public health agency in the world, governed by the Pan American Sanitary Conference, the directing council, and the executive committee (see Exhibit 1). The role of PAHO focuses on improving health and quality of life in the Americas (North America, South America, Central America and the Caribbean) with the specific vision of being the “major catalyst for ensuring that all the peoples of the Americas enjoy optimal health and contribute to the well-being of their families and communities” (PAHO, 2011).

PAHO is the World Health Organization's (WHO) regional office for the Americas with its headquarters located in Washington, D.C. There are 28 country offices throughout the Americas. It was in 1978 that the Office of Caribbean Program Coordination (CPC) was established in Bridgetown, Barbados. In 2006, the Office of Eastern Caribbean Countries (ECC) joined the office of the CPC in Bridgetown. This office was formed to provide technical support to the Eastern Caribbean countries and territories (PAHO, 2014).

Since its inception in 1902, PAHO has had many achievements and has seen many advances in the Americas. These achievements include a thirty-year increase in life expectancy, the eradication of many diseases including smallpox, polio, measles, and rubella, improved access to health care, and reduced under-five mortality rates (PAHO, 2013).

Over the years, PAHO has provided technical support in many areas, including but not limited to: epidemic preparedness, disaster preparedness, mitigation and response, health promotion, mental health, and access to healthcare. In 1976, PAHO established the Department of Emergency Preparedness and Disaster Relief (PED) as a technical unit to act in disaster preparedness, mitigation, and response. PED has offices in Washington, D.C, Barbados, Columbia, and Panama.

SAFE HOSPITALS INITIATIVE

Given that many of the Eastern Caribbean and Latin American countries are at high risk of natural disasters it is critical that these regions are capable of managing mass casualties and are prepared to respond readily. For this reason, the functionality of hospitals and health care centres during emergencies is of utmost importance. With this in mind, PAHO, along with many experts, created the Hospital Safety Index (HSI) in 2008. The HSI is a tool that is used to assess how well a hospital would fare in the face of a disaster. It takes into account both structural and non-structural factors as well as organizational aspects with regards to hospital function.

An evaluation of hospital facilities is done by an evaluation team, which included engineers, architects, and hospital staff, and the hospitals are given a score. These scores range from A to C, with A indicating that the hospital would be able to function during an emergency situation, and C indicating that the hospital and its occupants would be at risk during an emergency situation (PAHO, n.d.).

As a second part of the Safe Hospitals Initiative, funding is provided to PAHO by the Disaster Preparedness European Commission's Humanitarian Aid department (DIPECHO) to improve the resilience of health services to respond to emergencies in the Caribbean. As part of this

project, disaster response plans were to be assessed and created for seven hospitals in the Caribbean. Once these plans were developed, the safety level of the hospitals would be reassessed.

The Caribbean Island Regional Hospital was evaluated in November 2009. It achieved a score of 0.47, which ranked it as a B Class Hospital. The hospital would be reevaluated as part of the DIPECHO project in November 2014.

ADRIANUS “TON” VLUGMAN

Adrianus, or Ton as he was known to many, obtained his Masters of Science in Environmental Health Engineering at the Technical University of Delft, in the Netherlands in 1984. Not long after graduating he was hired by PAHO as a Junior Professional Officer as a Sanitary Engineer at the CPC office in Bridgetown, Barbados. Over time, Ton was promoted through the ranks to a Senior Advisor in Water, Sanitation and Environmental Health.

Not long after joining PAHO, Ton became a member of PAHO's "Post Disaster Rapid Assessment Team." Since 1989, he had responded to many natural (floods, hurricanes, landslides) and manmade (fires, cyanide spill in Guyana) situations. Since working with PAHO, Ton had gained a wide range of experience in environmental and public health and had been stationed in many Caribbean countries including Barbados, St Lucia, Suriname, the Bahamas and Guyana. His focus had ranged from environmental health, drinking water quality, wastewater and solid waste management, pollution control, health promotion, groundwater monitoring and even malaria bed netting projects. Based upon these projects, Ton has written and published many technical papers and handbooks that were used by PAHO. Some of these included: "Drinkingwater in Emergency Situation," "Operational Status of Wastewater Treatment Plants in the Caribbean" and "A handbook for safe and healthy schools."

HOSPITAL DISASTER RESPONSE PLANS AND DRILLS

Having and maintaining current and comprehensive disaster response plans for hospitals and health care centres can be the difference between life and death. In the case of an external disaster, hospitals can easily be overwhelmed by mass casualty incidents. External disasters or emergencies can range from vehicular collisions to natural disasters. In these situations, hospitals have to be prepared for expansion of triage and treatment areas while maintaining essential services. Internal disasters or emergencies, such as fires or flooding within the hospital, are also an area that needs to be addressed in disaster response plans. This type of emergency often required partial or complete evacuation of the hospital.

Creation of disaster response plans helps to ensure a safe environment for hospital patients, staff, and the public. Having a plan in place prior to a disaster also helps to maintain critical and essential hospital services, and makes it easier to anticipate emergency situations. In addition, a disaster plan helps to establish decision making mechanisms and command structures. All of these assets enhanced the hospital's ability to return to a pre-incident state of readiness as soon as possible (PAHO, 2012).

In addition to the actual contents of the plan, it is crucial to ensure that staff members received training regarding the disaster management plan and are aware of their roles in a given emergency situation. Once staff members are trained, simulations and drills should be undertaken to test their knowledge and skill levels. Based upon these drills and experience over time, the plan can be evaluated and updated as needed.

CARIBBEAN ISLAND REGIONAL HOSPITAL RESPONSE PLAN

Caribbean Island Regional Hospital (CIRH) does have a draft disaster response plan. This plan includes an introduction and three main sections: 1) Coordination in Disasters/Emergencies, 2) Plan of Action for Epidemics, and 3) Fire Prevention. The introduction of the plan describes the population that CIRH hospital services and gives an introduction to the response plan. In this introduction, external and internal disasters are defined, and the procedure for an external disaster is described briefly.

Section One introduces the Coordination aspect. The hospital CEO was identified as the Incident Commander in a disaster and each department had an identified incident coordinator present during each shift. Additionally, it stated that each department would have an agreed upon plan and telephone cascade. Only the coordinators of each department were given the authority to give a command to transfer or evacuate patients and staff, once they received the command from the Incident Commander. This section also discusses that in the event of an emergency, the Incident Commander would be directly notified, then he/she would relay the message to the coordination team, the IC, Fire and Police would investigate, and only then would they direct Department Coordinators to evacuate.

Section Two of the plan (Epidemic Preparedness) is not relevant to this case, however because CIRH was the only hospital in the west of the country, it is appropriate for the staff to be prepared to respond to an epidemic situation.

Section Three of the plan indicates that all staff members should be trained to use fire suppression devices, that regular fire drills would be held, and that evacuation plans would be accessible with identified emergency exits and routes. This section also includes the procedures in case of a fire, which are as follows:

1. Inform Department Coordinator of potential fire;
2. Try to extinguish the fire;
3. Call fire services and police;
4. Switch of electricity and oxygen supply;
5. Commence evacuation procedure; and
6. Transfer fire victims to the Accident and Emergency department.

See Exhibit 2 for Sections One and Three of the Response Plan.

THE DRILL²

Preparation

On Thursday, June 18th, Ton travelled to the Caribbean Island district to conduct a desktop simulation exercise on fire safety and review the emergency plan of the Caribbean Island Regional Hospital. He also intended to aid in the preparation of an evacuation exercise and observe its execution in order to help staff re-assess and develop their hospital response plan as part of the DIPECHO project. This exercise was to be conducted in the Dutch language and in collaboration with the Health Sector Disaster Coordinator who was responsible for organizing the workshop.

Upon his arrival, he met with the senior hospital staff, the health sector disaster coordinator (HSDC), senior police, military and fire officers, and district commissioners. The meeting

² Interview with Adrianus "Ton" Vlugman on July 2, 2014.

included presentations by the health sector disaster coordinator on mass casualty management and incident command post management.

The drill was to take place in the male ward of the hospital. Initially it was discussed having a full surprise evacuation including patients, however, Ton advised against this to prevent real panic. Instead, roughly one hour before the drill, the patients were notified of the pending drill and asked to participate if they were willing and able.

Raising the Alarm

At 10:10 am (20 minutes before scheduled visiting hours) a non-toxic CO2 machine started releasing smoke in an empty room of the male's ward. The alarm was raised by voice, yelling "Fire!" because there was no pull lever alarm system in place. There was a bell tower, however due to its frequent use, the senior staff believed it would not be taken seriously. Once the alarm was raised, the fire service was called. The CEO was informed of the "fire" by a staff member in person and he took over the role of Incident Commander (IC). He stayed stationed in his office and was given updates mostly via cellular phones. However, because his office was along the evacuation route, many hospital staff stopped to inform him of what was happening.

The Evacuation

The staff in the male ward started evacuating immediately. The medical personnel lead the patients to the nearest exit, the "Mariastraat-Johannstraat" exit. Visitors entering the hospital usually used this exit, however it had been locked to ensure that visitors were not able to enter the hospital during the fire drill. This caused congestion of patients, staff, and hospital beds. Staff and patients from other wards caught wind of the drill and began to gather in the halls to watch. Once those evacuating got to the appropriate exit, they realized that the door was not wide enough to accommodate the hospital beds. They were then forced to exit through the Accident and Emergency ward.

Once in the ambulatory parking lot, the hospital beds were placed close together to maximize the use of the available space. There was no room to move between patients. The patients' medical records were evacuated along with the patients. Two psychiatrists were present at the assembly point to assist patients in case of stress. There was no need to take patients' vital sign because they took the exercise in stride and a pleasant change of daily hospital routine!

The fire department and police staff arrived together. The fire department inspected the premises and determined that it was safe to re-enter the ward. Upon the fire chief's go-ahead, the department staff began transporting patients back to the ward. During the drill, media personnel arrived and attempted to get onto the hospital grounds. There was one person designated to deal with the media and offered the media a press conference after the drill. More media personnel attended than expected and they began to argue with the police around the premises. However, all media personnel were kept off hospital grounds by the police until after the drill. There was some negative press in the days following regarding the conflict between the media and the police. Once the drill was complete, the Incident Commander went to the visitor waiting area, where the visitors had been re-directed to, to explain to all the visitors why they performed the drill and answer questions.

CONCLUSION

In the days following the drill, Ton went over the events that took place. While he thought that the drill went relatively well considering the lack of a pre-existing evacuation plan, he had some serious concerns about the safety of staff and patients had this been a real fire. Ton returned to his office in Barbados and looked over his notes. He needed to send his recommendations to

the health sector disaster coordinator (HSDC) in order for them to make improvements to the hospital response plan. The hospital would soon be re-assessed for the Hospital Safety Index and there was no time to waste. PAHO was eager to show DIPECHO that their money was being put to good use to increase the safety index and that the hospital would function better during emergencies.

EXHIBIT 2

Caribbean Island Regional Hospital Response Plan Sections One and Three

**Note: Adrianus Vlugman has translated this from Dutch to English.

Section One: Coordination

General Incident Commander: In the event of a disaster, the CEO of the Hospital will be the Incident Commander in coordination and consultation with the medical and the nursing staff of the hospital.

Department Coordinators: Each department will have disaster/emergency/incident coordinators, ensuring that one coordinator is present during any shift (day and night). Names and phone numbers of department coordinators are known to the switchboard of the hospital as well as at the department coordinators themselves.

After reporting the emergency/disaster to the department, department coordinators are responsible for mobilizing department staff. The department coordinator determines who performs the mobilization call (see departmental Disaster/Emergency Plan). Communication between the Incident Commander and the various departments should be exclusively through the Department Coordinators or his/her Designate. Each department should have an agreed upon plan on the mobilization of the staff, including telephone cascade using landlines and/or cellphones. It is possible that in case of an emergency, the telephone communication center will be relocated to the A&E. In some cases it will be necessary to transfer employees and patients from one department to another. Instructions to this effect will take place only between the coordinators of these departments, following the instructions of the Incident Commander. Each department will have a plan for disaster/emergency notification and the division of related tasks.

Once a disaster is reported, an incident command center will be set up in the A&E. A person will be stationed here during a disaster/emergency who will be responsible for relaying messages to the coordination team.

Internal disaster/emergency: the notification of an internal disaster/emergency will be made directly to the Incident Coordinator of the hospital. The IC then relays the message to the other members of the coordination team. If the team is not yet present in the hospital, they will be called together as soon as possible and indicate the location of the Incident Command center.

The location of the disaster will be determined. The IC, the Fire Department and the Police will investigate and determine which departments should be evacuated and where patients should be transported. These decisions will be reported immediately to the department coordinators.

During the disaster/emergency there needs to be constant telephone communication between the Command center and a Department Coordinators at the location where victims will be received. The paging system of the hospital needs to be optimized.

Situations have to be controlled on the parking lot as well as inside and outside the hospital. The porters will ensure that all cars are parked military style. This is to prevent chaos and delays and ensure quick departures of vehicles and rapid clearance of the parking lot. It is necessary to increase awareness re: traffic and parking courtesy.

Communication with the National Disaster Centre (NCCR) needs to take place exclusively via the Coordination Center of the hospital.

Preparations for Triage

External disaster/emergency: disaster victims will arrive via the A&E entrance at Hartenstraat. Less serious patients will enter through the entrance at the Raadhuisstraat and are received in the canteen while materials and supplies from the men's department will be used.

Once a disaster/emergency has been reported it is important that these two access roads are cleared and a security system set up.

Where possible, patients who can walk will be discharged to create space. In case of doubt these patients can be temporarily housed in the canteen/physiotherapy room.

The walk-in clinic will be used to receive family members, where they will receive as much information as possible about the disaster/emergency. The walk-in clinic will be used to receive patients if the available space in the above mentioned location is too limited. Each Department Coordinator will appoint one person whose responsibility will be to keep written record of which patients left and all new patients entering the department. Personnel of the A&E, transportation, Security and Technical Services shall receive training on how to function in emergency situations

Section Three: Fire Prevention

For effective fire suppression, good preparation (readiness) and preventive measures are of paramount importance. Good support from the Fire Services will be required. Hospital staff should be instructed and become familiar in the use of a fire extinguisher. Regular fire drills have been held in collaboration with the fire department. Evacuation plans should be made with clearly identified emergency exits.

There must also be a map of the electrical and oxygen pipelines with a clear indication of the main switches. Each ward in the hospital must have a working fire extinguisher. On each department should be provided by at least one good working fire hose.

The departments at a greater risk of fire should have a smoke detector. In addition, these departments should be provided with warning/danger signs like: no smoking, no open flames, no cell phones, etc.

Each department will be provided with an evacuation plan, which should identify the procedures to be used in the case of a fire.

The employees of those departments that are more prone to fire, such as the pharmacy, operating theater kitchen, laboratory, medium care, delivery room, and A&E need to be extra motivated during the training sessions.

Procedures in case of Fire Alert

When the Fire Alert is received:

1. Inform the Department Coordinator;
2. Commence extinguishing the fire;
3. Subsequently call the fire service and the police;
4. Switch off electricity and oxygen supply (main switch);
5. Commence evacuation procedure and transfer patients to safety;
6. If possible jeep all doors and windows closed; and
7. Transfer the victims of the fire to the A&E as soon as possible for medical treatment.

Other external disasters/emergencies that may affect the hospital may include high winds, wars, riots, etc.

Together with the various department heads specific plans for their department will be developed.

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INSTRUCTOR GUIDANCE

Hospitals Don't Burn: Caribbean Island Regional Hospital¹

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BACKGROUND

Adrianus “Ton” Vlugman, is a senior advisor at the Pan-American Health Organization (PAHO) positioned at the Office of Caribbean Program Coordination. On June 18, 2014, Ton travelled to the Caribbean Island Regional Hospital. The goal of his trip was to conduct a desktop simulation exercise on fire safety and review the emergency plan of the hospital. He also intended to aid in the preparation of an evacuation exercise and observe its execution in order to help staff reassess and develop their hospital response plan. This trip fell under the second phase of Safe Hospitals as funded by DIPECHO (Europe).

When Ton arrived at the hospital he was told that the senior hospital staff were planning a full surprise fire evacuation drill for the next day. The drill took place on the 19th of June in four of six male wards. This case reviews the blow-by-blow details of the fire evacuation drill as Ton decided what recommendations needed to be made to improve the hospital's response plan and future drills.

OBJECTIVES

1. To describe the key elements of disaster management plans for hospitals, health care centres, and public health centres.
2. To focus on the Public Health Preparedness and Response Core Competencies:
 - a. Model Leadership: to understand and assess how problems are solved under emergency conditions.
 - b. Communication and Information Management: to understand chain of command and how communications may be altered during emergency situation.
 - c. Planning and Improving Practice: to evaluate the current plan and make recommendations to improve it.
 - d. Protect Safety: to recognize and determine threats to patient and staff safety (e.g. surprise drill).

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3. To gain skills in critically evaluating a plan or program by utilizing available resources, peer interaction and brainstorming activities.

DISCUSSION QUESTIONS

1. What are the main concerns Ton, the PAHO advisor, may have with the drill? (Use the *Public Health Preparedness and Response Core Competency Model*.)
2. Based upon the sections of the hospital's response plan in the appendix, what areas of the drill followed, or did not follow, the plan?
3. What changes or additions should be made to the plan to make it both practical and safe?

KEYWORDS

Disaster preparedness; international; PAHO; safe hospitals.