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Date

**Evaluation of the  
Rwandan Emergency Medicine Clinical Guidelines**

*A Quantitative and Qualitative Review*

BY

Nicole Marie Braxley, MD

Degree to be awarded: M.P.H.

Executive MPH

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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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## Abstract

# Evaluation of the Rwandan Emergency Medicine Clinical Guidelines

## *A Quantitative and Qualitative Review*

BY

Nicole Braxley, MD

Rwanda is a small, landlocked country in East Africa devastated by genocide in 1999 where nearly one third of its inhabitants were killed. Over the past twenty years, with the help of significant foreign aid, the country has shown tremendous progress in reducing poverty, increasing the life expectancy of its people, advancing technology and growing and developing its healthcare infrastructure. With the initiation of the Human Resources for Health (HRH) program in 2012, Rwanda seeks to “meet the health needs of its citizens by 2020” by partnering with 23 US Institutions of medicine, dentistry, and health management to bring full-time foreign faculty to Rwanda on an annual basis to work on a transfer of knowledge to Rwandan physicians.

Emergency Medicine (EM) specialists are included among the invited participants with the goal of introducing and advancing emergency care to Rwanda by establishing the country’s first EM residency program and implementing emergency and critical care concepts in the capital teaching hospital.

Individual training in emergency care is not available to every Rwandan physician. As a side project, the author edited a new handbook for Rwandan general practitioners called Emergency Medicine Clinical Guidelines. Because there are no Rwandan EM specialists, the handbook was authored by foreigners who practiced emergency medicine in Rwanda.

This thesis offers the results of a quantitative and qualitative analysis of the new guideline text, as tested and reviewed by Rwandan physicians. Participants gathered for a pre- and post-test analysis and stayed to participate in a focus group interview.

Quantitative results showed a significant improvement in post-test scores using the new guidelines as a tool to answer clinical questions. Themes that arose from the focus group interview session offered an overall positive review of the guidelines with recommendations on how to make it more accessible for the Rwandan general practitioner who is not trained in emergency medicine but cares for critically ill patients on a daily basis.

The Rwandan Ministry of Health recently approved the final draft of the guidelines for publication. It will be available in both hard copy and electronically for clinicians across the country. The quantitative and qualitative data gathered here demonstrates the usefulness of the text to the Rwandan clinician.

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I am also thankful for the many wonderful Rwandan clinicians that I worked with in emergency medicine. They have risen from a very dark place and took an extraordinary leap with many sacrifices to learn about this new specialty. I applaud their continued courage.

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## **Introduction**

### **Statement of the Problem**

Rwanda's healthcare system is undergoing a major transformation with the initiation of the Human Resources for Health (HRH) program in 2012. Among those changes is the introduction of emergency medicine as a specialty to the country. The Rwandan Ministry of Health is currently reviewing a draft copy of a new handbook called Emergency Medicine Clinical Guidelines written in part as a practicum project for the Rollins School of Public Health. This thesis offers the results of a quantitative and qualitative analysis of those guidelines, as tested and reviewed by Rwandan physicians. The Introduction section below offers a brief history of Rwanda in general, of medicine and emergency medicine in Rwanda, and on the need for the Emergency Medicine Clinical Guidelines.

### **Rwanda, The Country**

Rwanda is a small, land locked country in East Africa bordered by Burundi (south), the Democratic Republic of Congo (west), Tanzania (east), and Uganda (north). It is known as the "land of a thousand hills" due to its geography and boasts six volcanoes, numerous small lakes, and rivers. It is about the size of the state of Maryland and is one of the most densely populated countries in Africa ([www.cia.gov](http://www.cia.gov)). Rwanda sits

near the equator, but its high elevation brings about a moderate climate all year round with two rainy seasons and two dry seasons.



**Figure 1: Map of Africa and location of Rwanda**

Administratively, the country is divided into five provinces and thirty districts. Of the five provinces, Kigali, the capital city, is primarily urban while the rest of the country is primarily rural. Rwanda is considered a low-income agriculture-based economy, but has visions, with the help of significant foreign aid, to become a knowledge-based, service-oriented middle-income economy by 2020 (worldbank.org). While Kigali is quite industrialized, the remainder of the country lacks some basic infrastructure and access to electricity.

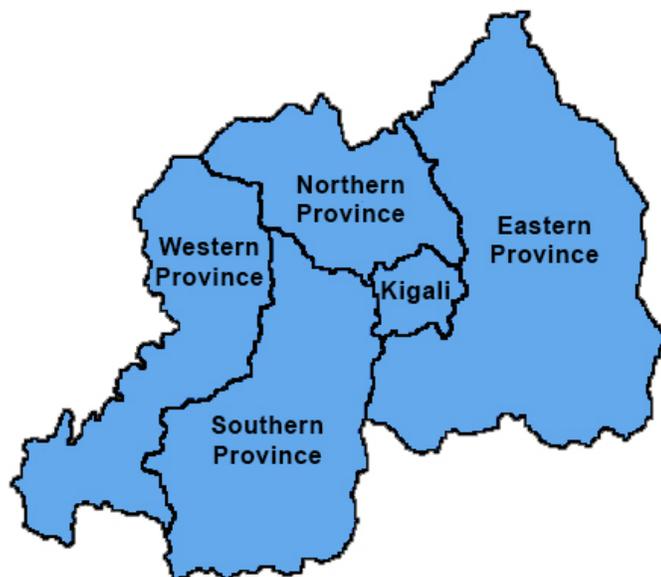


Figure 2: Map of Rwanda provinces

## **Rwanda, The Genocide**

By 1994, the population of Rwanda reached 7 million people comprising three ethnic groups. The Hutu (85%) were considered a lower social class of people. The Tutsi (14%) were generally considered a higher class of people as they owned the majority of cattle in the country and were historically favored by the Belgium colonists who ran the country ([www.cia.gov](http://www.cia.gov)). Ethnic conflict between the Hutus and Tutsis occurred intermittently since the 1950s when decolonization began ([www.unitedhumanrights.org](http://www.unitedhumanrights.org)). Violence continued as Rwanda gained independence in 1962. Ethnic conflict arguably became civil war in the late 1980s as the Rwandan Patriotic Front (RPF), mainly comprised of exiled Tutsis, was founded in neighboring Uganda as a political movement. The RPF and Hutu government exchanged several smaller attacks on each other until April 6<sup>th</sup>, 1994 when the death of the Hutu Rwandan president in a plane crash prompted

several weeks of intense and systematic massacres. In just 100 days, an estimated 1 million people, mainly Tutsis and moderate Hutus, were killed and up to 250,000 women were raped ([www.un.org](http://www.un.org)). The details of the Genocide are beyond the scope of this paper, but suffice to say, it devastated an already weak economy and shattered the fragile healthcare system.

### **Rwanda, The Healthcare System, Then and Now**

The Rwandan healthcare system still suffers as a result of the genocide, but the government has made tremendous strides over the past twenty years. World Bank data shows a reduction in poverty from 56.7% (2006) to 44.9% (2010). Life expectancy impressively went from 36 years in 1996 to 63 years in 2013 ([data.worldbank.org](http://data.worldbank.org)). In 2000, world leaders gathered at the United Nations and discussed how to meet the needs of the world's poorest people. They surmised eight Millennium Development Goals (MGD) ranging from ending extreme poverty to universal primary education with a target date of 2015 ([www.un.org/millenniumgoals](http://www.un.org/millenniumgoals)). Many countries have not come close to meeting their MGDs, but Rwanda has remained an exception. It is one of the only counties expected to meet most of its Millennium Development Goals by 2015 (<http://www.rw.undp>). The final report is awaiting publication.

Rwanda has one medical school, eight schools of nursing, one dental school, and one school of public health ([www.hrhconsortium.moh.gov.rw](http://www.hrhconsortium.moh.gov.rw)). The College of Medicine and Health Sciences was established in 1963 and has been offering post-graduate training programs since 1997. Currently, six post-graduate training programs are available including Internal Medicine, Pediatrics, Obstetrics-Gynecology, Surgery, Anesthesia, and

Ear Nose Throat (ENT). Other specialists are extremely rare and must train abroad. In Rwanda, undergraduate education lasts six years in general medicine and is followed by one year of clinical internship. Clinicians are then allowed to practice as general practitioners (GPs) without further specialty or residency training. As of February 2011, there were 470 Rwandan general practitioners and 133 Rwandan specialists with a total of 0.06 physicians per 1000 people.

The healthcare system is decentralized and multi-tiered with the goal of acting something akin to a HMO plan in the United States where patients start at the local health care facility first and are transferred on need-only basis to the higher levels of care. As of 2010, Rwanda had more than 440 health centers located throughout the rural areas of the country staffed primarily by community health workers and nurses with basic training. These centers are typically the first contact point for patients seeking medical care. They specialize in prevention efforts, primary health care, and maternity care ([www.hrhconsortium.gov.rw](http://www.hrhconsortium.gov.rw)). Community health workers evaluate presenting patients. If their illness is too complex for the local center, they are referred to a district hospital for further evaluation. There are 48 district hospitals throughout the country staffed by one or more general practitioners (GPs). Patients can be admitted to the district hospital, if needed, and some offer basic surgical and maternity services. If the patient needs any specialty care (cardiology, major trauma, advanced imaging other than basic X-ray, etc.), they are transferred to one of four referral hospitals. The four referral hospitals include Centre Hospitalier Universitaire de Kigali (CHUK), the primary teaching hospital where the majority of training occurs. CHUK accepts transfers from approximately 28 district hospitals. Centre Hospitalier Universitaire de Butare (CHUB), a smaller teaching hospital

in the Southern region of the country, accepts transfers from the other district facilities. The other two referral centers have more specialists and resources (additional laboratory services, more imaging services, larger Intensive Care Unit, etc.), but are limited in their contribution to the healthcare of the country as only a small percentage of the population may go there for care. King Faisal Hospital (KFH) is the country's private hospital. Patients must have private insurance or pay cash to be seen there. Kanombe Military Hospital (KMH) is limited to care for military personnel and their families.

Rwanda boasts a national health insurance scheme, but it is limited in its effectiveness for the average rural Rwandan. The Mutuelles de Sante is a social health insurance with an annual premium of about \$6USD per family member. Patients then pay a 10% service fee for each visit to a health center or hospital. Membership is voluntary and payment of premiums is based on economic status. But even this small amount of money might equate to a rural Rwandan's entire month's salary, making lab tests or imaging unaffordable. A 2010 survey stated that 91% of the population was insured through Mutuelle de Sante, but a report in 2014 revealed that local officials heavily inflated this number in their reports to the Ministry of Health. Figures vary depending on source, but only about 60%-70% of the population was actually insured in 2013-2014 (Musoni, 2015).

### **Human Resources for Health (HRH) Program**

The Ministry of Health in Rwanda launched the HRH program in 2012 with the goal of "meeting the health needs of its citizens by 2020"

([www.hrhconsortium.moh.gov.rh](http://www.hrhconsortium.moh.gov.rh)). The HRH program partners with 23 US Institutions of medicine, nursing, dentistry, and health management bringing full-time faculty to Rwanda on an annual basis. It is a pilot program, the first of its kind globally, designed to transfer knowledge through a “twinning model” which includes formal mentoring and instruction. The goals include reducing a critical shortage of skilled health workers (increasing the number of Rwandan specialists), increasing the quality of health education, updating infrastructure and equipment in health facilities (over \$23 million was procured for new equipment the first year of the program alone), and improving the management of health facilities. The ultimate goal includes a specific exit plan in seven years (2020). The government of Rwanda plans to sustain the improved health workforce without further foreign aid.

Emergency Medicine (EM) specialists were invited to participate in the HRH program through Brown and Columbia University. Their role is different, as there are no Rwandan emergency medicine physicians to participate in the twinning program. Therefore, the goal for HRH EM physicians is to implement the country’s first residency program and convert and update the main teaching hospital’s emergency ward to a functioning emergency department.

### **Emergency Medicine in Rwanda, Then**

Prior to the start of the HRH program, emergency medicine as a specialty did not exist. The idea of critical care delivered in a timely manner to patients and the idea of triage for patients also did not exist. In health care facilities across the country, patients

were historically served on a first-come, first-served basis. The Ministry of Health set up an Emergency Ward at the country's main teaching hospital, CHUK, but this was in concept only. The staff and nurses in this designated emergency ward had never received training in triage or emergency care. The lab and radiology wards have never heard of the concept of "stat" results (running tests more quickly for critical patients, as is done in emergency departments in the US). Blood work and imaging continued on a first-come, first-serve basis, with "emergency patients" waiting days for results, the same as patients from outpatient clinics with non-emergent conditions. Given there were no Rwandan emergency specialists and there was a critical shortage of physicians in general, Congolese general practitioners, also untrained in emergency care, staffed the emergency ward.

The first step of instituting emergency care within Rwanda, at the start of the HRH program, was to reorganize the emergency ward at CHUK. This task was started by the first two HRH physicians in 2012 and continues today. Previously the emergency ward served as a holding zone for the deceased patients of Kigali. Every person who recently died nearby was brought to the emergency ward while waiting for body preparation. Gurneys of the recently deceased lined in the waiting room of the ward until a nurse was available to prepare the body and wheel it to the morgue. Once this obstacle was remedied, the emergency ward area was then re-designed to function as a triage area. A triage desk was put in place and two "triage areas" were designed, each with space for a stretcher, a monitor to collect vital signs and privacy afforded by a simple blue curtain.

Nurses have been trained in how to triage a patient (entering chief complaint, taking vital signs, and assigning a severity index). Standard triage forms were created,

one for the adult patient and one for the pediatric patient. The goal is to complete a triage form for every single patient that presents to the emergency ward, regardless of his or her chief complaint. The more critically ill patients are then ideally seen by a physician first, while the less sick patients wait longer.

### **Emergency Medicine in Rwanda, SidHARTE**

Systems Improvement at District Hospitals and Regional Training of Emergency Care (SidHARTE) is a non-governmental organization based out of Columbia University that has been working with the Rwandan Ministry of Health to decentralize healthcare within the country while training local physicians in emergency medicine. SidHARTE started a Post-Graduate (PGD) training program in 2013 in Emergency and Critical Care Medicine. Designed for Rwandan general practitioners (GPs), the PGD is a two-year part time program that gives doctors the opportunity to combine classroom-based learning and hands-on clinical practice in emergency care while continuing to provide patient care in their district hospitals ([www.sidharte.org](http://www.sidharte.org)). A subset of the PGD students now have the opportunity to continue their training in a Master of Medicine (MMed) in Emergency Medicine, the cornerstone of the HRH program. This subset of physicians will go on to be the future advocates and instructors for the development of Emergency Medicine in Rwanda. The remainder of the PGD graduates will return to their district hospitals where they can apply their new skills to strengthen emergency services in underserved, rural areas.

## **Emergency Medicine Clinical Guidelines**

The MOH traditionally publishes standard guidelines for various specialties so general practitioners and specialists alike can practice medicine along the same lines. Guidelines currently exist for Internal Medicine, General Surgery, Obstetrics, Pediatrics, and ENT. The Ministry of Health approached SidHARTe in 2014 to produce a set of guidelines in Emergency Care for Rwanda. This project constituted the author's practicum experience for the Executive Masters in Public Health (EMPH) program at Rollins School of Public Health at Emory University in 2015. The book briefly covers over 20 various topics in acute emergency care. It is not an exhaustive text, but rather a pocket reference for the general practitioner. There are two editors and eleven authors. All of the authors are Westerners (not Rwandan), but all have practiced medicine for at least several months in Rwanda and are extensively familiar with the culture, common medications available on the country's formulary, and common medical conditions. When possible, Rwandan specialists were invited to review and edit chapters specific to their specialty. The guidelines were also extensively reviewed by a working group of Rwandan physicians and final edits were made based on their comments before submission to the Ministry of Health in January 2016. Final approval of the guidelines is pending.

## Research Question

Before presenting the final material to the Ministry of Health, SidHARTE wanted to validate that the EM Clinical Guidelines would be useful for Rwandan general practitioners. They wanted to ensure the book would be easy to follow, had useful topics, and would be appreciated in a clinical sense. This thesis seeks to validate the effectiveness of guidelines using a combination of quantitative and qualitative review.

**Research Question:** Does use of the Emergency Medicine Clinical Guidelines help Rwandan general practitioners (with no emergency medicine training) make more accurate clinical decisions on critically ill patients?

### Goals and Objectives

- Demonstrate guidelines will improve clinical outcomes in patient care
  - Gather quantitative data consisting of pre- and post-test scores using the EM Clinical Guidelines
- Demonstrate readability and comprehension of guidelines and collect comments on how to improve the guidelines before final publication
  - Conduct focus group interview with Rwandan general practitioners
- Collect information about why and how often Rwandan GPs transfer patients for a higher level of care
  - Conduct written demographics survey

Qualitative data are collected to hear the general thoughts from the GPs, if the guidelines were easy to follow, what changes they recommend, and if they will utilize the guidelines in their everyday practice.

## **Review of the Literature**

The Institute of Medicine defines clinical guidelines as “systemically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances” (Field, et al., 1990). The literature on clinical guidelines within European or industrialized countries has grown over the years, but any focus on guidelines within developing countries is essentially non-existent. This review of the literature will evaluate the purpose of value of clinical guidelines for medicine in Western countries and will discuss the extrapolation of that value to developing areas such as Emergency Medicine in Rwanda. The second half of the literature review examines the usefulness of interviewing as a qualitative review method. It also discusses optimal interviewing techniques in general, and the challenges faced with a focus interview group in the Rwandan context.

Clinical guidelines extend into a field known as evidence based medicine. The guidelines vary depending on the country in which they were developed, the specialty developing, and the purpose. They may offer specific instructions on which test to order for a patient (laboratory or imaging), how to treat a patient depending on the results, when a patient needs a specialist referral, and every other detail there within. The continued growing interest in adopting clinical guidelines results from rising healthcare costs in conjunction with an increased demand for care by the public, more expensive technology and an ageing population (Woolf, 1999). Numerous studies have shown significant variation in service delivery ([dartmouthatlas.org](http://dartmouthatlas.org)). The Dartmouth Atlas of Health Care is arguably the most well-known project documenting the variations in how

medical care is delivered and distributed around the US. Variations are noted between geographical regions, specific providers, hospitals, and ethnicities. Policy makers see guidelines as a tool for making care more consistent and efficient. Clinicians often utilize guidelines as a standard of care to support their practice choices and to defend themselves in litigation.

In the context of Rwanda, the Ministry of Health previously developed numerous guidelines for the country in other specialties outside of emergency medicine. Existing guidelines included Internal Medicine, OB/Gyn, Pediatrics, ENT, and General Surgery. However, there are no emergency medicine-trained Rwandan physicians available to write clinical guidelines. The first EM resident will not graduate until 2017, and he/she will not yet have enough clinical experience in the field to adequately write a set of guidelines. Rwandan physicians also lack training in how to evaluate research papers, and do not have experience in extrapolating results from other studies and applying that information to Rwandan patients. Therefore, the Ministry of Health approached SidHARTE to request assistance in putting together standard practice guidelines for the country.

Listed below are potential benefits and harms of clinical guidelines from the viewpoint of a western country like the US or Canada (Woolf, 1999). Asterisks mark the points that are applicable to a Rwandan context. Further discussion on some of these points as they pertain to the Emergency Medicine Clinical Guidelines follows the list.

### **Potential Benefits of Clinical Guidelines**

- Improve patient health outcomes\*
- Reduce morbidity and mortality\*
- Improve consistency of care\*
- Consumer information for patient reference (empower patients)
- Influence public policy\*
- Improve quality of clinical decisions\*
- Clarify evidence based guidelines versus anecdotal\*
- Support quality improvement activities
- Identify gaps in evidence to promote further research\*
- Standardize care and improve efficiency\*

### **Potential Limitations/Harms of Clinical Guidelines**

- Recommendations may be wrong\*
- Lack of scientific evidence or poor correlation\*
- Based on value judgment rather than evidence
- Influenced by opinions of development group\*
- Promotion of flawed guidelines can institutionalize ineffective or harmful care\*
- Inflexible guidelines or flawed use leads to blanket use not tailored to patient\*
- Conflicting guidelines are confusing for physicians\*
- Algorithms reduce care to binary system without clinical judgment

There were potential benefits and harms with the creation of emergency medicine clinical guidelines for Rwanda. Studies have shown that rigorously developed evidence-based guidelines help to mitigate potential medical errors, but there is extremely limited research done within the country of Rwanda from which to gather data. What little research did exist did not fall into the realm of emergency medicine, since the specialty was not practiced there. In developing the Rwanda EM Clinical Guidelines, several steps were taken to mitigate these problems. The authors, while not Rwandan, all practiced medicine within Rwanda for an extended period of time. Most of the authors were emergency medicine specialists (two were Internal Medicine and wrote chapters on Internal Medicine topics). When making recommendations, data was pulled from similar

populations whenever possible. This generally included other countries of sub-Saharan Africa and South Africa, where the most African research originates. When no research was available from parts of Africa, the authors pulled literature from other developing countries such as India, particularly if similar problems were seen in both locations (HIV, AIDS, TB, Malaria, etc.). Finally, literature from the US, Canada and Europe was used when no other similar populations were studied. Some topics in emergency medicine overlap other areas of medicine, such as surgery or obstetrics. When Rwandan guidelines existed within these other subject groups, the information was pulled directly from the existing Rwandan guidelines or was not included at all.

The EM Clinical Guidelines were written to promote a standardization of care and improve patient outcome by reducing morbidity and mortality. Timely critical interventions of sick patients are the cornerstone of emergency medicine. However, the authors recognized the potential for clinicians to forgo tailoring care for the individual patient. Authors made every attempt to make recommendations and keep every possibility in mind for clinicians to consider. Alongside development of the guidelines, the SidHARTE team conducted a needs analysis at each of the district hospitals. Included to the Ministry of Health were recommendations of essential medications and consumables for each hospital to carry to deliver the best possible care, particularly in emergency medicine. The guidelines, by their very nature, also identified gaps in research within Rwanda in the context of emergency medicine. The new residency program instructors can use the guidelines to encourage Rwandan residents to conduct future research in the specialty.

The largest potential benefit of well-written clinical guidelines is the ability to improve health outcomes. They can improve consistency of care for the patient. In the case of Rwandan physicians with little or no specialty training, they can improve the quality of clinical decisions. In Western context, guidelines are developed for clinicians that have received at least basic, if not extensive, training in the topic.

While there are many methods to writing guidelines, one group of experts presented a combination of literature and research in guideline development for North America and Britain and surmised the following five steps (Shekelle, et al., 1999):

#### **Steps for Guideline Development**

- Identify and refine subject area
- Convene guideline development group
- Assess the evidence available
- Translate evidence into recommendations
- External review of guidelines

A more robust checklist of guideline development was recently compiled and is available online (Schunemann, et al., 2014). It contains a checklist of 18 topics and 146 items to consider. A complete review of the process involved in writing the Emergency Medicine Clinical Guidelines is beyond the scope of this paper. Rather, this paper focuses on the final step above, external review of the guidelines.

One of the final steps in guideline development is introduction and implementation within a system. Development of a good set of guidelines does not ensure their use in everyday practice (Feder, et al., 1999). Specifically within the context of a resource-poor country such as Rwanda, buy-in from the Ministry of Health was critical

from the first step. Given that non-Rwandans wrote the guidelines, the authors felt it was crucial to have Rwandans, the very people that will use the guidelines, review and approve the material. If approved and published, the guidelines will have to be reviewed and revised on a regular basis to maintain clinical usefulness as new medicines arise, new research becomes available, and the country of Rwanda gains in resources. This activity must be led by the Ministry of Health and will only happen if the government believes in their *usefulness*. The Results section of this paper summarizes recommendations on how the Ministry of Health can best implement the clinical guidelines based on information gathered from the Rwandan physicians interviewed.

## **Methodology**

This research project sought to answer the question of whether the new clinical guidelines for Emergency Medicine in Rwanda would be useful for the average Rwandan physician working at the district level hospital. In order to answer that question, the study took a sample of Rwandan physicians who currently work at the district level and brought them to the capital for a one-day session. The session sought to use clinician input on the new guidelines for evaluation on both a quantitative and qualitative level.

### **Setting and Selection of Participants**

The evaluator sought a random sampling of physician opinions, hoping to draw upon doctors with different levels of experience and practicing at different locations throughout the country. A call for general practitioners was advertised online through the Rwandan Medical and Dental Council. The session was open to any practicing Rwandan GP who worked at a district level hospital.

It was important to eliminate a positive bias about the guidelines; therefore, there was no monetary incentive for physician opinion on the guidelines. In order to draw clinicians to Kigali to seek their opinion on the guidelines, continuing education credits were offered through the teaching hospital, CHUK. The one-day course on Emergency Care sufficed for continuing education credits (required annually for every physician in Rwanda). The course outline was presented to and approved by the Ministry of Health and the Rwanda Medical and Dental Council (see Appendix for copy of Application for

CPD Course Accreditation). All participants signed a consent form agreeing to participate in the study (See Appendix for copy of the Consent). The study did not meet requirements for IRB approval from either the Rwandan Ministry of Health or the Emory IRB Review Board. No information from the study will be published outside of the thesis report, and all information gathered from participants will be for internal use only by SidHARTE and the Ministry of Health.

### **Interventions**

The first half of the day consisted of quantitative and qualitative testing and evaluation of the new Emergency Medicine clinical guidelines. The participants started by taking a pre-test, consisting of 9-10 clinical questions on typical emergency medicine cases. They were given up to 30 minutes to complete the exam. It was “closed book” without notes available. There was a short break where each clinician was given copies of the chapters in the clinical guidelines that covered their topics seen on the exam. Other than a brief introduction to the chapters, the clinicians were not given any further instructions on how to read or interpret the guidelines. This was intentional as in their district hospital, they will be left alone with the book without further instruction on how to use it. The clinicians completed the same exact set of questions on the post-test also within a 30-minute time limit, but could then use the guidelines as a reference. Pre-test and post-test scores were calculated and are available in the results section. The test scores were linked, but anonymous.

Following the pre and post-test, the clinicians formed a focus interview group. According to Patton, focus interviewing was developed in recognition that social context and discussions with other people brings out better ideas and information (Patton, 2002). Focus group interviews are not problem-solving sessions or decision-making groups. While it remains an interview, the participants get to hear other responses and add their thoughts based on other's viewpoints and ideas. The point of the group is *not* to agree nor disagree, but to consider their own views in the context of other's thoughts, thus possibly influencing each other by responding to ideas and comments in the discussion (Kruger, 1994).

There are several advantages and disadvantages to focus group interviews (Patton, 2002).

#### Advantages of Focus Interview Groups

- Cost-effective data collection
- Interactions among participants enhances quality data
- Quickly assess the extent of shared views or diversity of views
- Enjoyable to participants

#### Disadvantages of Focus Interview Groups

- Restricted number of questions in the group setting
- Available response time from a single person is limited
- Need an experienced moderator
- Participants with a minority view point may not speak up
- Focus groups best when participants are from similar backgrounds, but don't know each other
- Cannot assure confidentiality

As the above strengths and weaknesses suggest, the power of a focus group is to remain focused. Groups are homogenous and participants discuss a focused topic rather

than exploring complex issues. Time is focused, as well as facilitation. This way, much more information is gleaned about a new product (our clinical guidelines, for instance) compared to asking questions on a survey alone.

The focus group interview occurred over 45 minutes. The editor of the guidelines served as the group moderator. There was a second person to record and take notes. A series of questions were asked of the clinicians surrounding their thoughts on the guidelines. A copy of the questions asked and a transcript of the interview are available in the Appendix section. The qualitative portion of the evaluation was coded for themes. This included whether the data was coherent and consistent, how the findings would increase understanding of what is being studied, and whether the findings were consistent with other knowledge (quantitative data points). That information is available in the results section.

The second half of the course included a lecture and corresponding skills stations for providers to learn the basic tenets of emergency medicine and resuscitation of a critically ill patient. This portion of the day sufficed for the continuing education section for providers to earn their continuing education credits. There was no testing of this material, but each participant completed a course evaluation at the end of the day.

### **Outcome Measures**

Outcomes were measured by quantitatively and qualitatively. Quantitative results were gathered by looking at a comparison of pre- and post-test scores. The clinical

guidelines consist of just over 20 chapters and span over three hundred pages. It was not feasible to test over every topic area in such a short period of time. Therefore, each participant completed three to four test questions over three different chapters so that a maximum number of topics could be evaluated. There were twelve total participants and three versions of the exam so participants could be averaged with each other. The editor of the clinical guidelines was particularly interested in how Rwandan clinicians could grasp difficult concepts using only the guidelines as reference. Therefore, every participant completed questions on calculating the infusion pump dose for dopamine, a powerful medication that artificially increases blood pressure in a critically ill patient. This is a skill that every Rwandan physician should possess as dopamine is a part of the Essential Medications List for Rwanda. A copy of the exam questions can be found in the Appendix. Statistical analysis was performed on the pre- and post-test exams.

Qualitative data was collected from a focus group interview consisting of the same participants recently introduced to the new guidelines. Ideally, there would have been multiple focus interviews with different groups of Rwanda clinicians in order to obtain a variety of perspectives and increase confidence in the data that emerged, but time and logistics did not allow for this. The interview was recorded and notes were taken by a second person (not the moderator). The data were coded for themes. See the appendix for a copy of the interview questions, the transcript, and the notes taken during the interview.

## **Primary Data Analysis**

The mean and standard deviation for the ten pre-test and post-test scores, along with the delta between paired scores, were reported. The results of the t-test, including p-value and 95% confidence interval for the delta were also reported. A box plot was done to test the assumption of normality. All statistical measurements were computed using Excel. Themes from the focus interview group were identified and corresponding quotes from the interview session were detailed. Finally, descriptive data of the GPs who participated in the study were reported.

## Results

### Characteristics of Study Participants

There were twelve total people who participated throughout the day, but only ten were there in the morning to take the pre- and post-test. Demographics, however, was collected on twelve participants. There were 12 hospitals represented by the participants who came to the session. While patient visit data is not available for each hospital, SidHARTE obtained population totals for the various catchment areas on a recent data collection project. Results are in the table below.

<b>Hospital Name</b>	<b>2014 Population Total</b>
Ndera (Psychiatric Referral Hospital)	n/a
Kabgayi	318,965
Kibagabaga	556,921
Kacyiru (Kigali Police Hospital)	n/a
Gahini (2 participants)	170,942
Gitwe	133,543
Kibungo (2 participants)	354,660
Rukoma	340,501
Misaka	337,882
Kirehe	363,843
Gihungwe	149,978
Nemba	245,219

**Table 1: List of hospitals represented by participants with 2014 population totals for each district, when available. Data courtesy of SidHARTE.**

The participant demographics included a 100% male group, with an age range of 26-35 for most participants (one person was over 40 years old). Most of the participants were new physicians, practicing medicine between 1-4 years. The majority of clinicians saw more than 21 new patients per day with only four clinicians seeing between 3-20

new patients per day. Most of the participants stated that less than 25% of their patients were transferred out of the district hospital to a higher level of care. When asked why they transferred patients, most (37%) said it was for specialty consult (i.e., orthopedics, urology, dermatology, etc.). Another 29% said it was because “the patient was too sick.” This is a vague statement, but very commonly was the only reason given for transfer on patients received at the teaching hospital. Polytrauma (very serious illness from trauma) and the need for a CT scan were the other reasons for transfer. Interestingly, eleven of the twelve participants said they had working Internet at their hospital, but the same amount also said they only used the printed version of previous Ministry of Health guidelines. One might hypothesized that if working Internet was available, it would be easier to use the guidelines available online. It is possible the Internet, while working, was not readily available in the physician’s workspace. This is the case at the teaching hospital, CHUK. Physicians and staff must go to the computer lounge for a working Internet connection and free computer.

It would be useful to note whether our study population was representative of the general population of Rwandan general practitioners. However, physician demographic information for the country is not available for comparison.

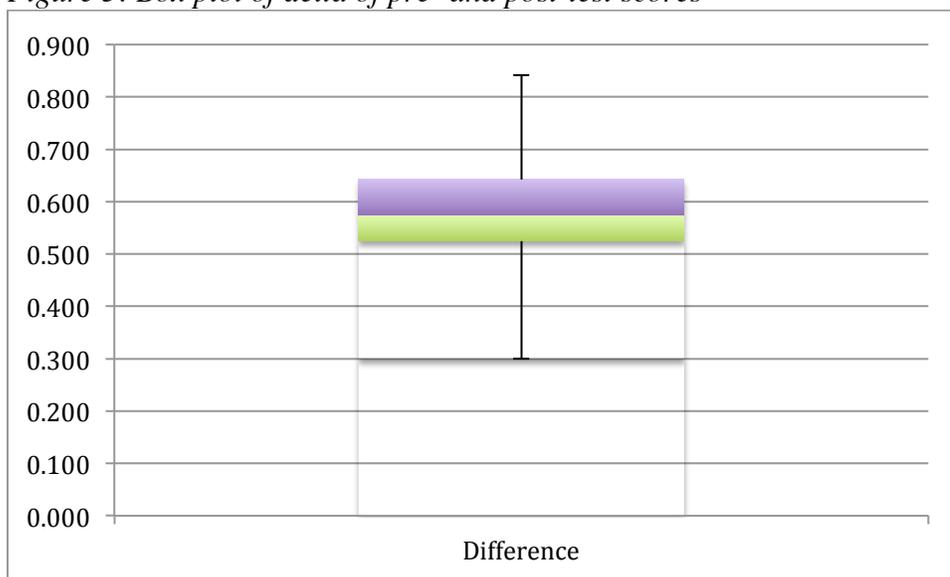
Table 2: Demographics of study participants

<b>Variable</b>	<b>Sample Size (number)</b>	<b>Percent of Total (%)</b>
<b><u>Gender</u></b>		
% male	10	100
<b><u>Age (years)</u></b>		
18-21	0	0
22-25	0	0
26-30	6	50
31-35	5	42
36-40	0	0
> 40	1	8
<b><u>Time Practicing (years)</u></b>		
<1	1	8
1-2	6	50
3-4	4	33
>5	1	8
<b><u>Avg New Pts (per day)</u></b>		
1-5	0	0
6-10	1	8
11-15	2	17
16-20	1	8
>21	8	67
<b><u>Pts Transferred (%)</u></b>		
<25	11	92
26-50	1	8
51-75	0	0
>75	0	0
<b><u>Reasons for Transfer</u></b>		
Pt needs CT Scan		12.8
Pt needs US		2.3
Pt is sick		29.4
Pt needs specialty consult		37.2
Polytrauma		13.2
Other		1.5
<b><u>Internet at Hospital</u></b>		
Yes	11	92
No	1	8
<b><u>Printed or Online Guidelines?</u></b>		
Printed	11	92
Online	2*	17

## Quantitative Results

Data were collected on pre- and post-test results for a total of 10 participants. An independent samples t-test was conducted to compare pre-test to post-test scores (participants did not use the guidelines during the pre-test and were able to reference the guidelines during the post-test). There was a significant difference in scores. The mean score for the pre-test was 26.1 (95% CI 18.8, 33.4, SD 11.8). The mean score for the post-test was 83.9 (95% CI 78.2, 89.6, SD 9.2). The mean of the difference between the pre-test and post-test was 57.9 (95% CI 49.4, 66.3, SD 13.6). A Box plot (Figure 1) shows a near-normal distribution of data. A two-sided t-test for two paired samples performed at an alpha level of 0.05 showed  $t(9) = 2.26, p = 2.99E^{-07}$ . It was significant as the mean was different than zero. These results suggest that the guidelines improve the participant's ability to answer clinical-based emergency medicine questions. It is possible to hypothesize that the guidelines will also be useful in the "real world" when treating patients with similar conditions.

*Figure 3: Box plot of delta of pre- and post-test scores*



## Qualitative Results

Some common themes emerged from reviewing the focus group interview transcript; they are summarized below. A longer explanation of the themes follows with example quotes from participants.

### Common Themes from Focus Group Interview

- Some topics covered on the pre- and post-test exam were not familiar to participants as common patient presentations
- The participants felt the pre-test was difficult, and the post-test was much easier with the use of the guidelines
- The guidelines were easy to read
- The guidelines were too long for every day use and would be better in either a pocket format or in a free downloadable format (for reference on a tablet)
- There were mixed opinions on whether additional training in emergency medicine is necessary to make the guidelines successful
- Participants had several opinions on how to better train the general practitioners in general (not directly related to the guideline publication)

The exam was designed to test on common patient complaints, but several participants admitted to not often treating the cases mentioned. For example, alcohol withdrawal was stated as not common. Participants also found hyperkalemia and shock were difficult to understand how to treat as basic potassium labs certain medications like dopamine are not available at some district hospitals. Although participants admitted later that they could get a potassium value from the lab if they requested it, they just did not know to ask for it.

*“...I didn’t see a patient with such symptoms... we didn’t cover the topic even when I was at school.”*

*“...we see many patient with shock but different; we don’t have dopamine at my district.”*

*“...sometimes at the district hospital we people are not commonly fitted in using electrolytes.”*

Participants fairly uniformly agreed that the pre-test was very difficult, and the post-test was much easier after reading through the guidelines. This is confirmed by the quantitative results, which show significant improvement in scores.

*“The pre-test was good because it makes me think how much I need the guidelines.”*

In general, participants felt the guidelines were easy to read. They felt, however, that they might be too long or cumbersome to reference while taking care of a patient in real time. Some were in agreement that two versions, a shorter, pocket version and a longer, complete version would be best.

*“It’s better to prepare two books: a big one if you wanted to consult more and a small which can be a pocket one.”*

Other ideas that emerged included a color-coding of the subjects for easy reference, and an online version that could be downloaded (likely free from iTunes or Apple).

*“And then on the edge you can put some colors depending on the subject.”*

*“We said it should be online, but I think it can even be download so that... on tablet it is possible to use to help us... You download and can use it at home. You can use it everywhere.”*

There were mixed opinions on whether additional training would be necessary to utilize the guidelines. Some said it wouldn’t be possible to train everyone, and the guidelines were sufficient. Others felt the training was necessary.

*“I think the guidelines are one thing and the training is another thing. Both are important. It is better to have one rather than nothing.”*

*“It is more better to have all of them.”*

One question on the exam required physicians to calculate a dopamine drip. It was intentionally the most difficult question. Most were able to answer the question correctly using the guidelines, but nearly all participants admitted they were never trained to appropriately use the drug although they prescribe it for patients.

*“...the dopamine injection; I mostly fear it.”*

It was off the topic of improving the guidelines, but some participants started to mention that better care was possible if there was a better referral/transfer system in place and if they had more training and equipment.

*“I write a transfer... He gives appointment of six months... I think that probably he (the patient) will die even before that time.”*

*“We identify their problem but at the level of referral it is a problem.”*

The quotations from the focus group interview support the themes derived from coding the script. The general practitioners were supportive of the guidelines and felt they would add value to their daily clinical practice. This qualitative data was further supported by a significant increase in the number of clinical questions answered correctly when with clinicians used the guidelines to answer emergency medicine questions.

## Limitations to the Study

### Limitations

- Small sample size
- Single day of data collection
- Focus group moderator training
- Number of topics covered on pre- and post-test
- Clinical relevance of topics covered on pre- and post-test
- Cross-cultural differences between moderator and participants
- Possible language barrier
- Possible bias in participant selection
- Possible ethical concerns on reciprocity and per diem

This study had several limitations to consider. The study sample size was small with only 10 physicians completing the pre- and post-test and 12 physicians participating in the focus interview session. There was only a single day to gather information from participants and physicians. The results would have been more robust with multiple days of similar sessions and multiple focus groups. Likewise, the moderator of the focus groups did complete a class in qualitative research, but was not otherwise formally trained in leading focus group interview sessions. Additional information and themes may be available with better question prep and coding.

Due to time constraints, the pre- and post-test only asked questions on 3-4 topics. While there were multiple versions of the exam to obtain the most amount of information, the quantitative data would benefit from a larger number of overall topics covered and questions on the exam. Similarly, the pre- and post-test were designed to closely mimic questions that would need to be answered to take care of patients in a hospital, but they are no substitute for actual clinical decision-making. A paper exam cannot replace the decisions a physician makes when faced with a critical patient in the bed in front of him or her. One possible solution would be to do a simulation session with a mannequin to

better mimic clinical decision-making. Another solution would be to observe the physicians in their home districts while managing critically ill patients with the emergency medicine guidelines available. If this study were repeated, additional input should be obtained from Rwandan practitioners on what topics are most commonly encountered in the district setting.

There are cross-cultural differences to consider in the situation where a Westerner (the author) interviews or moderates a focus group from another culture and country (the Rwandan physicians). One must consider basic language differences. Rwanda was a French-speaking country until the official language changed in 2008. Given this interview occurred in 2015, only well educated Rwandans, people who reside in urban areas and communicate often with foreigners, or people who have traveled outside of Rwanda speak English fluently. There are also differing norms and values between cultures. This proved a constant problem in setting up the Emergency Ward, but in the context of a focus interview group, one has to wonder if the all male physician participants acted differently when a young, Caucasian female physician was leading the session and teaching. Also, none of these Rwandan physicians had ever heard of a focus interview group before. This practice was not a part of Rwandan culture. It may have skewed participation. These potential cultural issues were handled as best as possible. The moderator was not new to the country. She lived and worked there for nearly one year and was familiar with many of the cultural norms. While the moderator spoke only in English, she was familiar enough with the culture to speak slowly and enunciate well to be understood.

Ethical considerations include informed consent of the participants and confidentiality, along with reciprocity. The moderator struggled with whether the interviewees should be compensated. All participants were given a one-page document at the start of the day explaining the purpose of the event, how the information would be used, and how confidentiality would be handled. They were given the option to not participate if they were uncomfortable with the process. All quantitative data (pre- and post-test scores and surveys) was left anonymous. Each participant randomly chose a letter of the alphabet and used that letter throughout the morning. The details of the focus interview group could not be kept confidential, but the information obtained and reported to the Ministry of Health did not include any names of the participants. A copy of the consent can be found in the appendix.

Reciprocity and per diems remain a delicate issue in Rwanda. Rumor (this information is widely discussed, but cannot be found in literature) has it that when the World Health Organization started doing international training programs and education seminars in the early 1990s, they could not get large audience participation from locals in Rwanda. Therefore, they began offering relatively large per diems for people to attend sessions. During our time working in Rwanda, it was established that any participant of an education session was paid, not only for travel and food, but also a salary for attending. The per diems varied, but were sometimes equivalent to a week's worth of pay. As a result of this system, managers would choose employees to attend sessions based on favors and merit (since the employee would be paid well) not based on who would benefit from the education session. For example, a urologist could be found at a maternal health session if it was his "turn" to attend a seminar. Given this context, the author felt it

was important to *not* pay the local Rwandan physicians to attend the focus interview session. This was to assure that attendees were interested in the subject and there for the continuing education credits, rather than the money, and were as randomly chosen as possible. Travel and lunch was still provided so the day was not cost-prohibitive.

Despite these limitations, the study used both quantitative and qualitative results to confirm that Rwandan general practitioners could benefit from a standard set of clinical guidelines in emergency medicine.

## **Conclusions, Implications and Recommendations**

The country of Rwanda has a long way to go in the transition from their current healthcare system led by general practitioners with limited training to the one it envisions in 2020. The efforts shown by the Ministry of Health with collaboration between SidHARTE and the Human Resources for Health program demonstrate an eagerness to realistically reach the goals of updated infrastructure, trained Rwandan specialists, and better healthcare management. Emergency medicine, in just three short years, has transitioned from a ward of languishing dead bodies set for the morgue to a functioning triage system. Physician training is at the heart of the improvements, but change takes time. The first residency program will graduate eight physicians in 2017 with an additional eight following each year thereafter. Even that goal is contingent upon the Ministry of Health redoubling efforts and continuing funding after the HRH program ends. Until a sufficient workforce consisting of Rwandan emergency medicine specialists can train up the rest of the country's physicians, the local population of sick and critically ill patients is not receiving optimal care at the district level.

A basic guideline in emergency medicine care is not the complete answer to the country's problem, but it is a step in the right direction. It may fill a small, but critical gap in the knowledge base of the local population. The guidelines also serve as an example of how future specialists can work to standardize emergency care. They allow Rwandans to recognize when critical laboratory, imaging, and medications are lacking within the country's system so they can lobby for critical supplies. Finally, the guidelines secondarily point to holes in current research within Rwanda or the African continent.

The guidelines were approved by the Ministry of Health for publication in April 2016. The government has announced that it will print a hard cover of a shorter, edited version of the guidelines and make the full length copy available online for it's physicians. However, it is still not clear the full effort, time, and money that the Ministry of Health will put into introduction of the guidelines. Will they make a formal announcement of the guidelines without media attention? Will they pay for a hard copy for every physician or every hospital? What happens if the copy is stolen or goes missing? Will it be replaced? Will money and efforts be spent advertising the utility of the guidelines to encourage their use? Given that the majority of Rwandan general practitioners have no formal training in emergency medicine (some may not have even heard of the specialty!), why would a Rwandan physician adopt this practice style of critical, timely care? These are all questions left on the table during the publication of this thesis.

Hence the purpose of the quantitative and qualitative information gathered here- it is our hope that the Ministry of Health will accept the emergency medicine guidelines and adopt the text as standard practice within their healthcare system. The quantitative and qualitative work done thus far demonstrates that general practitioners have a better understanding of emergency medicine when referencing the guidelines. Despite their limitations, the guidelines have been met with general approval by young physicians seeing patients in the district hospitals. In fact, the guidelines have elicited further excitement about future training programs in the topic of emergency medicine and critical care.

The future of the emergency medicine guidelines and their application within the country of Rwanda lies in the hands of the Ministry of Health. SidHARTE and HRH still operate within the country, but the 2020 exit date draws near. If approved and distributed, the guidelines will require continual updates and future editions as the medicine, research, and equipment available to physicians changes within Rwanda.

Several important lessons were learned from this thesis project. If testing of these or other guidelines occurs in the future, the moderator can benefit from these lessons and improve data outcomes.

### **Final Thoughts**

As emergency medicine and other specialties continue to grow and develop within Rwanda, there exists a strong possibility for either updating current guidelines or authorship of new guidelines. Testing of the guidelines, as was demonstrated with this project, offer validity to the work and essential critiques to improve ease of use. Testing of guidelines, with input from the physicians who will use them, should be completed when ever possible. Much can be learned on how to develop that testing based off lessons learned from this thesis project.

Design of the tests is critical for optimal results. While the pre- and post-tests were designed to optimize the amount and variety of content tested, they were not designed with the input of a Rwandan physician. Future tests should coordinate with a Rwandan emergency medicine resident on topic choices. Similarly, the focus interview session should be run with a Rwandan physician as co-moderator to promote

participation from practitioners and eliminate cultural differences and bias. Ultimately, the Ministry of Health may wish to institute training of Rwandan moderators to conduct focus interview sessions in the future. If possible, a larger sample size of practitioners would yield more information on guideline improvement. Try to run multiple days of testing with multiple groups of physicians. Be sure to include physicians from a majority of the district hospitals, where possible. Finally, try to include some aspect of clinical observation or testing with a simulation model for more realistic qualitative data on guideline use.

The work of emergency medicine within Rwanda is just beginning. The clinical guidelines offer a bridge in the gap of medical specialty knowledge that currently exists. It does not replace the education and training that Rwandan physicians lack, but it does offer a reference point when a critically ill patient arrives to the district hospital. While quantitative and qualitative data has shown a benefit for the general practitioners using the guidelines, it is the people of Rwanda, the patients, who will ultimately benefit.

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## Appendix

### APPLICATION FOR CPD COURSE ACCREDITATION

#### Notice:

- ✚ Before conducting *Category I CPD activity*, accredited CPD provider should apply for the Course accreditation.
- ✚ Completed forms should be sent to Rwanda Medical and Dental Council Secretariat/CPD office or email it to info@rmdc.rw copy vuguziga@gmail.com

#### 1. Course information

Course Name: Emergency Medicine and Resuscitation Evaluation and Training		
Start Date: May 28 <sup>th</sup> , 2015	End Date: May 28 <sup>th</sup> , 2015	
Start time: 10am	End time: 5pm	
Venue / Location: CHUK A&E Conference Room		
Fee(s) to be charged to the delegates: free to attend		
Number of hours (excluding break times): 6hr		
CPD Provider and provider No:		
Course facilitator (s): Nicole Braxley, MD; Dr. Isaie Nzeyimana		
Course organizer: Nicole Braxley	Contact	E-mail:
Contact Tel No: 0784018124		

#### 2. Course purpose, objectives, teaching and evaluation methodology and

Please provide details of **primary purpose** of event:

There are two primary purposes to the event:

1. At the request of the Ministry of Health, we are currently writing Rwanda's first guidelines to Emergency Medicine. During the first half of the CPD course, the providers will "test" and evaluate the guidelines. They will help us to know if the guidelines are easy to follow, helpful in their practice, and will be given time to make recommendations to improve the guidelines. Participants will be given a copy of the draft guidelines to take with them back to the district to help improve

their practice.

2. The second half of the course will include a lecture and skills station for providers to learn the basics in emergency medicine and resuscitation of a patient.

Please list the **Learning Objectives** for the event below. The objectives should reflect measurable learning contents and be relevant to the target audience:

By the end of the day, course participants will be able to:

- Understand the basic tenants of emergency care, including the ABCs of resuscitation (Airway, Breathing, and Circulation)
- Understand how to assess a patient's airway and what interventions can be done at the district level (chin lift, jaw thrust, oral airway insertion, bag valve mask, foreign body removal) to open or protect the airway.
- Understand how to assess a patient's breathing ability and what interventions can be done at the district level (oxygen supplementation, types of oxygen delivery masks, needle decompression)
- Understand how to assess a patient's circulation and what interventions can be done at the district level (correct IV insertion, appropriate fluid bolus, control of external hemorrhage, chest compressions)
- Understand how to assess disability (GCS, mental status), perform full exposure of patient (undressing, log roll), and other life-saving primary tests (pregnancy test on females, FAST ultrasound, glycemia)

Which **teaching methods** will be used? (e.g. lectures / small group work / role-play / observation of procedural skills / discussion)

We will begin with a lecture covering the ABCs of resuscitation and will break three different times during the lecture to practice skills taught.

Example: After learning how to assess the airway and how to protect a patient's airway, we will break into groups and practice jaw thrust/chin lift maneuvers, bag valve mask,

insertion of oral airway, and Heimlich maneuvers on mannequins.

There will be time for questions and discussions during and after sessions.

How will the educational content of the event be **evaluated** by participants?

Participants will complete a survey after the course assessing instructor's teaching ability, whether the content learned was valuable, and if there are recommendations for improvement for future courses.

### **3. Target Audience**

Please specify the audience for whom the event is meant (in details)

The Emergency Medicine Clinical Guidelines book is specifically written for general practitioners (GPs) who practice in the district level hospital seeing acutely presenting patients. The majority of practitioners will never have received training in emergency medicine previous to this course. A few of the participants will be currently practicing in the CHUK A&E at the GP level, but also have not yet received emergency medicine training. The training course will be offered to all current GPs practicing at the district level.

## Example of Participant Pre- and Post-Test

### TEST ONE

ID Number \_\_\_\_\_

#### Eye Trauma

1. List the important parts of the eye exam when evaluating a patient who presents with eye trauma (at least three things).
2. List **four** eye emergencies which must NOT be missed when examining a patient with eye injury.
3. Your patient who presented with eye trauma has eye pain, decreasing vision, and proptosis. You suspect the patient has a ruptured globe. Which of the following treatments is INCORRECT?
  - a. Elevate the head of the bed
  - b. Give IV antibiotics
  - c. Manipulate the eye so that it is pushed back into place
  - d. Immediate referral to ophthalmology

#### Cardiogenic Shock

1. How do you know when to suspect cardiogenic shock in a patient? Is low blood pressure enough to diagnose shock? What other symptoms should you be looking for on physical exam?
2. What bedside exam is very useful for diagnosing patients with cardiogenic shock?
  - a. EKG machine
  - b. Ultrasound machine
  - c. Portable chest XR machine
  - d. Blood pressure monitor
3. A. What is the difference between a patient with cardiogenic shock due to low ejection fraction or valvular problem compared to a patient with cardiogenic shock due to mitral stenosis?  
B. How does the management of these two types of patients vary?
4. You determine that your patient is in cardiogenic shock and needs a dopamine infusion to maintain a good blood pressure. You want to start the infusion at 5mcg/kg/min in a 70kg patient.
  - a. How will you mix the infusion?

- b. How will your nurse know how fast the infusion is going? What will your nursing orders be?

### Thrombocytopenias

1. What is the difference in presentation (signs and symptoms) of a patient with thrombocytopenia due to ITP (Idiopathic Thrombocytic Purpura) and DIC (Disseminated Intravascular Coagulation)?
2. Which of the following are indications to transfuse platelets?
  - a. Platelets <10,000 without active bleeding
  - b. Platelets <30,000 without active bleeding
  - c. Platelets <50,000 with active bleeding
  - d. Both a and c
3. Dialysis is a newly available treatment option for patients that are referred to CHUK. In which of the following coagulopathies might you refer a patient who is not getting better for possible dialysis?
  - a. TTP (Thrombotic Thrombocytopenic Purpura)
  - b. Hemophilia
  - c. ITP (Idiopathic Thrombocytic Purpura)
  - d. DIC (Disseminated Intravascular Coagulation)

## Focus Interview Questions

1. How were the tests? You took a pre-test where you had no guidelines then you had some guidelines in front of you and you took a post-test. What did you think?

(open-ended question, seeking general opinions)

2. Overall, did you feel the guidelines were easy to read and understand? Did you think that some of the English was too complicated? Some of the descriptions were not really helpful? The formatting? If you can try to comment on, on sort of how easy it is to look through the guidelines and find your answers?

(more directed question about formatting)

3. Would you say that most of you are seeing these types of patients? Which topics did you have on your exam and do you see patients with those conditions?

(more directed question about topic choices)

4. Will the guidelines be useful without additional training courses to go along with them?

(more directed question about usefulness)

4. How was calculating the dopamine drip? That was intentionally the most difficult concept and I'm wondering if you didn't receive any additional training on it, was the guideline enough? Were the instructions on paper enough?

(more directed question about complicated explanations)

5. How will your practice change after seeing the guidelines?

(open-ended question on usefulness)

6. Any comments to close? Any thing you liked or didn't like that we already talked about?

(open-ended question to close for final comments)

## Focus Interview Transcript

N: Alright guys so, my first question for you guys to discuss is very general. How were the tests? You took a pre-test where you had no guidelines then you had some guidelines in front of you and you took a post test. What did you think?

Olivier: Thank you, I think for me, the pre-test was somehow challenging because there was something new. But when I took the guidelines I had to check and I found something so that if I knew that. It would be, if I had the guidelines with those some points, I can just use it for in some places. With guidelines it is helpful for our daily activities I suppose

N: Great Great.

Isaie: For me, the topics we had, let's start with alcohol withdrawal, I didn't see a patient with such symptoms.

N: You've never seen an alcohol withdrawal patient? Okay.

Isaie: Even the questions they were even complicated for me. As I didn't see the patient and

N: Sure

Isaie: We didn't cover the topic even when I was at school

N: Sure, sure

Isaie: And the other topic like shock, see, we see many patient with shock but different, we don't have dopamine at my district

N: At your district, okay, okay. So can I ask did others feel the same that they had a topic where they never saw a case like that before?

Isaie: Yes.

N: Okay, you agree. Which topic was yours?

Audace: Hyperkalemia

N: Hyperkalemia, do you have potassium labs at district hospital?

Audace: Even labs, no. sometimes yes we have. And other times they say we don't have urgency

N: sure not available

Not available

It's not a test we do like all the time

N: commonly. Okay. Anyone else?

I think the topic was related to our daily job but sometimes at the district hospital we. People are not commonly fitted in using electrolytes

N: mm hmm

And our lab doesn't ask the urgent because we doctors we don't ask those examination. Those lab exam. Also, I think it was better to understand something like a syncope like alcohol withdrawal. We don't really take much time to try to dispose the patient. So it's better if there is some guideline because if we meet such case maybe we don't manage in a way that is appropriate in an appropriate way

N: mm hmm

It's better to have the guideline for those cases.

N: okay

He's right. Because like for hyperkalemia as we have been saying. I've probably had a patient with that but on exam: diarrhea and vomiting surely I will not ask for potassium.

N: sure

So anything else is probably what happened.

N: Okay. Please

For me I was quite lucky because my subject was about a most common case I face in this hospital.

N: good

So I can talk about eye trauma

N: okay

So it a very prevalent situation we can face in the hospital. I also had a question about shock.

N: mm hmm

We have such cases. But we are not very comfortable how to treat them.

N: mmm hmmm

Especially, hmm, adolescent shock.

N: Sure

Ugh, others were about thrombocytopenia and DIC. I think that are common things we have in the district hospital

N: ugh huh, yeah.

So, I was not very comfortable filling the questionnaire when doing the test. But when with the guidelines it was

N: a little better?

Easier

N: good good

For me, it was. I had a question on ultramap. \*\*\*\*\* And this was put out

N: you have an eye unit?

I never meet those patients

- N:           ugh huh, I think one unit per district  
               Yeah
- N:           they have. So, okay.  
               Other topics were common. I've seen many patients but it was not easy to manage them.
- N:           okay  
               After that guidelines  
               I just wanted to ask about one thing he said.
- N:           uh huh  
               We had a patient once. He had a head trauma
- N:           uh huh  
               He fell from a truck
- N:           uh huh  
               So because he was having um, hematoma. We were thinking about \*\*\*\*\* fracture. He had a big edema but when the edema subside, the patient said he was not about to see.
- N:           ugh  
               So, sometimes, we can even have such patients that fell to have a clear diagnosis and to send them from probably to the eye clinic. It can sometimes make confusion because sometimes I. \*\*\* that's it
- N:           Charles or Joseph? Any comments about for your posttest or what you see in clinical practice and how it compares.  
               For me, the pre-test was hard. This time after I had guidelines, it was easier. What I would like to comment is from \*\*\*\*\* For us, at district it's not easy to differentiate those things you say because we don't have to do \*\*\*\*\* entry??
- N:           Yes.  
               And then, another things is that it's hard to get platelets
- N:           even if you need to transfuse, you don't have them  
               Yeah
- N:           yeah  
               I will.
- N:           Please  
               And the other thing, for me, also the pre-test was difficult. And for them guidelines we saw with them it is easy.
- N:           uh huh  
               So, I think that probably for right diagnosing, the guidelines will help us in our daily practice.
- N:           good  
               And we will not jump on the that we used to jump on because we were not aware of such patients
- N:           great Thank you joseph  
               Actually I wanted to say that the pre-test was good because it makes me think how much I need guidelines.
- N:           sure, \*laughing\*

Because we had other guidelines for other departments: the \*\*\*ology, mental health, neurology

N: uh huh

And there it is quite well when a patient comes and an idea comes in the mind and you start to open up some windows to find out something of the patient

N: sure, sure

It was good to do pre-test and see how much it was difficult for me to \*\*\* the conditions and with the post-data and guidelines it was easier

N: good

When I think about that I have something and I have a document to refer

N: good, good. Do you guys mind if I ask another question? Overall, did you feel the guidelines were easy to read and understand? Did you think that some of the English was too complicated? Some of the descriptions were not really helpful? The formatting? If you can try to comment on, on sort of how easy it is to look through the guidelines and find your answers? Valence?

Valence The English was understandable and the content was easy to understand.

N: It was good?

Right, there were some, for example, examination that could not be done at this hospital.

N: Yes, that is true. The challenge lies that different districts have different capabilities. Like you have an eye center but not everyone has an eye center at their place. Um, I bet you Gavin has quite a few more drugs at his hospital than some of the other district hospitals. So yeah, I agree. Please?

Yes, we felt this was a small part of what you are talking.

N: yeah

I think with a complete version we would have 350 I don't recall patients. I do not think it would be very easy to read or to consult

N: yeah.

While you are in the practice as a doctor.

N: Yeah, yeah. How to consult. Sure

I do not know how you think how you are planning to print out the document.

N: uh huh

If it will be a whole book with a big

N: That's a great question.

Or maybe a small paper like this one.

N: So tell me what you prefer. If you could print the book however you wanted to print it. What would?

I think. It's better to prepare two books: a big one if you wanted to consult more and a small which can be a pocket one

N: pocket.

And you can consult it quickly

Pocket is better. Another comment: I don't know if, I do know I think that with the spread of smart phones like this. I don't think if we have a soft copy

N: online.

They are easier to consult

N: uh huh. Uh huh

While you are typing your work and you have the whole thing to consult

N: It's a great idea.

The other comment is wondering where you were using the example of using brothlimide\*\*\*\*dopamide?

N: uh huh

There has been really big challenge for me to use dopamine while I need to. I don't know if you know if those like districts who as just an example we need just to prepare those 400. Ugh, I was really confused.

N: We are going to come back to that. Yes, we are going to come back to that question. It is a very good point. August or Valence, did you want to say something about preparation of the book.

Yeah, for the book I think. If it's a big one, the purpose would be if it's big but can fit in the pocket.

And then on the edge you can put some colors depending on the subject

N: OH, that's good

So that when you are needing to consult the list

N: uh huh, uh huh

Where it is, maybe shock could be in red. You just put the red and then it's easier to handle

N: great

Big, I think it can be clear.

N: okay

Umm,

N: please

The online version. We said it should be online

N: uh hmm

But I think it can even be downloaded so that

N: uh hmm

Because in front on tablet it is possible to use

N: Sure, no problem.

To help us

N: And I did ask this question I think on your surveys, if many of you access the internet while you are at work because I think that make a big difference. Obviously, to print is expensive but to put it online is less.

But online it is quite

N: Yeah, it's not as easy to refer to

Yes, but if it is to download. You download and can use it at home

N: uh huh, uh huh

You can use it everywhere

N: yeah

You have time to read\*\*\*

For me I think it's better to have something which is summarized. You can load in our daily work room because sometimes we can tell in us do this. \*\*\*\*\* And it's better, it's made in neonatology or visitation in \*\*\*ology. It's something which is

N: sure

And we can immediately predict while there is low

N: refer to it

No computer, no smart phone

N: yeah, yeah,

It's not a good way, when you are treating a patient and you are reading.

N: Yes, yes. Well, I know you feel embarrassed but that is part of being a doctor is to be humble. Is to say ooh, I'm not sure about this one. You can ask my residents I'm always pulling out my phones and saying "one minute". I will answer you in just one second.

Hah, laughing

N: What about, Isaei and theophille, did you feel the guidelines were easy to understand or a little bit complicated? Tell me what you thought of them.

Yes, easy to

N: yeah

Only you can, the pages. I think when you make small books it will look like other clinical guidelines like the ministry.

N: Yes, and ideally it will look just like the other guidelines in the small booklet form.

Yeah, so I think that the guidelines are understandable but I have a question.

N: uh huh

And on it, on. It would be better if your book. The emergencies are connected to the treatments. So like, given \*\*\*\*\* emergencies are paired to

N: Umm, t

I think it will be

N: Tell me a little more what you mean. So you mean, in the book?

So, pediatric emergencies

N: so the chapters are divided or?

By departments?

N: Yes, yes. And I apologize I did not share. I should have shared the full table of contents. I think that would have been very useful for today. Um, the table of contents are divided by system. So, chapter one is just what you have in front of you. And then there is a respiratory chapter. And there are so many things in respiratory. Umm,

there is the approach to shortness of breath, pulmonary edema, pneumothorax, pleural effusion, pneumonia. Then there's cardiology: cardiogenic shock, chest pain, heart attack, bradycardia, tachycardia, and then there is. What else? ENT: ear nose and throat. Ophthalmology. Dermatology, Umm. Infectious disease. It goes on and on. If the, if the topic was covered in a recent guideline, I did not include it again. So like, obstetrics, emergency delivery. I didn't include it again because they just wrote guidelines in 2012. So you know.

Yes.

N: Please, Bernard?

Bernard: Things I can add is ugh, umm. Let's see the information, so um, at some districts we have some um for example pump injection which we are not using because any physician is trained to use that. It's better if you go you because it is international you must miss some drug or material because we haven't. Because in our some district hospital in our stock some products

N: uh hmm

Which are not used because we don't

N: know about it?

Know it. It's better to focus on what we have but also put others.

N: And I tried to do that. So we used the Rwandan essential medicines list as an initial guideline for what medicines should be in the district. Our district, our experience at CHUK is that even if the medicine is on the list it doesn't necessarily mean that you have it. So we tried to give many options. First line drug, blank, second line drug, blank. So that if you don't have one of the first ones there is something on the list that you have. But I mean it's going to be difficult, I mean there will be drugs that some people don't have dopamine, some people do. Some people have um different pressors that are not listed in the book. There's another a group trying to do a needs assessment to determine what medicines you have but it is. It is a challenge so it's a good comment.

Umm, we, we discussed this briefly and maybe there's just another comment on it or not but compared to what you say in the guidelines, um, would you say that most of you are seeing these types of patients? I know a few of you commented but maybe like JMV or Charles maybe Joseph. Which topics do you have and do you see patients with those conditions?

Me, I have patients with tachycardia

N: uh hmm,

And I saw such places\*\*\*\*\*

Because we don't have means to investigate

N: So you don't have the potassium reagent?

Yeah

N: to do the lab, okay. So it's a little difficult. What about you Charles?

I had the case of eye trauma.

N: uh huh

But as said, I have center

N: You also have a center, okay.

Another one is shock

N: uh huh, I think that one all of us see. Often, yeah?  
Yeah`

N: patients in shock  
That said, the initial investigation you said is ultrasound.

N: if you have it.  
But you

N: right, yeah, yeah that. I wanted to include ultrasound because if you have it, it's amazingly useful. But I know there is only very few districts that have it.  
But you can have it and don't know how to use it.

N: Yeahhh, that's a good point. Do you have one at your place?  
Yes, yes, we have

N: Yeah, but you are not trained in it.  
No

N: yeah,  
But, I'm telling you. We have too many.  
\*\*\*\*\*

N: Okay, okay.  
They are there.  
So you think \*\*\*\*\*  
Laughing

N: That's a good point. What about you JMV?

JMV: okay, for me, I almost face all of these patients who is in this category. The patient with hyperkalemia. Most case. The case I first face with it. In the case... disease. There are most in our hospital. We have a big number of chronic kidney disease

N: uh huh  
Even, the cardiogenic shock. They die before they come to me

N: yeah,  
I have also many patient with this condition sometimes I have a challenge with this performing as the way you have said.

N: yeah  
Sometimes the dopamine injection, I mostly fear it.

N: uh huh. And this kind of gets into my next question. When I was drafting these guidelines I met with Rwandan specialists to share with them the topics. So for example, I met with Ear Nose and Throat. And I met with Ophthalmology and a couple more and what they all side was "these guidelines will not be helpful unless you offer training courses to go with them." So what do you think about that statement?  
Agree, disagree, maybe?  
Muttering "Strong agree" \*\*\*\*\*

N: Go ahead  
I think for me, if you put this training for this versions. It will not be easy to train all

N: sure, sure, there's a lot.

Because it, the timing but if those versions (programs?) are developed everybody can. For us, for example, as I did the post test, we used it, but if there was training for it

N: uh huh, uh huh

If it is made so that we can consult it easily, I think the training will not be necessary.

N: Okay

It will depend on how the guideline is developed.

N: Okay

And you can say if they meet any confusion just you can consult it with you.

N: uh huh, okay

So with the training, I don't agree with it

N: okay

I don't agree with the training because I think um, I am supposed to take everything in my brain of the specialist and then if I have the training for the emergency, would I have another one for the OB GYN and another one for internal medicine.

N: right

I would not be able. So I think, the ideal would be to make it easier to consult so that I can use it in daily life. But, I don't see why I would need other training

N: Okay, other comments?

I think the guidelines are one thing and the training is another thing.

N: Okay

Both are important. It is better to have one rather than nothing.

Laughs

N: Sure

It's even more better to have all of them.

N: uh huh

So may be very amazing

N: uh huh

That's my comment. If the training is there, it's fine, even good. But if it is not there, it is not the plan, it is okay. \*\*\*\*\*

N: Yeah, good. Thank you.

I think we don't need to do training for everything but there are

N: uh huh

Some parts, some areas of expertise

N: uh huh

Like umm, ABCD. So, registration\*\*\*\*\*?

N: uh huh

So I think just reading will be enough

N: Sure

So you need fixes just to prove. Because if you have such case, then they'll never have the time to go and read

- N: Sure  
So you have to do it SCANATIVELY?
- N: uh huh  
So to do would be, I think, would be helpful and would be good for some special subjects.
- N: okay, great. So what do you think Gavin? We haven't heard from you.  
Gavin: Well, I have been listening so. Everything will need some trainings. I don't think you can just assume that this is enough. It's not a skill that we learn. All these things are online. We have this`\*\*\*\*\* You don't need to go through the whole thing but you need to at least have how do you approach the basic question. That's a skill that \*\*\*\*\*
- N: Okay, JMV?
- JMV: I'm not sure if there is something that I saw on \*\*\*\*\* It's where they say if you suspect malaria, treat it. According to national guidelines, they
- N: they won't let you treat unless it's confirmed  
treatment of malaria without propharma
- N: uh huhuh huh  
It will be a punishment for you for that
- N: okay  
Laughs  
So, I think that if it is possible to negotiate with that guide, to be flexible
- N: sure  
Sometimes
- N: okay  
Otherwise, it will be hard for us
- N: Okay, it's a point well taken

Yeah, another thing maybe for me I'm looking from emergency medicine perspective is there is something that is being I think that is what we are talking about and there is what is ideal. So just like, someone shared that we should get guidelines from obstetrics, internal medicine, I forget what you want. Because the traditional way is that we have internal medicine, emergency, obstetric emergency, but that's now how we do it. It's we have outpatients or emergencies and then we operate them and then we send them eventually to the department where we. So this other thing, when I suspect meningitis for example, I don't treat only with ceftraxone, anti-viral???. I have to cover and let someone read\*\*\*\*\* eventually, we \*\*\*\*\*88 So that's a different approach. There's a way were taught and there's a way we should be doing things. So, that's something. That's one of the trainings. That's why it's important also to do these trainings. Because we have progress, and. And why, why do you have to treat malaria and you don't have to \*\*\*\*\* Cover, and then eventually \*\*\*\*\*

N: It's, but, and um, this a point that JMV brought up that we struggle with often throughout the guidelines is there are Rwandan National Guidelines for certain things and for example there are the malaria guidelines. Um, and sometimes what we do in Emergency Medicine is different than what the Rwandan guidelines recommend. So I will, certainly review the points you brought up. You know, it's not going to be perfect. Umm, there might be some discrepancies. Along the way. So I think you have to do what you think is best for the patient. I think it's a good point, different approaches.

N: Um, how was the dopamine drip?  
What?

N: Calculating the dopamine drip? That was the, purposefully, I felt that was the most difficult question. And I think it's a really difficult concept and I'm wondering if, again, you didn't receive a training. You just have this piece of paper in front of you that gives you instructions. Was it enough? Do you need more? I mean. This is, this is, a very good example of , you are not going to have trainings in calculating these drips and I try to provide what I think is the easiest system out there. But is it useful? Not useful? What do you think?

I think.

Me, I think, \*\*\* dopamine, even other drugs which needs to be, that we need

N: The infusions

The infusions, uh, I think the only way to know the dose we are giving in a minute or in an hour

N: uh huh

And you, you see on the board which concentration is in

N: uh huh

Where do we get the difficulties when you document because if they give you 10 mg it will be it will be running 2 hours, you have to dilute and then you know which

N: uh huh uh huh

Even others, figuring out those drugs

N: yeah, adrenaline and yeah there's many

Go\*\*\*\*

I think we really need training on those pumping injection

N: Yeah, infusions

We use. For example in our stock I found more than 10 pump injection. But no one can use those injections

N: Yeah,

Unless sometime when an anesthesiologist but also when he goes to use it he has a fear.

N: uh huh

So I think it is better to be familiar with those instruments

N: Did, were you guys able to understand that the way that this is explained, you actually do not need an infusion pump?

Yeses.

N: You guys got that. That you are literally, you know the giving set, you are literally watching, you are counting the drops so

Yes, yes

N: Right,  
\*\*\*\*\*mumbles

N: Any other comments about the dopamine drip? I just want to. Should I keep it?

Yes

N: yeah

N: Anyone disagree?

Uh

N: No, it's too complicated?

I felt. My question is. For instance, the uh, here in this particular scenario when you have this man of 70 kilos

N: uh huh

How do you... Actually I do not understand. I was calculating to have this concentration of 400 mg in a liter

N: uh huh uh huh

It would be easier if I had a patient that would meet....

Laughs

N: But the concern. So, why don't we do this? Why don't we do this? As part of our lecture after lunch, how about if I go through the answer to the Dopamine drip with you?

Yes, yeah

N: Let's do that. I'll put it in the lecture and then we can ask questions.

Yes

Okay

N: So, my last specific questions for you guys. Have you seen anything in these very short guidelines that you think might change the way you practice? Something that you learned by reading that you didn't use to do but maybe now you will start to try.

For me definitively, I will take potassium

N: Check potassium, sure.

And also, I was saying if we need it, if we have to the LAB SITUATION also we will request it.

N: good

But they will not request it

N: if you don't ask for it

If we don't ask for it yeah

N: great

N: Anyone else? Please

I will examine each person's eyes

N: to look, good

To see if there is no inflammation\*\* especially if they are having like  
\*\*\*\*\*

N: Good, good

N: Any other, and you can say no. You can say thank you for the guidelines but I don't think I'll change anything.

Laughs, mummies "It is not possible?"

Oh to open the eye and to look

Also, the use of this document

Okay, to try some dopamine drips

And also, here, I saw that in cardiac shock, there is maybe a cause for mitral valvular, problem of stenosis.

N: uh hmm, uh hmm,

There is in some places, we will have this\*\*\*\* And in the other type there is not this information.

N: uh hmm,

I see always, we just give the digoxin, uhn?

N: For the atrial fibrillation?

Yeah, okay

N: that's a whole other topic in the book.

Yeah,

N: How to treat atrial fibrillation with rapid leads

And also, to know that this ultrasound is

N: uh huh

Bedside is there for us

N: is there yeah, yeah

To use

N: It sounds like we all need some more training on the bedside ultrasound for sure, for sure. Yeah. Any other things that you might change in your practice or not change?

Yeah, for me, I bring it to me to make effect to be for patient

For patient that has cardiogenic shock

N: Uh huh

Sometimes when I found a patient with this

N: uh huh

Then he dies in rounds.

N: Yeah, it's hard. We don't want the guidelines to discourage you from sending us and actually most of the chapters want you to refer I think more quickly than you already do. But I mean, we can tell you that at CHUK that many cases come and that literally they are dead on arrival. So, you know part of being a doctor is to recognize when there is nothing else that can be done. It's hard. It's hard to make that call. Anyone else? JMV?

I think it will be better if you have just a special session on these cardiac emergency.

Laughs

N: Yes,  
It is more challenging

N: Yes.  
Even if they are case we see what district hospital. If you try to transfer it, you will just have a counter referral of that case

Laughs

N: Yeah,  
For sure

N: And sometimes that's okay.  
Yes!  
Which is more challenging for to manage it at the district hospital.

N: That's why you are, that is why your referral center is there.  
You need a special just session on just cardiac emergency if it is possible.

N: Okay, alright. And then finally, I just want to ask anything else I missed. Did you have any comments about the guidelines that I did not ask? Is there something specific that you liked or didn't like? Any sort of closing comments to help me to improve it before it goes to ministry of health?

Joseph: What I

N: Please, joseph?

Joseph: What I need to make up is ugh, the burden that you are going to set. Is it the setting in which we are or is it in the university?

N: Say it one more time, the?  
The guidelines that you are making, is it related to the setting in which we are on or is it?

N: The guidelines are supposed to be dedicated to the GP at the district hospital.  
Everywhere or?

N: Everywhere in the country.  
Oh. Okay

N: Uh huh, and again, it's difficult because some hospitals have more than others. Some GPs have more training than others. And the other thing to remember is maybe right now you don't have an ultrasound machine but you might in three years. So the guidelines need to last for many years, so. You know, we try to include some things that you maybe don't have now because you might get them in the future. Like PT and PTT. We really struggled about whether to include coagulation factors because I know most places don't have them. But if you get them in two years, you should know how to use them. Other comments?  
A comment. It is good to have guidelines but it is better if we have facilities in the way of transfer.

N: uh huh  
Let's say like simple \*\*\*\*.  
You see a patient come with pain as a, most of them I want. I will not see a patient on their feet.

N: uh huh  
 He will come he will tell me that he has these episodes of \*\*\*\*\*

N: sure  
 But if I examine it and I see that he need that hand transfer

N: uh huh  
 I write a transfer. Where I think that's safer\*\*\*\*\* He gives  
 appointment of 6 months

N: sure  
 To come after six months.

N: sure  
 I think that probably he will die even before that time.

N: yeah  
 Not even that but even other cases that we see at district hospitals  
 which need to be with a specialist

N: uh huh  
 We don't have that facility. Even patients don't have, are not well managed.

N: uh huh  
 We identify their problem but at the level of referral it is a problem.

N: Yeah  
 So, you probably will discuss with the minister of health it, to be, to facilitate  
 the district hospitals to refer.

N: Okay. Sounds good.  
 Yeah, I had to change my status. I think that before we don't need training but  
 I was

N: uh huh  
 Really wrong because um, as what we are saying, for the ABCs or shock  
 patient we don't have time to consult so I think

N: you need to know it \*\*\*\*\* immediately?  
 Yeah, you need to know it.

N: Yeah  
 As reflexes  
 Okay, okay.  
 For a patient that have DKA

N: D.K.A.?  
 Yeah

N: uh hmm  
 Most of the patients I've seen, they have passed away.

N: Yeah.  
 So like this, and most of them we don't have platelets at the district  
 hospital.

N: You don't have...

Platelets

- N: Uh hmm  
So, I'm, it means they require to be referred so
- N: uh hmm  
Is it be possible refer this patient because all the patients I have seen have died.
- N: So you mean DKA specifically?  
Murmuring, DIC
- N: Oh, DIC, DIC, DIC. Umm, what we try to do with the guidelines is we try to give you parameters specifically for referral. So, umm, I will say that yes, the mortality rate of D.I.C. is very high and it's quite possible that even if you transfer they will die. But, what I want you guys to take away from the guidelines is that there should be a period where you review the patient and you try your best to stabilize them. But if they are not stabilizing, then you should transfer early. So I would rather than, saying, okay, every patient with D.I.C. must go and every patient with syncope must stay in the district. You can't, you can't say everyone. But you must look at the patient individually. So, is the patient tachycardic? Are they hypotensive? Umm, are they making urine? So you know, you are doing these measures and are your measures making their vital signs better? Or no? And my argument is if you are trying to stabilize the patient, and you will learn how to stabilize the patient after lunch, and maybe 24 hours goes by or even 12 and they are not improving. Then you transfer. If you know a patient has platelets has 3 and they are actively bleeding and you don't have platelets, then you must transfer. You know, it just depends on the situation. You know, you can't really say yes every single patient should go or every patient should stay. It's hard. It's not easy. You guys have a very difficult job. Please.
- N: So, wouldn't it be better to bring the whole guidelines,  
uh huh  
So that, ah, so \*\*\*\*\*
- N: uh huh  
So that we may know how
- N: yeah  
And even you know, so, what can you, in your addition to other emergencies that are found in internal medicine and so and so on.
- N: Uh huh. Uh huh  
And I suggest to you to send us an electronic copy
- N: Uh huh  
So that we will send you some comments.
- N: Uh huh, I will ask. I don't know if I can share the whole book before I deliver it to the minister of health. I'm not sure. But I will ask. Umm, but I will tell you that when it does get published, you will at least have an electronic copy. No problem. Umm, and, ah, when we do the lecture, I will pull up the table of contents so you can at least see what all of the chapters are okay? Bernard

Bernard: I have a question of concern of the organization of emergency department of.

N: uh huh

At the level of district, district hospital, in these days, the minister of health, mm, already all starts to give the emergency department

N: Uh huh.

One housed by hospital. But, because physician are not, umm, an Urgency they try to put on those house that it is like an outpatient department or something like that.

N: Sure. Sure.

Laughs

I think it's better also if you can add a chapter or something like that clarifying what must be in an emergency department.

N: That's a great idea.

Yeah.

N: That's a great idea. I can't promise it will happen this iteration. But I will bring it up. I think it's a great idea. Good. Alright guys, well, thank you for that review session. It was very informative. Um, let me turn the recorder off. So...

## Focus Group Interview Notes

### General opinion of the guidelines.

Olivier challenging because it was new but the guidelines are useful and helpful for our daily activities

Isaie Never seen a patient with alcohol, the questions were complicated for me, we didn't cover this topic in school, we do not have dopamine at the district

Audace does not see hyperkalemia, sometimes we do not have labs or it is not available

Bernard we do not ask for those labs, we don't take time to treat patients with alcohol and syncope so we need such case because we do not manage it well or appropriately

I would have never thought to ask for K+ lab for pt with n/v/d

Arnard

We have shock cases but we are not comfortable treating patients

DIC is common for us

The test was hard at first but With the guideline it was a lot easier

We had a patient with head trauma, he had raccoon eyes and was thinking about basilar fracture, when edema subsided ??

Charles

Pretest was hard but when I had guideline it was easier

Thrombocytopenia is not easy to differentiate because we do not have pt or ptt and we cannot transfuse platelets

Joseph

Pretest was difficult but with guideline was more easy

We will use guideline in daily practice

Aimable

Pretest was good because it makes me think how much I need guidelines

How much I need to know about medicine, ophthalmology,

It opens up windows on how to take care of patients

With guidelines the post test was easier and it made me think that I can always refer to the guidelines in the future

### Where the guidelines easy to understand? What about the formatting? Was it easy to find the answers?

Valens

The English and content was understandable but some things cannot be done at district hospitals.

Aimable

It will not be easy to consult if it is 350 pages.  
Will it be a book on large paper like this?

Bernard

Should Prepare 2 books. There should be one pocket for quick consultation and the other more detailed.

Aimable

Maybe a soft copy online so I can find answers more easily

Audace

If big but can fit in pocket that would be best.

Put colors on the side of the page so shock can be red for example and easy to find

Arnard

It should be online and downloadable so we can download it to the tablet.

You can then use it at home and everywhere

Valens

It is not good when you are treating patients and reading

Isaie

When you make small book, it will look like IM guideline

Theophile

It would be better if emergencies are connected to departments. It would be easier if Chapters should be divided by departments. Only 1 or 2 people nodded yes.

Bernard

Pump injection we are not using. We have products that we have but do not use it because we do not know how

**Are most of you seeing these types of patients? Which topics did you have and do you see patients with those conditions?**

Joseph

I think have patients with hyperkalemia but we do not have labs to investigate.

Charles

We have eye patients but have a center. I have seen shock and the primary investigation is listed as ultrasound but we do not have it.

Arnard

Or we have it but are not trained in how to use it. Almost everyone in the room agreed.

JMV

We have many patients with CKD, dopamine injection I fear it

These guidelines will not be helpful unless you offer training courses. Do you agree or disagree.

Olivier – not easy to train so many people with cost and time, also we used the guideline in post test and it was easier so doctors can use it to consult like we did today. Just consult and review the guidelines

Audace

Make it easier to consult so I can use it in daily life. So training will not help

Amiable

It is better to have both but that would be amazing. If there is not training that will be ok

JMV

Training will be good for some special subjects.

Gabin

All of these are online so you don't need to go through the whole thing but general approach to things and just guideline will not help.. so training would help  
Training is so important because we may learn how to treat diseases on paper but the approach may be different clinically.

### **How was calculating the dopamine drip? Was the instructions on paper enough?**

Bernard

We need training on infusions. We have 10 pump injections but nobody knows how to use it.

Everybody understood that there is no pump infusion needed and that you count the drops.

Everyone agreed you should keep the calculation

Aimable

How do you calculate 350 mcg / min with drops ?

### **What will you change in your practice?**

Audace

I will check potassium now. If we do not start ordering it the lab will not request it

Arnard

To open eye to see if there is trauma

Olivier  
Will try dopamine

Valens  
Cardiogenic shock, I transfer and he dies so now I know what to do

You emphasized that you can and should refer but recognize when to treat.

JMV  
Cardiac emergencies are challenging.  
We need special training on cardiac emergencies.

**Do you have any comments? Closing comments? Anything you liked or didn't like?**

Joseph  
Are the guidelines related to our setting or universal? Nicole said it is dedicated to GPs at district hospitals. Maybe you do not have US or PT/ PTT now but you may in the future so we kept these in the guidelines.

Isaie  
Syncope, episodes of LOC, examine and needs transfer, they give appointment to come after 6 months. Patients are not well managed by specialists. Need to facilitate referrals.

Audace  
I said that we do not need training but now I would like to take that back.  
We do need training because we do not have time to consult the guideline when we are treating patients.

Valens  
We do not have platelets. Is it advisable to refer DIC patients?

Theophile  
Send us an electronic copy of the entire draft so we can tell you what is good or not.  
Nicole said she will look into it.

## Copy of Consent for Study

### Consent for Participation in Emergency Medicine Guidelines Development

You are being invited to participate in a research study titled *Development of Clinical Emergency Medicine Guidelines for Rwanda*. This study is being done by *Nicole Braxley, MD* from Emory University and Tim Tan, MD from Columbia University. You were selected to participate in this study because *you are a Rwandan physician that diagnoses and treats patients at the District hospital level*. The purpose of this research study is *to help develop Rwanda's first standardized set of clinical care guidelines for emergency medicine*. It is a book similar to the Ministry of Health's other guidelines, such as Pediatric Emergencies (2012), Internal Medicine (2010), and Obstetrics and Gynecology (2012). *Your participation in the pre and post test of the guidelines will help us to reformat the guidelines to make them easier to read and use*. If you agree to take part in this study, you will be asked to complete a pre and posttest, followed by a brief survey/questionnaire on the last page. We will then meet in a small focus group to talk about ways to improve the guidelines. The pre and post test will ask you questions about taking care of patients presenting to your district hospital with a variety of clinical problems. The following survey/questionnaire will ask about *your opinion of the guidelines and whether you might find them helpful in your clinical practice*. You will have 1.5 hours to take the pre and posttests and to complete the survey questions at the end. You may not directly benefit from this research; however, we hope that your participation in the study may improve emergency and critical care of Rwandan patients all over the country. To the best of our ability your answers in this study will remain confidential. We will minimize any risks to breach of confidentiality by assigning each physician a number. *You will not write your name on the pre test or the posttest, but rather just your number. Your name will not be linked to the test scores in any way*. We will review the answers to the test after everyone has finished, and can report the final scores for each number, if requested, but we will not know your personal scores on the exams.

**Your participation in this study is completely voluntary and you can withdraw at any time. You are free to skip any question you choose.**

**The information obtained from this study will NOT be published in any way. It will be used for internal quality improvement only.**

If you have questions about this project or if you have a research-related problem, you may contact the researcher(s), *Nicole Braxley, MD at 0784018124 or by email at [climbingdoctor@gmail.com](mailto:climbingdoctor@gmail.com)*

By proceeding to the survey/questionnaire on the next page you are indicating that you are at least 18 years old, have read and understood this consent form and agree to participate in this research study. Please keep this page for your records and return the survey/questionnaire to the researchers. Please DO NOT write your name on the survey/questionnaire.

