

# International Emergency Medicine



## EMERGENCY CARE AND REFERRAL AMONG ISOLATED ISLAND POPULATIONS IN THE BAHAMAS

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**Abstract—Background:** Isolated island populations face unique health challenges. In the Bahamas, the islands of Mayaguana, Inagua, Crooked Island, Acklins, and Long Cay—referred to as the MICAL Constituency—are among the most isolated. **Objectives:** Our objective was to better understand regional emergency care needs and capabilities, and determine how emergency care can be optimized among island populations. **Methods:** During the summer of 2013, the project team conducted semi-structured key-informant interviews and small-group discussions among all health care teams in the MICAL region, as well as a community-based household survey on the island of Mayaguana. The interviews and small-group discussions consisted of open-response questions related to health care services, equipment, supplies, medications, and human resources. The community-based survey examined the prevalence of chronic noncommunicable diseases (CNCs) and associated risk factors affecting the inhabitants of the region. **Results:** The average number of annual emergency referrals from each of the MICAL islands was approximately 25–30, and reasons for referrals off-island included chest pain, abdominal pain, trauma, and dysfunctional uterine bleeding. **Traditional prehospital care is not established in the MICAL Constituency. Providers reported feelings of isolation from**

**the distant health system in Nassau. Whereas most clinics have a well-stocked pharmacy of oral medications, diagnostic capabilities are limited. The household survey showed a high prevalence of CNCs and associated risk factors. Conclusion:** Ongoing in-service emergency care training among MICAL providers is needed. Additional equipment could significantly improve emergency care capabilities, specifically, equipment to manage chest pain, fractures, and other trauma. Community-based preventive services and education could improve the overall health of the island populations. © 2015 Elsevier Inc.

**Keywords—**emergency medicine; emergency referral; island populations; isolated populations; Bahamas

## INTRODUCTION

### *Background and Importance*

Island populations face unique health care challenges. Because they are often hundreds of miles from an urban center and established hospital services, providing island populations with quality care can be difficult. Isolation and a lack of infrastructure, human resources, and effective communications are common challenges (1–4).

In the Bahamas, in particular, isolation and a limited number of facilities and providers affect the quality of health care. Across the over 700 islands that make up

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the Bahamas, health services, most significantly, are established centrally in the capital, Nassau, on the island of New Providence. Other island communities are typically served by resource-constrained health clinics and must rely heavily on off-island referrals for advanced care. Within the Bahamas, there are only 41.4 nurses and midwives for every 10,000 residents, compared to the regional average in the Americas of 71.5 (5). Additionally, with an aging population and changes in lifestyles, chronic noncommunicable diseases (CNCDs) such as obesity, hypertension, and diabetes pose an increasing challenge for the islands, accounting for 72% of all deaths (6).

The five islands—Mayaguana, Inagua, Crooked Island, Acklins, and Long Cay (MICAL)—in the southeastern part of the Bahamas island chain, make up what is known as the MICAL Constituency and are among the most remote islands in the Bahamas. Thus, providing quality health care is particularly challenging. Although each island may have a simple health clinic, care is typically not comprehensive. These island populations usually require referral to a larger island for anything but basic care. A thorough understanding of the health needs and capabilities in the region, however, is not available.

### *Goals of This Investigation*

In partnership with the Ministry of Health (MOH) and other stakeholders in the Bahamas, our Division of Global Health and Human Rights at Massachusetts General Hospital (Boston, MA) assessed the current emergency health care needs on these isolated islands, and how emergency referral might be optimized. Through field-based interviews of providers, administrators, stakeholders, and a community-based survey, we sought to understand the greatest barriers to care, and to identify the CNCDs and risk factors affecting the islands. Our ultimate goal was to provide the MOH with informed, actionable recommendations for improving emergency patient care and referral for the MICAL Constituency, and also possibly for other isolated island populations.

## **MATERIALS AND METHODS**

### *Study Design, Setting, and Participants*

In partnership with the MOH, we conducted a field-based emergency health care needs assessment among providers and administrators on the islands of the MICAL Constituency. Our physician-led team traveled to the MICAL region in July 2013 and conducted semi-structured key-informant interviews and small-group discussions among local health care providers and administrators. All health care teams in the MICAL region were interviewed,

including the lead nurse or physician of each of these teams. Participants were provided an overview of the project and told about the voluntary and confidential nature of the assessment. All participants gave verbal consent to participate.

### *Methods and Measurements*

The interviews and small-group discussions consisted of open-response questions related to health care services, providers, equipment, supplies, and medications. Other questions pertained to the most common clinical presentations of patients presenting for care, patient referrals, and continuing medical education needs. To understand and illustrate issues related to emergency referral, we also administered semi-structured verbal case audits of recent patients who required emergency medical referral. Two experienced physician researchers documented the interview discussions and case audits, and identified initial themes and recommendations that were further developed by the larger research team.

### *Community-based Household Survey*

In addition to the interviews and discussions on the five MICAL islands, we also conducted a community-based survey on Mayaguana to gain a representative understanding of the type of CNCDs and risk factors affecting the inhabitants of the islands. Our survey utilized a previously validated 15-page survey instrument provided by the CNCD Planning Committee of the Bahamas Ministry of Health. The survey consisted largely of closed-response questions, covering the demographics of the participant, health issues such as high blood pressure or diabetes in the patient's immediate family, and the patient's own current health status.

Households were identified by random sampling within the three settlements on Mayaguana, and this randomization was then supplemented by targeted sampling for specific age groups, specifically the younger population, who it was found were less likely to be at home during the initial survey efforts. Local nurses accompanied the research team on initial days of surveying to facilitate community cooperation. Among selected households, all household members over 18 years of age were invited to participate in the survey. Those houses with residents who were missing due to work were revisited later after the workday had ended to help avoid a bias toward those not employed. Before a survey was conducted, participants were informed of the confidential nature of the survey and provided verbal consent.

The collected survey data were analyzed using standard descriptive analyses, including frequency, mean, and interquartile range.

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