

## Education and Health Care in Equatorial Guinea

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Equatorial Guinea is one of the richest and smallest countries in Africa, but little information is available regarding the country's education and health care systems. It is therefore difficult to target development projects or measure the success of interventions being administered in Equatoguinean communities. The objective of this study was to summarize known information regarding education and health care systems in Equatorial Guinea, using a systematic review procedure. Of the 190 articles surveyed, 33.6% focused on health, 19.4% focused on general development issues, 19.4% focused on education, and 12.6% focused on the oil industry. The literature search revealed a general paucity of health care and education data, and most available data focused on Bioko Island. Health care projects tended to focus on urban areas and incidence rates of most diseases are mostly unknown or outdated. More data are needed to confirm community needs and it is unclear whether all groups are being given equal access to health care and education services. The results of our study show that needs assessments, and the dissemination of their results, are desperately needed in Equatoguinean communities.

Keywords: West Africa, Equatorial Guinea, HIV/AIDS, education, health care, urban areas

### Introduction

After 190 years of Spanish rule, Equatorial Guinea gained independence in 1968 (CIA 2012). Located on the central-west African coast (Map 1); the country is divided into two main regions: the mainland and Bioko Island with a land area of 28,051 km<sup>2</sup> (CIA 2012, Custodia et al. 2008). The two main ethnic groups in Equatorial Guinea are the Fang and the Bubi; 85.7% and 6.5%, respectively (CIA 2012). The below figure indicated the map of Equatorial Guinea, with an inset showing a map of the African continent (black square indicates the area which is shown in finer detail). Two cities (Malabo and Bata) have been labeled on the map as they are referenced within our results section.

Equatorial Guinea is the third-largest oil producer in sub-Saharan Africa (Frynas 2004, African Economic Outlook 2012). As a result, in 2009, Equatorial Guinea was the only member of the Economic Community of Central African States without a deficit (Holmes & Villar 2009). Equatorial Guinea is the richest (World Bank 2011) and one of the smallest countries in Africa (CIA 2012).

However, poverty rates in 2006 were recorded at 76.8% (World Bank 2012) and in 2009 over 40% of the population lived in extreme poverty, over 50% of the population was under eighteen years of age, and child poverty was reportedly higher than adult poverty (Holmes & Villar 2009).

There are almost no social assistance or social insurance provisions for the poor in Equatorial Guinea (Holmes & Villar 2009). Very little information is available regarding the country's education and health care systems. It is therefore difficult to target aid and development projects, or measure change in the level of education and health care interventions being administered to the Equatoguinean public.

This is the first published literature review to give a comprehensive overview of the education and health care systems in Equatorial Guinea. Using systematic review procedures and standardized search terms, we identified 190 articles that discussed or mentioned the education and health care systems in Equatorial Guinea. Of these articles, we picked 23 representative articles, which we use to highlight knowledge gaps regarding the state of education and health care in Equatorial Guinea. The information contained in this study is invaluable as the country continues to grow economically and international aid organizations increase their presence there.

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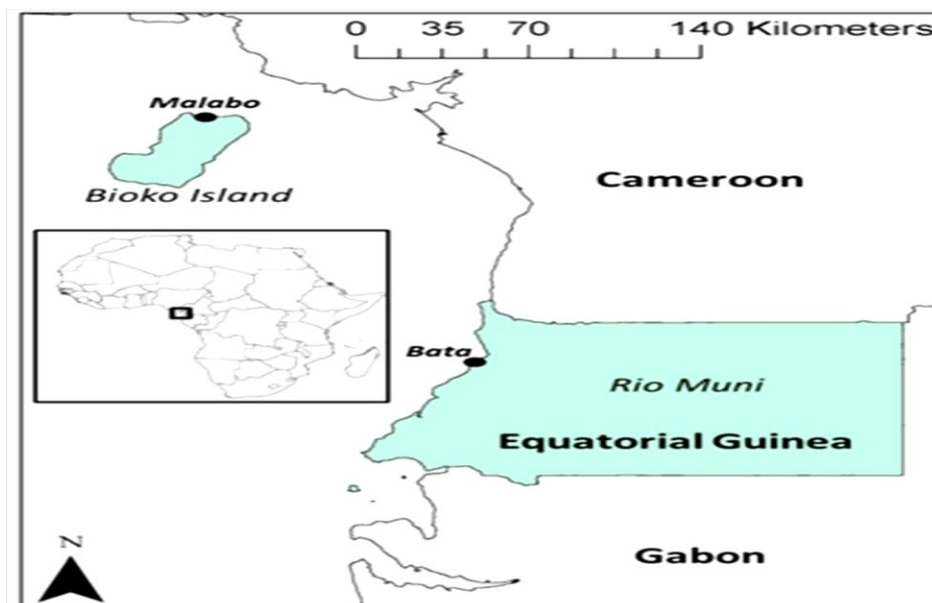


Figure 1. Map of Equatorial Guinea.

## Methods

A comprehensive literature search was conducted in English and in French for articles pertaining to Equatorial Guinea and its past and current state of health care and education system, and past and current community health care and education needs. Papers were found through the ISI Web of Knowledge and Google Scholar databases using search strings including “Equatorial Guinea” and followed by combinations of “education”, “healthcare”, “medic\*”, “charit\*”, “nonprofit\*”, “non-profit\*”, “school\*”, “teacher\*”, and “student\*”. These databases were used to ensure a thorough review of both peer-reviewed and so-called gray literature (publicly available reports written that have not been peer-reviewed). Following the initial literature search, the bibliographies of found literature were surveyed to find additional sources, and the American University library database was used to find additional literature. Search terms included: “Education AND Equatorial Guinea” and “health AND Equatorial Guinea.” An Ebscohost literature search was conducted using the terms “Equatorial Guinea AND education OR health” and articles that contained “Equatorial Guinea” in the abstract.

We were able to collect 190 sources relevant to this study (supplementary materials). We analyzed these sources for overall trends, and describe 23 of these papers in greater detail to better illustrate trends in the literature and highlight gaps in knowledge. We picked these 23 articles based on author expertise and the quality and breadth of information that an article offered.

## Results

### *Health care*

Of the 190 articles surveyed, 33.6% focused on health, 19.4% focused on general development issues, 19.4% focused on education, and 12.6% focused on the oil industry (Figure 1). Of these 190 article, the 23 studies used in our in-depth review, focused on the following fields: education (six articles), health (ten articles), development (five articles), and the oil industry (two articles). Many articles were found to address both education and health care simultaneously or describe the two fields as being connected.

### *Health-related reports*

Major health concerns in Equatorial Guinea include malaria, pediatric health and HIV/AIDS. Other issues discussed included albinism (Hong et al. 2006), obstetric fistula (National Research Team 2005), and eye care (Moser et. al 2002).

The 64 papers with focuses on health care included 16 biomedical reports. The majority of the literature came from peer-reviewed journals with the exception of 15 articles from gray literature, three of which were unpublished graduate or post-graduate works. Thirty-four of the health studies focused on large multi-national areas and made statements regarding education and health care in Africa generally, mentioning Equatorial Guinea only in passing. Seven articles focused entirely on Cuba’s medical assistance

to Equatorial Guinea (e.g. Gorry 2006) and an additional seven articles discussed the societal reliance on bush-meat including discussions on popular health misconceptions related to bushmeat and nutritional substitutes (e.g. Keylock 2002).

Ninety-two percent (n=59) of health-related papers were published after the year 2000. Three papers were published before 1997 and two papers were published between 1997 and 2000.

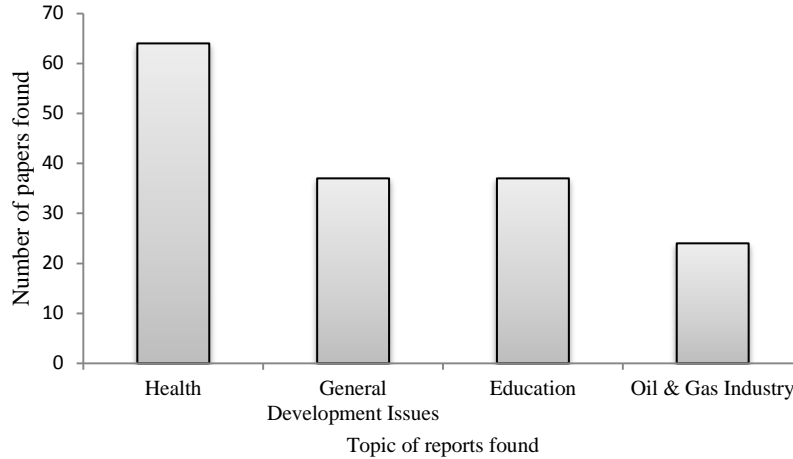


Figure 1: Distribution of articles in our literature review by topic. Health care articles (n=64) were almost twice as abundant as available reports in general development issues (n=37), education (n=37), and the oil and gas industry (n=24).

Fifteen of the 64 health-related studies (23%) discussed health issues regionally by focusing on sub-Saharan Africa, West Africa, or by focusing on various groupings of developing countries that included Equatorial Guinea. Seventeen (26%) of health-related studies focused exclusively on Equatorial Guinea. An additional 15 reports were based on specific regions or cities within the country. Of these 15 studies, three focused on the mainland (Rio Muni) generally, two on Bata (urban area on the mainland), three in Malabo City (urban area on Bioko

Island), and eleven on Bioko Island as a whole. The geographic focus of health care-related studies indicates a general paucity of data regarding Equatorial Guinea and also point to a tendency for studies to focus on Bioko Island rather than the Rio Muni (Figure 2). There were almost three times as many health care studies focusing on Bioko Island, as there were on Rio Muni. There were no health care reports regarding Equatorial Guinea’s other islands such as Annobón or Corisco (Figure 2).

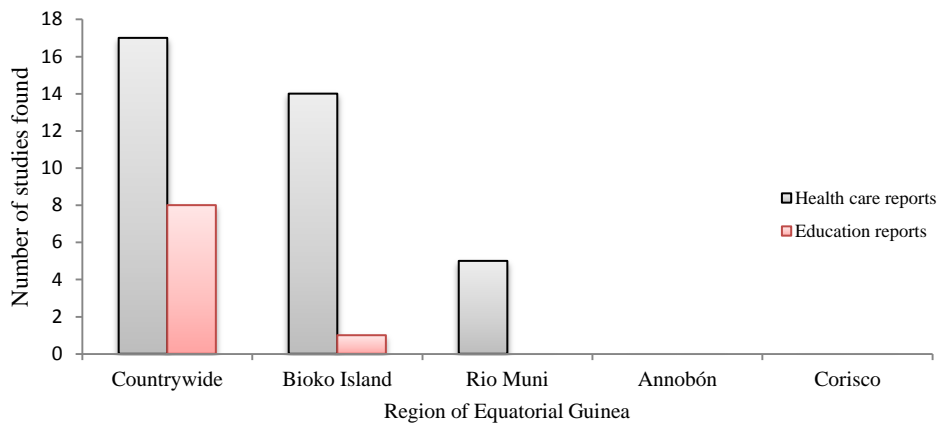


Figure 2. Geographic distribution of health care and education studies related to Equatorial Guinea.

Quantitative data regarding health and related community needs in Equatorial Guinea are not easily accessible, especially multi-year data sets. Of note, however, Garcia-Bastiero et al. (2011) does include multi-year data regarding trends related to anti-malaria initiatives.

### *Health care in Equatorial Guinea*

Following independence in 1968, Equatorial Guinea maintained: trained civil servants, military officers, teachers, and medical personnel; one hospital per 170 people and one physician per 7,500 people; an adequate supply of drugs; successful campaigns against malaria, yaws, and trypanosomiasis; and established care programs for leprosy and tuberculosis (Brown 1980). However, western economic interest in Equatorial Guinea subsequently decreased causing an economic decline from 1968-1971 (Brown 1980). To compensate for the lost trade with Europe, diplomatic relations with countries including China, Cuba, and the Soviet Union were increased. In return these countries provided Equatorial Guinea with medical supplies, medical professionals, and general infrastructure projects (Brown 1980). By 1971, the number of trained health care practitioners had fallen to a small number of Chinese and Cuban medical workers concentrated in the urban areas of Malabo (Bioko Island) and Bata (mainland) (Brown 1980).

Malabo was able to maintain small Chinese and Cuban medical teams, but few drugs were distributed inland to rural areas and infant mortality doubled (Brown 1980). A lack of trained Equatoguinean health care professionals and a reliance on foreign-trained professionals exacerbated problems related to resource limitation (Brown 1980). For example, the Minister of Health in 1980 was an army lieutenant with no medical or administrative experience (Brown 1980). There was no clearly defined organizational infrastructure for directing the reconstruction of the medical system and it was difficult to understand community needs, wants, and potential (Brown 1980). Failure to prioritize health care and education led to poor living conditions and inadequate public services; this led to problems with prostitution, high dropout rates, and urban drift. These infrastructure issues are still of concern in modern-day Equatorial Guinea (Lawal 2007).

The number of physicians decreased from 10 physicians per 10,000 people in 2006 (Gorry 2006) to 3 doctors and 5 nurses for every 10,000 people in 2011 (Moron-Nozaleda et al. 2011). In comparison, the United States had 24 doctors for every 10,000 people in 2012 (WHO 2012). Health care

professionals in Equatorial Guinea can be grouped as follows: over 60% are clinical assistants, 10% are doctors (most of whom are foreign), 14% are nurses and 1% are midwives (Moron-Nozaleda et al. 2011). Seventy-six percent of doctors in Equatorial Guinea are based in the urban centers of Malabo (Bioko Island) and Bata (mainland), which are home to 39% of the population (Moron-Nozaleda et al. 2011).

In 2005 Equatorial Guinea had 18 public hospitals, 42 health centers, and 291 health posts. However, more than a half of the 291 health posts are closed (National Research Team 2005). As of 2011, there are two regional hospitals in the urban areas of Malabo and Bata, five provincial hospitals in the provincial capitals, 35 health centers, and 291 health posts (Moron-Nozaleda et al. 2011, National Research Team 2005). Nearly 60% of the population is within a one hour walking distance of a health center (National Research Team 2005). Currently, the government of Equatorial Guinea provides health fee waivers to help subsidize the cost of services, however, there is confusion regarding which services and medicines are free or subsidized and who should be the targeted beneficiaries (Holmes & Villar 2009).

### *Malaria*

Malaria is prevalent in Equatorial Guinea and malaria prevention initiatives have been established in the country. In 2011, it was reported that a collaborative initiative between the government, Marathon Oil Corporation, and a nonprofit organization decreased the prevalence of pediatric malaria by 57% and increased protection (using bed nets and insecticides) of children from 4% to 95% from 2008 to 2011 (Republic of Equatorial Guinea 2011). However, there is still a great need to advance the use of nets in rural areas through targeted information, education, and communication techniques (García-Basteiro et al. 2011).

Following a mass delivery of nets on Bioko Island in late 2007, 95% of household owned at least one net and 70% of children between the ages of two to five slept under a net (García-Basteiro et al. 2011). In 2008, 81.8% of households owned at least one net and this number declined even more to 46.8% in 2009 (García-Basteiro et al. 2011). This decline may have been because: 1) nets may have been given or sold to people on the mainland where there were provinces that did not benefit from the mass distribution campaign, 2) nets suffered damage during the year, and/or 3) there was a misunderstanding about the longevity of the nets and the timing of a re-distribution (García-Basteiro et al. 2011).

Programs must address misconceptions that older children are less at risk to contracting malaria and that a child must only use a net once he/she is sick (García-Basteiro et al. 2011). There is also a need to study the reasons for the decline in bed net ownership in Bioko between 2008 and 2009 to better understand perceptions and concerns of the community (García-Basteiro et al. 2011).

### *HIV/AIDS*

Most reports only provided information regarding the HIV/AIDS epidemic across sub-Saharan Africa as a whole (e.g. Williams et al. 2006). Of those articles that focused on Equatorial Guinea, most contained outdated information (e.g. UNAID & WHO 2004). The total prevalence of HIV for individuals aged 15-49 years, increased from 2.7% in 2003 to 5% in 2009 (World Bank 2012). Additionally, the number of children orphaned due to HIV/AIDS-related deaths has increased dramatically in the last decade: in 1999 there were 500 such orphans and by 2009 the number increased to 4,100 (World Bank 2012). For individuals aged 15-24, HIV was more prevalent among women in 2009 as compared to men (5% compared to 2%, respectively) (World Bank 2012). This disease negatively impacts access to education because both students and teachers are in the age groups most affected by HIV/AIDS (Nilsson 2003).

The prevalence of HIV/AIDS in Equatorial Guinea has grown steadily between 2003 and 2009 (World Bank 2012). This increase may be linked to the rise in the commercial sex trade (Frynas 2004), which has been noted to be concentrated in the urban areas of Malabo and Bata (US Dept. of State 2012).

### *Mental health*

According to a World Health Organization evaluation, neuropsychiatric disorders constitute ten percent 10% of the burden of disease in Africa (Moron-Nozaleda et al. 2011). Mental disorders are often associated with poverty, marginalization, and social disadvantage (Moron-Nozaleda et al. 2011). Across sub-Saharan Africa, mental health is vital because it interacts with and affects other medical conditions: cardiovascular, HIV/AIDS, diabetes, malaria (Moron-Nozaleda et al. 2011).

Until 2009, no specific mental health care policy was in place in Equatorial Guinea and there was no formalized mental health care system (Moron-Nozaleda et al. 2011). There was, however, a program being drafted to address alcoholism and the Ministry of Health planned on building two neuropsychiatric hospitals with 50 beds each (Moron-Nozaleda et al. 2011). In November 2010, a Mental

Health Policy was approved following international recommendations on African mental health policy development (Moron-Nozaleda et al. 2011). This policy aimed to promote legislative changes, define and implement specific training plan for each related profession, reduce treatment gaps, reduce stigma and discrimination among the public and within the profession, improve prevention efforts, and define and implement a framework for action among all implicated sectors (Moron-Nozaleda et al. 2011).

In 2009, the country housed only two psychiatrists (of Cuban nationality, stationed in-country through an exchange program), one Equatoguinean psychologist (managing a psychological program for HIV/AIDS patients), and no mental health nurses (Moron-Nozaleda et al. 2011). In hospitals where neuropsychiatric treatments were offered (Bata, Malabo, and Ebebiyin), mental health consultations in 2008 accounted for 11% of total consultations (47% of which were women and 53% men) (Moron-Nozaleda et al. 2011). Fifty-five percent of mental health consultations were for people between the ages of 15 and 45. The most prevalent pathologies are epilepsy (32% of 2008 cases) and schizophrenia (21%) (Moron-Nozaleda et al. 2011).

In Equatorial Guinea, few people suffering from a mental disorder seek aid (Moron-Nozaleda et al. 2011). When treatment is sought, traditional healers are usually consulted first (Moron-Nozaleda et al. 2011). This may worsen medical conditions and jeopardize the dignity of the patient because traditional healers often use restrictive methods such as chains and ropes (Moron-Nozaleda et al. 2011). Awareness-raising campaigns are beginning to take place through radio programs and vignettes representing major mental disorders (Moron-Nozaleda et al. 2011). Mental health is becoming more prevalent within public understanding but child and adolescent advocacy remains a great challenge (Moron-Nozaleda et al. 2011). A major challenge to mental health is a lack of a regular supply of essential psychotropic medicine because non-profit organizations are currently the only providers (Moron-Nozaleda et al. 2011). The mental health system in Equatorial Guinea is in its very early stages and it is therefore of vital importance to closely monitor and maintain these new programs (Moron-Nozaleda et al. 2011).

### *Maternal health*

There were relatively little data regarding maternal health in Equatorial Guinea. The number of maternal deaths per 100,000 live births decreased from 1,200 in 1990 to 240 in 2010 (Requejo et al. 2012). This may be due to the large change in the percent of live

births attended by a health care professional, which increased from 5% in 1994 to 65% in 2000 (Requejo et al. 2012). We could not find any country-specific data on the causes of maternal death, though regional data are available (Requejo et al. 2012). The total fertility rate per woman was 5.2 in 2010 (Requejo et al. 2012). The percent of mothers receiving treatment for the prevention of HIV transmission from mother-to-child decreased from 32% in 2008 to 12% in 2010 (Requejo et al. 2012). One report noted that the government should work towards the “promotion of sensitization activities to health personnel and developing educative messages on essential obstetric cares and emergency obstetric cares at the community level” (National Research Team 2005, p.31). This report also noted a need for: the reinforcement of reproductive health service coverage, including the provision of prenatal consultation and family planning; funding to train personnel, including midwives; and the establishment of women’s groups to support women’s health (National Research Team 2005). Further integrated strategies must be undertaken to address the public health priority of family health and nutrition (Garcia-Bastiero et al. 2011).

#### *Pediatric health*

Pediatric health, and knowledge about early age health concerns, are stymied by the low percentage of births that are registered (UN Convention on the Rights of the Child 2004). In Equatorial Guinea, the number of deaths per 1,000 live births decreased from 190 to 121 (1990 to 2010, Requejo et al. 2012). One-third of under-five deaths in Equatorial Guinea are related to under-nutrition (Requejo et al. 2012).

Data collected in 2004 which targeted children under the ages of five, estimated that 96.4% of children in rural areas and 93.2% of children in urban areas (or 94.7% of the total population), received some of their early nutrition from breastfeeding (Garcia-Bastiero et al. 2011). However, the proportion of children who were exclusively breastfed during the first six months of life was very low in rural areas, with virtually no children breastfed exclusively for six months in urban areas (Garcia-Bastiero et al. 2011). The same study did not record any significant difference between the nutritional status of boys and girls under the age of five, and the prevalence rates of wasting/underweight children did not differ between rural and urban areas (Garcia-Bastiero et al. 2011). The prevalence of moderate to severe anemia was higher in rural areas and this is partly attributed to inadequate rural outreach programs; stunting (reduced growth rate) and anemia are national public health problems in Equatorial Guinea (Garcia-Bastiero et al. 2011).

In 2008, malaria caused 28% of the child deaths under five years of age (Custodia et al. 2008), and this number decreased to 21% in 2010 (Requejo et al. 2012). Following the establishment of the Bioko Island Malaria Control Project (BIMCP) in 2004, the prevalence of malaria in children between the ages of two and five decreased from 42% to 22% on Bioko Island (Custodia et al. 2008). Studies of the BIMCP have found insecticide-treated nets (ITN) to be effective in reducing childhood morbidity and mortality by reducing mosquito bites while sleeping (Custodia et al. 2008). However, even in homes outfitted with nets, children were not always given access to this protection (Custodia et al. 2008). Of note, older children were less likely to sleep under a bed net and rural children were even less likely to sleep under a bed net (Custodia et al. 2008). Households with a greater number of young children (<5 years of age) were less likely to have bed nets, and this is potentially because these newer households were established after the net distribution campaign (Custodia et al. 2008).

Other pediatric health issues in Equatorial Guinea include pneumonia, vaccinations, and child abuse. There are no data on pneumonia treatment in children, although it causes 14% of all under-five deaths (Requejo et al. 2012). Data indicate that 51% of children are immunized against measles and 33% of children are immunized with three doses of the DTP vaccine (diphtheria, pertussis, and tetanus) (Requejo et al. 2012). It has been noted that there is a lack of information regarding child abuse, especially in regards to sex abuse of minors (UN Convention on the Rights of the Child 2004).

#### *Traditional medicine*

Traditional healing is firmly established within in the belief system of the Equatoguinean population, especially among the Fang population (Moron-Nozaleda et al. 2011) (Akendengue 1992). The most frequently cited diseases treated by traditional healers are diarrhea, cough, and schizophrenia, though the uses of traditional healing can range from antiseptic to anti-toothache to anti-gonorrheal (Akendengue 1992). Even in larger cities, many people consult traditional healers, especially regarding psychosomatic conditions (Akendengue 1992). It has been noted that a large portion of the population feels that there are some diseases which cannot be cured using western medicine (Akendengue 1992).

Unlike other African nations, Equatorial Guinea has not yet established a national institution for the exploration of traditional healing, but there is a “National Program of Traditional Medicine for the enhancement of traditional medicine and

Pharmacopoeia” that participated in the exploration of this field (Akendengue 1992). There is no regulation of traditional products and knowledge is passed verbally, usually through family units (Moron-Nozaleda et al. 2011). The majority of healers are general practitioners, but there are specialists in psychiatry, gynecology, pediatrics, and traumatology (Akendengue 1992).

Generally, Equatorial Guinea encourages the use of traditional medicine (Moron-Nozaleda et al. 2011), though it has been noted that traditional healers in the urban centers of Malabo and Bata were predominantly of the Fang ethnic group (Akendengue 1992); this could potentially cause other ethnic groups to remain under-served by traditional healers.

### *Education*

Fifteen of the 37 education-related papers (40.5%) focused on education at an international level. An additional 13 papers (35%) focused on education issues at a regional scale, and only nine papers (24%) focused exclusively on Equatorial Guinea. Of these nine papers, only one had a localized focus on Bioko Island (Figure 2). Twenty-one articles regarding education were published in the year 2000 or later, three were published before 1997, and eight were published between 1997 and 2000. We could not locate multiyear, quantitative education datasets specific to Equatorial Guinea.

### *Education in Equatorial Guinea*

The Equatoguinean government uses unspecified private financing for public schools (Tomasevski 2006). Before 2000, 0.6% of Equatorial Guinea’s GDP (Gross Domestic Product) went to education, though this increased by 39% between 2000 and 2007 (Larru 2010). Very little data are available regarding education in Equatorial Guinea; no time series data with consistent annual data are available (Larru 2010). Corporal punishment is not prohibited and widely accepted (UN Convention on the Rights of the Child 2004).

Historically, local languages were discouraged in the education system in favor of Spanish (Bamgbose 2004). In addition to disagreements over the language of instruction, there have been discrepancies regarding, 1) the prescribed number of teaching hours and actual hours of teaching, and 2) official curriculum goals/objectives versus what students are actually learning (Nilsson 2003). Finally, there have been concerns about a lack of qualified teachers, though between 2001 and 2004, 600 preschool teachers, 1,600 primary school teachers and 250 secondary school teachers were appointed by the

government to boost quality of teaching by reducing class size (Lawal 2007).

### *Primary Education*

In 2008, there were 784 primary schools in the country, 115 of which were private schools (African Economic Outlook 2008). Children may begin attending primary schools at age seven and there are five grades at the primary level (Larru 2010). The primary education system in Equatorial Guinea has struggled to meet basic standards, as set by the Millennium Development Goals, and this is due to a lack of quality inputs, such as the curriculum, teacher qualifications, local support for education, and student/community/household characteristics (Nilsson 2003). In 2006, 60% of schools did not have potable water, 50% did not have toilet facilities, and some schools had up to 96 students per room (Tomasevski 2006, African Economic Outlook 2008). These conditions led to high dropout rates and grade repetition (Tomasevski 2006).

Available data show the number of students completing elementary school declined from 65.7% in 1999 to 47.8% in 2003, but rose again to 58.2% in 2005 (Larru 2010). Gross enrollment in primary schools decreased from 142.1% in 1999 to 122% in 2005 (Larru 2010); percentages can be higher than 100% as they include over-age and under-age students. By 2009 primary education was free and enrollment rates were recorded at 85% (Holmes & Villar 2009, World Bank 2012). In 2011, primary enrollment reached 87%, but in the same year only 52% of the population completed primary school education (World Bank 2012). It should be noted that, despite high enrollment, net primary school attendance is low; from 2000-2007 attendance was 61% for boys and 60% for girls (Holmes & Villar 2009). Dropout rates are also high; of all students who enter first grade, only 33% complete primary school (Holmes & Villar 2009).

Achieving universal primary education poses a true challenge for Equatorial Guinea due to a teacher shortage. In 1992/3, a forty-five percent increase in the number of teachers was needed to accommodate universal primary education (Nilsson 2003). In 1999, there were 1,691 primary school teachers in Equatorial Guinea and it was noted that 1,980 primary teachers were needed by 2015 (Nilsson 2003). A 2003 paper noted the need to improve the quality of teacher education and make training opportunities more accessible to unqualified teachers (Nilsson 2003). According to World Bank Data (2012), 51% of primary school teachers in 2008 were sufficiently trained, and this dropped to 43% in 2009. In 2008 and 2009, the Program for Educational

Development of Equatorial Guinea (also known as PRODEGE) trained several thousand teachers in the country, and undertook other primary education-level capacity building projects (Prodege, n.d.). Nevertheless, several countries in the region, including Equatorial Guinea, struggle to retain teachers because of low salaries and poor working conditions (Nilsson 2003). It has been suggested that a parallel system of teacher's education (in-service training for unqualified teachers) could mitigate this problem (Nilsson 2003).

### *Secondary education*

Secondary education begins at age twelve and is divided into seven grade levels (Larru 2010). By 2008, there were 71 secondary schools in the country, including 40 private schools (African Economic Outlook 2008). However, gross enrollment in secondary education declined from 33.03% in 1999 to 31.93 % in 2002 (Larru 2010). In 2009, only 23% of boys and 22% of girls attended secondary school in Equatorial Guinea (Holmes & Villar 2009). Many factors affect attendance and dropout rates at the secondary school level. Two estimates have claimed that 28% (Holmes & Villar 2009) and 31% (U.S. Dept. of Labor Bureau of International Labor Affairs 2005) of children are engaged in child labor (however, this may underestimate real rates of child labor, due to data limitations); 51% of boys and 58% percent of girls work during school hours (Holmes & Villar 2009). Uninvolved parents pose a great challenge for struggling students (Lawal 2007) and rural families can often not afford the costs associated with education (U.S. Dept. of Labor Bureau of International Labor Affairs 2005). It is commonly believed that children will have better access to education and work opportunities in urban areas. As a result, rural families often send their children to urban areas to receive an education, which can increase the likelihood of childhood poverty and or recruitment into child labor positions (Holmes & Villar 2009).

### *University education*

In 2000, the rate of enrollment in post-secondary education was 2.7% (Larru 2010). The National University of Equatorial Guinea is the country's post-secondary university and offers three-year bachelor degrees. In addition, there is a Faculty of Medicine in Bata (also known as the Bata Medical School), which produced 110 Equatoguinean doctors in 2009. Limitations on the availability of university education has, in part, caused the Equatoguinean diaspora (Cusack 1999), which contribute to the brain drain phenomena in the country (Cusack 1999). A 2006

UNESCO study found that over 50% of Equatoguinean students study abroad in order to get a better quality education (Thompson 2007). Distance learning is encouraged as an alternative for university students and teachers to achieve low cost, high quality, and wider access of better quality education (Thompson 2007).

### *Non-traditional education*

In order to address the low completion rates of primary and secondary schools in the country, the government of Equatorial Guinea established an experimental center of primary education for over-aged students and a high school for illiterate adults (Lawal 2007). Similar schools were located in rural and suburban areas to reduce rural-urban migration, prostitution, and child labor (Lawal 2007). This initiative resulted in 160 primary education centers in rural centers and 64 high schools diploma programs in districts and municipal capitals throughout the country (Lawal 2007). It is unclear how effective these programs are in creating a trained workforce. In 2008 there were only two vocational training centers: Gene Roz in Bata and 12 Octobre in Malabo (African Economic Outlook 2008). During the 2006-2007 academic year, 705 trainees in Bata gained expertise in administration, auto mechanics, auto electronics and joinery (African Economic Outlook 2008). In contrast, the Malabo center was noted to have limited equipment and trainers (African Economic Outlook 2008). The government has recognized the value of vocational education as a method of decreasing the country's unemployment rate (African Economic Outlook 2008), which continues to be a problem (African Economic Outlook 2012).

### *Funding of Health and Education Programs*

To understand Equatorial Guinea's health care and education infrastructure, it is important to understand the source of funding for such programs. Following the 1997 oil boom in Equatorial Guinea, few long-term social development reforms have come to fruition, though some studies have found that both health and education indicators have improved slightly since the mid-1990s (Frynas 2004). This is credited to a government commitment to dedicate a small fund to these social services (Frynas 2004). In 2006, Equatorial Guinea had the world's largest gap between the GDP per capita and their human development index (Holmes & Villar 2009). Allocation of funds to education by the government is small compared to other projects and from 1997-2001, only 1.23% and 1.67% of government



expenditure was spent on health and education projects respectively (Frynas 2004). It has been commented that oil revenues must be invested in social sectors to promote social development and to harness the benefits of economic growth (Holmes & Villar 2009). Based on International Monetary Fund calculations, it can be observed that spending towards education and health in Equatorial Guinea is less than in comparable African countries and petro-states (Frynas 2004).

The oil industry does provide some social services directly to Equatoguineans. In 2003, following Equatorial Guinea's request, the World Bank agreed to assist with management of the oil sector in order to create a poverty reduction strategy (Frynas 2004). In addition, ExxonMobil and Marathon Oil have both implemented anti-malaria programs in the country (Frynas 2004) (Custodia et al. 2008), while the Hess Corporation has funded the PRODEGE program. These, and other companies, have also organized sporadic donations of schoolbooks and other items (Frynas 2004) including Marathon's Books for Bioko program (Marathon Oil Cooperation n.d.). Marathon's anti-malaria program (BIMCP) has provided free annual rounds of indoor residual spraying, the introduction of free drug therapy for pregnant women and children under 15, community outreach campaigns, and distributed 110,000 long lasting insecticidal nets on Bioko Island (Custodia et al. 2008).

Multilateral aid to Equatorial Guinea is made from international institutions in the form of Official Development Assistance (ODA), which passes through the government. Through ODA, multilateral organizations contribute 0.66 million dollars to education and 14.63 million to health care overtime from 1996-2008 (Larru 2010). The majority of this aid (13.95 million USD) was directed towards AIDS/HIV, tuberculosis and malaria initiatives of the Global Fund in 2006 (Larru 2010).

Aid towards health care has proven to significantly reduce child mortality (Larru 2010). Equatorial Guinea decreased the percentage of Gross Domestic Product spending on health care from 4% in 2001 to 2.1% in 2006, or a cumulative decrease of 15% (Larru 2010). During this time, non-government health care expenses decreased by 13.1% and public health care expenses decreased by 15.3% (Larru 2010).

In 2003 the United States reopened its embassy in Equatorial Guinea and has provided academic scholarships (Frynas 2004) and financial support to the health and education sectors of Equatorial Guinea through multilateral organizations including: United Nations Children's Fund (UNICEF), United Nations Development Programme (UNDP), and the United

Nations Population Fund (UNFPA) (Larru 2010). Other foreign assistance, including the International Monetary Fund (IMF), World Bank, and European Union, has declined in recent years due to the dramatic rise in the Equatoguinean GDP per capita (Frynas 2004). The US Embassy itself provides small grant funding to local community projects, as well as funding for special projects such as an AIDS education and outreach initiative in 2011 (Malabo US Embassy, n.d.).

Spain is the largest international donor to Equatorial Guinea (Larru 2010). Between 1973 and 2007, Spain committed 466.92 million USD to Equatorial Guinea, amounting to 31.02% of total foreign assistance (Larru 2010). Of the money invested exclusively by Spain, 46% has been invested in education and 26% in health care (Larru 2010). These efforts were targeted, but not effective at decreasing child mortality rates, which have actually grown in recent years (Larru 2010).

Cuba is one of the major international supporters of health care in Equatorial Guinea and has been since the early 1970s (Brown 1980, Gorry 2006). The Medical Cooperation Programme began in 1963 as part of Cuba's foreign policy to support anti-colonialism movements; these bilateral agreements integrate volunteer health professionals, including specialists, nurses and technicians alongside local doctors and nurses (Gorry 2006). In 2008, 157 Cuban health professionals were hosted by Equatorial Guinea (Gorry 2008). Programs administered by Cuba also provide select Equatoguinean students with the opportunity to attend medical school (Gorry 2006). Equatorial Guinea also participated in the Comprehensive Health Programme (CHP) with Cuba, a program first established in 2000 (Gorry 2006). CHP emphasizes the supply of highly trained professionals to deliver quality care free of charge, modern technology transfer, and ensuring universal accessibility (Gorry 2006). The Cuban government funds the Bata Medical School, and in a 2010 speech, President Obiang indicated the school had graduated 110 physicians in 2008. It has been noted that the CHP initiative is unsustainable, as the teams of health care professionals face many logistical challenges, including a lack of electricity and a need to donate their own blood for transfusions (Gorry 2006). Critics have suggested that the Cuban medical teams create an unsustainable dependency within their target communities for their services (Gorry 2006).

## Conclusion and Discussion

This literature review indicates the paucity of data regarding Equatorial Guinea's health and education

systems. Most available data came from studies focused on Bioko Island and very few studies reported results including mainland populations. No studies were found to significantly reference, or present education or health care data regarding other islands governed by Equatorial Guinea. The implications of this lack of data, as indicated by our study, include: incorrectly targeted charitable initiatives, misidentified at-need communities, or even a complete lack of awareness (by non-governmental agencies) about the existence and/or scope of an education and health care problem. Any of these implications could potentially lead to large numbers of underserved communities, which could disproportionately affect at-risk segments of the population including women and children.

Regarding health care in Equatorial Guinea, it is likely that malaria and other mosquito-borne diseases are being mitigated effectively. In addition, the rise of HIV/AIDS has triggered some awareness outreach and biomedical research, but social services are not sufficient to meet the needs of the community (especially in rural areas). Incidence rates of other diseases and health care issues are mostly unknown or the information is outdated. Given population growth, the health care system is likely to continue its dependence on Cuban aid. Notably, very little information was reported regarding maternal and child health and sustainable interventions seem few or nonexistent. Finally, both urban and rural populations of Equatorial Guinea are likely underserved in terms of mental health services. More data are needed to confirm community needs and gaps in social services. It is unclear whether training programs for health care professionals are sufficient, but it is likely that many traditional healers do not have formalized training. It is unclear whether all ethnicities are given equal access to health care services.

Regarding education in Equatorial Guinea, there are large gaps in data concerning school enrollment, student learning rates, and the types of hurdles facing students throughout the education system. It is unclear whether all ethnicities are given equal access to education. Teacher training and certification has been identified as a way to increase student learning and retention. In-service training for teachers has been recommended as a step for improving education throughout West Africa (Lawal 2007). Giving teachers an elevated status in society and increasing salaries may increase teacher retention (Nilsson 2003). Increasing vocational and technical training opportunities may be beneficial, though a needs assessment for these services is recommended. Understanding the differences between urban and rural education challenges will also be key to

formulating larger social development interventions. It is unclear whether the use of multiple languages by Equatoguineans is negatively impacting students, however, based on the 1951 UNESCO Meeting of Experts, use of a mother tongue is highly recommended in educational settings (Bomgbose 2004).

For both fields, there is a strong call to non-profit organizations to increase cooperation in order to allow for greater information and technology sharing in the region (Lindsay 2010). In Equatorial Guinea specifically, it has been suggested that it is necessary for the government to begin reinvesting the money into public services and education (Frynas 2004), which will require a modernization of the public sector (African Economic Outlook 2012). Donors should be encouraged to work together and in open communication with the government of Equatorial Guinea so that aid is given to the priority sectors and used appropriately (Larru 2010). Increased reporting of data and results of needs assessments are encouraged, in order to allow for education and health care interventions to have measurable baselines against which to compare success.

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