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## **Analysis of the Quality, Integration, and Cost-effectiveness of Primary Care, Electronic Health Records, and End of Life Care: Lessons from the American Healthcare System to Inform National Health Insurance in the Bahamas**

Brittney Jones

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## **Abstract**

The Bahamas is faced with the challenge of delivering cost-effective and quality healthcare within an integrated system. About 70% of the population is uninsured, making primary care out of reach to those who cannot afford to pay out of pocket (Understanding NHI, 2016). Despite healthcare accounting for 7.7% of the country's GDP in 2014, the quality of care and access to care are still challenging in The Bahamas (Health Expenditure, n.d.). As the population continues to age, chronic non-communicable diseases are also the leading cause of morbidity and mortality. The lack of access to primary care due to persons being uninsured places a burden on the emergency room services. After the uninsured Bahamians have obtained coverage under National Health Insurance (NHI), meeting the need for primary care requires physicians to collaborate and agree on strategies to maximize the roles of both licensed and non-licensed healthcare professionals. They should also develop quality measures to improve both access and quality of primary care.

Primary care, Electronic Health Records (EHRs), and End of Life Care (EoLC) are only three of the many areas that The Bahamas can focus on to improve the quality, integration and cost-effectiveness of healthcare. This capstone will be an initial analysis of these three areas of NHI and similar analyses need to be conducted in other areas for a comprehensive reformation of the healthcare system. These other areas may include telemedicine, preventative care, examining the role of behavioral health in combatting chronic non-communicable diseases, and the role mental health professionals in EoLC.

The Bahamas currently has no national electronic system for recording patient health information. Many healthcare practices use paper records that are more difficult to share across an

archipelagic healthcare system. The adoption of EHRs can improve the coordination, quality, productivity, and efficiency of care. After an analysis of the population needs, costs, and the development of objectives for meaningfully using EHRs in The Bahamas, the nationwide adoption should be considered using an incentive program.

Lastly, there is very little awareness, education, and advanced planning for End of Life Care (EoLC) in The Bahamas. The incorporating of EoLC planning into NHI should make provisions for the delivery of quality hospice and palliative care. The Bahamas must also focus on raising awareness through education and emphasizing the goal EoLC to preserve human dignity by honoring the patient's dying wishes.

A comprehensive reformation of the healthcare system will require the collaboration of health providers, governmental legislators, public and private healthcare organizations, and community leaders to develop programs and action plans for the improvement of health challenges in the country. In this capstone, lessons learned from the American healthcare system as well as implementation barriers will then be evaluated. Lastly, solutions to these issues will be proposed for the improvement of the delivery of primary care, the effective adoption EHRs, and the implementation EoLC which are key features of NHI in The Bahamas.

**ANALYSIS OF THE QUALITY, INTEGRATION, AND COST-EFFECTIVENESS OF  
PRIMARY CARE, ELECTRONIC HEALTH RECORDS, AND END OF LIFE CARE:  
LESSONS FROM THE AMERICAN HEALTHCARE SYSTEM TO INFORM  
NATIONAL HEALTH INSURANCE IN THE BAHAMAS**

By  
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## **Introduction**

Delivering quality, coordinated, and cost-effective health care are challenges for both The Bahamas and the United States. The healthcare systems in both countries are concerned with improving health outcomes in the most cost-effective and efficient manner possible. The Bahamas is in the process of planning for National Health Insurance (NHI), and an analysis of these challenges are pertinent in the development of recommendations. The American healthcare system under the Affordable Care Act (ACA) has had both successes and shortcomings in its provisions for delivering quality primary care, the adoption of Electronic Health Records (EHRs), and the implementation of End-of-Life Care (EoLC). Lessons learned from the American healthcare system can be informative to the development of NHI in the Bahamas. Primary care, EHRs, and EoLC are only three of many areas that The Bahamas can focus on to improve the quality, integration and cost-effectiveness of healthcare. This capstone will be an initial analysis of these three areas of NHI and similar analyses need to be conducted in other areas for a comprehensive reformation of the healthcare system. Other areas may include telemedicine, preventative care, examining the role of behavioral health in combatting chronic non-communicable diseases, and the role mental health professionals in EoLC.

The Affordable Care Act (Patient Protection and Affordable Care Act, 2010) is the largest and most comprehensive healthcare reform in the United States. It improved access to care by eliminating discriminatory practices that denied coverage due to preexisting conditions. The ACA also improved the affordability of care by expanding state Medicaid programs, and by giving premium tax credits to assist with monthly payments in the Health Insurance Marketplace (Gruber, 2011). As of September of 2010, the ACA covers preventative care delivered by public or private physicians chosen by the patient without any charges. One of the goals of these provisions is to improve the accessibility and affordability of care for both the insured and uninsured populations.

The insured population of the United States has reported improved access to primary care (Collins, Gunja, Doty, & Beutel, 2016) and are less likely to use emergency room services. However, the uninsured population is more likely to use the emergency room because they are unable to afford primary care and have no other place to go (Gindi, Cohen, & Kirzinger, 2012). As a result, uninsured patients contribute to the burden on the American public healthcare system.

Another ACA provision is the incentivized adoption and proper use of EHRs. Successful implementation yields the long-term benefits of administrative cost savings, time savings, and multi-professional disease management. Steep startup costs, maintenance fees, and the difficulty in sharing patient information across different EHRs systems can be barriers to implementation. These barriers must be outweighed by the aforementioned benefits in order to incentivize adoption. Since the ACA has been adopted in 2010, 58.9% of hospitals in the United States have adopted and meaningfully used EHRs. Among the hospitals that adopted, 62.7% were urban and 52.2% were public (Health Information Technology in the United States, 2014). American medical physicians, nurse practitioners, certified nurses, dentists, physician assistants, optometrists, chiropractors, and podiatrists who start the Medicaid EHR Incentive Program can qualify for funding for the adoption, implementation, and meaningful use of EHR technology (EHR Incentive Programs, 2012).

Lastly, the draft version of the ACA had initially made provisions of EoLC which was misconstrued as a “death panel” (Obamacare Fact Check, n.d.). EoLC was suspected to potentially restrict healthcare services because terminally ill patients would choose to forgo curative care in pursuit of hospice and palliative care. This controversy led to the deletion of EoLC from the final ACA policy. Nevertheless, both the Medicare and Medicaid programs made hospice and palliative care provisions for EoLC for terminally ill patients. EoLC encourages the documentation of



advanced directives and plans that are not only cost-effective, but also preserves the dignity of human life (Giovanni, 2012) and brings comfort during the death experience.

The successes and shortcomings of the ACA provisions for primary care, EHRs and, EoLC will be used to identify lessons learned from the American healthcare system. From these lessons, recommendations to the challenges will be proposed, and implementation barriers will be identified for the reformation of the Bahamian healthcare system under NHI.

## **Background of the Healthcare System in The Bahamas**

The population of The Bahamas is about 390,000, and more than two-thirds of its people reside in the capital of New Providence. Despite having a small population, the Ministry of Health spent \$214,512,501 in the 2015-2016 budget on healthcare (Detail Draft Estimates of Revenue and Expenditure, 2016). In 2014, \$1,819 dollars per capita was expended on healthcare (Bahamas: Statistics, 2014.). Healthcare accounted for 7.7% of the gross domestic product in 2014 (Health Expenditure, 2014). This spending is significantly high compared to the 5.8% GDP expense in Belize, 4.4% in the Dominican Republic, 5.2% in Guyana and 6.7% in St. Lucia on healthcare in 2014 (Health Expenditure, World Bank, n.d.). Furthermore, the burden of chronic non-communicable diseases are the leading causes of morbidity and mortality (Bahamas: WHO Statistical Profile, 2015) and has a significant impact on healthcare spending. The total direct cost of diabetes and hypertension in the Bahamas is \$34.8 million per year which accounts for 17.6% of the public health expenditure (Chao, 2013).

This steep governmental healthcare spending supports the Bahamian population consisting of 70% of uninsured citizens (Understanding NHI, 2016) who are financially challenged with

accessing and affording healthcare. As of January 2016, 69.2% (270,853) of the population were of a working age between 15 and 64 years old (World Statistics Pocketbook, 2015). The unemployment rate, however, was 15.4% in 2014 (Unemployment, World Bank, n.d.). Furthermore, the Household Expenditure Survey revealed that 12.68% (43,000) of the population were living in poverty in 2013 (Jones, 2014). The high unemployment and poverty rates naturally contribute to the approximate 70% of Bahamians who are not privately insured and cannot afford to pay out-of-pocket fees (Understanding NHI, 2016). For this reason, many Bahamians do not seek primary care, and emergency rooms are often the first point of contact with the healthcare system. Between 2007 and 2014, 54% of private expenditure on health was paid out of pocket (Out-of-Pocket Health Expenditure, 2014). As a result of unaffordable private healthcare and the average out-of-pocket fees being \$2,300 (Understanding NHI, 2016), an overreliance on the emergency room services was created.

The public healthcare system provides about 87% of healthcare services in the Bahamas (Bahamas: Health in the Americas, 2012). Although there are no available data for the average wait time for emergency room services, patients can expect to wait over 24 hours before receiving care at the Accident and Emergency Department (Roberts, 2015). The average emergency response time for ambulances in the capital was 34 minutes between July 2012 through April 2013. This is 26 minutes slower than the benchmark frame time of 8 minutes according the healthcare consulting and management company Sanigest Internacional (Jones, 2015b.) Patients who need to be admitted are not immediately hospitalized because the wards are often overcrowded and the capacity, shortage of beds, and the public hospital being more than 100% of capacity year round (Roberts, 2015). In 2008, there were 2.82 physicians per 1,000 people, and in 2011 there were 2.9

beds per 1,000 people (The World Factbook. (n.d.)). This hospital bed per population ratio can be an indicator of the demand for healthcare services.

The Bahamas is also experiencing a shortage of about 250,000 nurses according to the former Minister of Health, Dr. Hubert Minnis. The country has 26 nurses per 10,000 people (Rolle, 2012). The current proposal for NHI is unclear about the number of nurses, primary care physicians and other licensed and non-licensed healthcare professionals that will be needed to staff the public healthcare workforce. According to the president of the Consultants Physician Staff Association of the Bahamas, Dr. Locksley Munroe, there is a lack of involvement of the Bahamian physicians in NHI planning (Rolle-Brown, 2016). However, the success of the delivery of care under NHI requires that Bahamian healthcare professionals discuss and agree on strategies to maximize their labor to meet the growing need for primary care services.

The delivery of coordinated care to all citizens is a challenge because the Bahamas is an archipelago of islands. Persons residing in the 'Family of Islands' have less access to fewer services than those living in the capital. In the Family Islands, general practitioners serve patients with the help of physician assistants and nurse practitioners. Emergency room care and major surgeries that are not available at the Family Island clinics necessitate ill patients to be flown to the capital to receive care at either the public Princess Margaret Hospital or the private Doctor's Hospital. The geography of the Bahamas also complicates the coordination of central and peripheral communication across networks of providers. Much of the patient records are manually recorded on paper charts which makes sharing patient information between islands a tedious task. Furthermore, paper records are administratively more expensive to maintain, more labor-intensive, more difficult to share and store, and has greater liability of being lost, destroyed, or experience a breach in security. These challenges necessitate the adoption of EHRs for the efficient collection,

storage, and sharing of health information in order to manage chronic diseases, and effectively serve patients throughout the archipelago.

Healthcare is not only essential throughout the course of a patient's life but also at the end of life. The Bahamas currently has no EoLC planning provisions and the current NHI proposal also does not make such provisions for hospice or palliative care. Instead of advanced planning for the end of life, more resources are spent on the preservation of life through advanced procedures like MRIs, chemotherapy, radiology, surgeries, defibrillators, ventilators, intravenous tubes, and oxygen pumps even when recovery efforts are futile (Gawande, 2014). This is a concern for not only healthcare costs, but also the preservation of human dignity. EoLC is essential for the Bahamas which has an aging population that is plagued by chronic non-communicable diseases. With the total life expectancy at birth being 75 years in 2011 (Life Expectancy at Birth, 2014), Bahamians are living longer with these chronic diseases and may require more care palliative and hospice care at the end of life should they become terminally ill.

Figure 1 depicts The Bahamas' top ten leading causes of death in 2012 where the majority of deaths were attributed to chronic non-communicable diseases. These chronic diseases may require palliative care for pain management, and hospice care to comfort the patient particularly for heart diseases, respiratory diseases, and cancers. The World Health Organization reported that non-communicable diseases accounted for 72% (2,220) of the total deaths in the Bahamas in 2012 (Causes of Death by Non-Communicable Diseases, n.d.). As seen in Figure 2, chronic respiratory diseases accounted for 1%, diabetes accounted for 7%, cancers accounted for 17%, and cardiovascular diseases accounted for 33% of deaths. Other non-communicable diseases accounted for 14% of deaths in 2012. Hypertension, high cholesterol, and obesity are major risk factors for these chronic diseases. Given the aforementioned statistics, primary care needs to place a greater

emphasis on the prevention and delay of onset of chronic diseases. EHRs are also needed to manage these chronic diseases, and EoLC should seek to preserve human dignity and honor the patient's wishes for the death experience.

The concerns regarding primary care, the implementation of EHRs, and EoLC are only three areas that must be strategically structured for the healthcare reformation under NHI in The Bahamas. NHI planning must involve the contributions of primary care physicians, specialists, governmental legislators, public and private healthcare organizations, and community leaders. The Ministry of Health is responsible for licensing health professionals, health policy and planning, financing public health services, regulating, monitoring, and providing community health services. The Department of Public Health under the Ministry of Health is responsible for primary health care services as well as the surveillance, development, implementation, and coordination of national health programs. The Public Hospital Authority that is also under the Ministry of Health is responsible for operating the three public hospitals in New Providence and Grand Bahama. The Insurance Commission of the Bahamas will be responsible for licensing and regulating insurance companies. Lastly, the National Health Insurance Authority will be responsible for overseeing the entire implementation of NHI (NHI Bahamas FAQs, 2016). These stakeholders along with healthcare providers should consult and collaborate with health systems experts in other countries to refine the NHI policies to meet the health needs of the Bahamian population, ensure cost control, and improve quality measures. Successes and shortcomings in the healthcare system of the United States are useful for informing the efforts for patient-specific primary care, adoption and proper use of EHRs, and the implementation of EoLC in The Bahamas.

## **PRIMARY CARE**

### ***Background***

Primary care is the foundation for the healthcare system which provides basic services for disease screening and prevention, maintaining and promoting good health, diagnosing and treating acute and chronic illness, patient education, and counseling on healthy lifestyle choices (Primary Care. (n.d.). It takes into consideration the culture, race and ethnicity, and environment of the patients, not just disease etiologies (Shi, 2012). Primary care serves as the first line of defense where patients and their family can regularly meet with their physician to receive care specific to their needs. Its delivered by knowledgeable and experienced primary care physicians who seek to achieve optimal health outcomes. They often collaborate with nurses, specialized practitioners, and allied health professionals to meet specific patient needs both inside and outside of hospitals, health centers, and clinics. The physician who serves as a patient's primary care physician may depend on their stage of life and their specific health needs at the time. For example, an internist, family practitioner, pediatrician, or obstetrician may serve as a primary care physician, or a team thereof.

The primary care phase of NHI in the Bahamas for newly insured patients will cover preventative care, disease screenings, education, and promotion of healthy lifestyles. All of these services will require no cost sharing at the point of service through either the public or private sector. Physical exams, lab tests, medications on the formulary, and some rehabilitation services will also be covered under NHI (Primary Care Benefits Package, n.d.). Diagnostics and labs will include annual mammograms, prostate cancer screening, papanicolaou tests (pap smears), electrocardiograms, and blood sugar monitoring, especially for adults. Children will be eligible to receive annual physician exams and blood tests among other services.

For newly insured patients in the United States under Medicaid or The Marketplace there have been reports in the improvement of access to care. The Biennial Health Insurance survey conducted by the Commonwealth Fund in 2014 revealed that 73% of enrollees reported that since obtaining coverage, their ability to access care has improved or stayed the same as seen in Figure 3 (Collins et al., 2016). Figure 4 shows that difficulty level to find a new primary care provider was very easy for 35% of enrollees, somewhat easy 23% of enrollees, somewhat difficult for 23% of enrollees, very difficult for 14% of enrollees, and only 5% of enrollees could not find a doctor. It is evident that public health insurance has the ability to increase the accessibility of care for patients (Collins et al., 2016). After the ACA implementation, it is evident that people who were previously uninsured had experienced improved access and affordability of care.

The improved access to healthcare in the Bahamas under NHI should also seek to produce similar responses of patient satisfaction and quality care.

### ***Issue 1***

Regular primary care visits in both the Bahamas and The United States are intended to be the first point of contact with the healthcare system. However, In the United States the first time many uninsured patients visit a doctor is at the emergency room (ER). The Centers for Disease Control and Prevention's (CDC) National Health Interview Survey conducted between January and June of 2011 revealed that 79.7% of adults ages 18-64 went to the ER because they did not have any other healthcare providers. The uninsured population made up 61.6% who were more likely to visit the ER because there was no other place to receive health services at the time of their last visit. This is a stark difference compared to 38.9% of adults with private insurance and 48.5% of adults with public health plan coverage who visited the ER (Gindi et al., 2012). Although there are not available data for patient ER use in the Bahamas, it is clear that uninsured patients who lack the ability to seek primary care overburden ER services. The uninsured population of the

Bahamas contribute to the same issue of overuse of emergency room services. Therefore, from the American healthcare system, the Bahamas can learn that primary care is essential for not only for lowering the hospitalization rates, but also controlling healthcare spending due to emergency room visits.

## ***Issue 2***

Lowering the hospitalization rates and emergency room visits require increased patient access to a sufficient workforce of primary care physicians and nurses. In both the Bahamas and the United States, there has been an issue with a pulling away from primary care toward specialized healthcare professions. This pull has been the result of licensing and training requirements, academic and professional prestige, higher incomes, and research grants (Emmanuel, 2014). In a 2015 press conference the current Minister of Health for the Bahamas, Dr. Perry Gomez, stated that in an effort to improve access to primary care in the family islands each island would have one contracted resident physician (Jones, 2015a). That one physician can be susceptible to burning out while trying to meet the demand for primary care of a particular island. For the period of 2014-2016, the Bahamas Medical Council records 220 registered and licensed general practitioners (List of Physicians Registered, 2014). Currently, it is unclear how much NHI will contribute to the increase in the need for primary care physicians. Therefore, it is essential for the Bahamas to conduct an analysis to project the growth rate for the demand for primary care physicians and nurses and distribute them accordingly through the archipelago.

The pull of physicians from primary care to specialty fields is also due to the career and cumulative wealth earned. A study done in the United States to determine the wealth gap between specialists and primary care physicians found that cardiologists, had a career wealth of \$5,171,407. This was a stark comparison to internists and family practitioners who had a career wealth of only \$2,475,838 (Figure 5) (Vaughn, DeVrieze, Reed & Schulman, 2010). Cardiologists also have a



larger cumulative wealth as depicted in Figure 6. The large gap in career and cumulative wealth between specialists and primary care physicians are largely due to reimbursement rate discrepancies. The Resource-Based Relative Value Scale (RBRVS) which determines physician reimbursement, calculates fees for each service as a factor of time, difficulty, stress, supplies, office overhead, personnel, and professional liability insurance (RBRVS-Based Payment Methods, 2012). Since specialists render more tests and procedures, each service is separately billable, thus allowing for higher reimbursements. Private insurance companies are also more likely to pay specialists for intense diagnostic and invasive services in a hospital, than primary care physicians for regular visits (Shi, 2012).

The fee-for service system is also present in the Bahamas. There is no data on how significant of an impact this payment system has on the pull away from primary care to specialty professions in the Bahamas. However, it is undeniable that there is a shortage in the primary care workforce of physicians and nurses. New NHI policies must develop strategies to restructure the delivery and reimbursement systems of primary care.

### ***Barriers to Implementation***

Physicians must converge to overcome the barriers in delivering primary care to minimize the prevalence in ER visits, and the impact of the pull to specialized professions. The convergence of Bahamian physicians however, may be challenged by a resistance for reimbursement reform. Finances play a role in the specialties physicians choose, the cost of emergency procedures, and the quality of care that is delivered. Therefore, resistance to reform may create barriers in strategizing approaches to maximize the labor of the primary care workforce.

Primary care physicians may be in support of having their salaries increased, or to receive incentives for working in clinics on the family islands. Conversely, specialists may detest lowered

reimbursements under new NHI policies because the services that they deliver are more advanced and costly. Therefore, the crafting of NHI payment and reimbursement policies must be sufficiently satisfactory for both the demand for primary care and the payment of specialists and primary care physicians. The discussions between both groups of physicians must be balanced in the considerations to maximize the labor of the primary care workforce, and incentivizing and reimbursing their labor based on performance measures and health outcomes. A compromise must be reached to satisfy the concerns of both primary care physicians who want to be paid higher, and specialists who don't want to be underpaid for their expensive services. Ultimately, the solution should primarily focus on optimizing health outcomes by increasing access to quality primary care in the most cost-effective manner possible.

### ***Recommendations***

From the American healthcare system, the Bahamas can learn that the lack of health insurance impacts the level of demand on the healthcare system, particularly the emergency room. It can also learn that there are different motivations for the health professions that are chosen which will directly impact the size of the workforce to meet a specific need. Therefore, the labor of the primary care workforce must be maximized to improve health outcomes and physician performance on quality measures.

As the Bahamas gleans solutions from the American healthcare system, it is important to consider the Alliance of Community Health Plan's (ACHP) assertion that physicians must play a pertinent role in creating an improved healthcare system and health outcomes. They have the ability to influence the practices of other physicians and the way they deliver care, and impact health care practices in hospitals and larger organizations. Physicians also have the ability to impact the expectations of consumers of the healthcare system, advocate for healthy lifestyle

practices, and most importantly impact public policy (Developing Effective Physician Leaders, 2015). Physicians involved in NHI planning should share the same vision for the future of the healthcare system and also encourage other stakeholders to invest in that vision to improve quality, cost-effectiveness, health outcomes, and patient satisfaction.

Experts from other jurisdictions should also be a part of the list of stakeholders that help to inform the health reform in the Bahamas. The first recommendation for the reformation is the collaboration of medical and mental health providers, governmental legislators, public and private healthcare organizations, and community leaders. The physicians should serve on a board of directors and as quality managers on committees to provide tools, data and support for the work of the leader. The leader should be a physician who is trained to create plans, makes decisions, and advocate for the needs of other medical health professionals. The leader should have experience and influence among their peers in order to impact and implement best practices for the delivery of quality primary care. The leader should also be able to garner support for a payment reform that increases risk sharing and accountability for physicians to perform well on quality measures.

Kaiser Permanente has demonstrated this type of investment in developing physician leaders by offering training activities, and learning opportunities for the physicians to gain more experience (Developing Effective Physician Leaders, 2015). The organization consisting of a non-profit health plan, hospital system, and medical groups not only provides quality healthcare, but is also committed to the continued personal and professional development of physician leaders (Developing Effective Physician Leaders, 2015). The organization supports the continued learning of its physicians and affords them leadership opportunities in order to transform the healthcare

system. Kaiser believes that coordinated care is delivered best by physician leaders within an organization that invests in their empowerment, learning and participation in external programs.

Since healthcare reformation is not an easy and rapid process, the second recommendation to enhance the delivery of primary care is to first focus on the key quality measures that seek to improve health outcomes, efficiency of care, and patient satisfaction. Quality measures such as hospital readmission rates, number of emergency room visits, number of tests ordered, patient vitals, patient wait time, and others may be identified to track performance and progress in the delivery of quality primary care. These customized measures, which are reflective of patient and population health status, should be agreed upon based on the shared values of the physicians. Ultimately, providers will also be comfortable with working to meet these performance measures because they would have been involved in the creation of those goals to improve quality, cost, and satisfaction of care. To accomplish this, physicians would have to meet regularly to review the data, identify areas that needs to be improved, and share best practices.

The third recommendation is for the Bahamas to undergo a reimbursement reform by rewarding physicians on an individual level instead of on the practice level or based on the number of procedures performed. Individual physicians would still be paid under the fee-for-service model. However, individual rewards would incentivize physicians to deliver the best quality care possible because reports would be generated to compare their performance to other physicians (Rewarding High Quality, n.d.). The total cost savings to the physician or the practice may be distributed that rewards the highest savings to the provider with the highest performance within the practice. The reimbursement reform should ultimately focus on increasing physician accountability for the outcomes of care delivered and the costs of patient care.

ACHP members have developed a value-based payment model with key strategies that are a universal best practice. If the Bahamas were to adopt a similar approach to the Tufts Health Plan Value-Based Global Strategy in Massachusetts, physicians would be required to bear the burden of delivering quality care or otherwise incur some of the financial risk. This risk sharing with both the patient and physician increases incrementally and gradually is seen in Figure 7. As the plan moves away from the fee-for-service model, the level of accountability for the provider to perform better increases. Under shared savings payment methods, physicians are still paid on a fee for service model based on the predicted estimates of the cost to treat a particular illness. The physician is responsible for managing their expenses to stay within the targeted budget cost to treat a specific condition or patient. Staying within the predicted estimate means both the practice and the patient would share in the cost savings. The budget risk share payment model increases the accountability for physicians to perform well because they would share with the patients both the savings of staying within budget and the expense should they exceed the targeted budget. Lastly, the payment method with the most risk for providers is capitation. Although the physician alone would enjoy the savings of being within budget, they also assume 100% responsibility for exceeding the per member per month budget. This shift from fee-for-service to risk-sharing can take up to three years (Rewarding High Quality, n.d.).

The fourth recommendation is to alleviate the demand on primary care physicians by expanding the roles of allied health professionals in conducting preventative screenings and lab tests, monitoring vitals, and patient education on nutrition and healthy lifestyle choices. Efforts to incentivize the growth of the primary care physician workforce can take decades to fill the demand gap (Bodenheimer & Smith, 2013). Registered nurses, licensed practical nurses, pharmacists, psychologist, social workers, physical and occupational therapists, and educators should all be

included in the expansion of roles of licensed practitioners who meet the increasing need for care. Unlicensed health professionals like medical assistants will also play a role the total care of patients. In order to assume these roles, nonclinical health professionals will have to undergo training programs that are informed by healthcare organizations to provide the proper training for assuming primary care responsibilities (Bodenheimer & Smith, 2013). This division of labor would restructure the delivery system of healthcare in the Bahamas. As a result, the access to primary care services will increase as more insured patients will receive care with the professional serving as their primary provider instead of seeking emergency room services. A summary of these issues, implementation barriers, and recommendations are seen in Table 1.1.

## **Electronic Health Records**

### ***Background***

Electronic Health Records (EHRs) are digitalized patient charts consisting of their medical history and treatment plans that are secured and readily accessible to authorized users. Information from all healthcare professionals who provide care for a patient is created, managed, and stored in a digital form. EHRs make sharing this patient information across providers and facilities easier. They keep track of patient diagnoses, pharmaceuticals, immunization history, allergies, medical images, and laboratory tests. They can also provide evidence-based resources needed for physicians to make medical decisions (What is an Electronic Health Record, 2013).

In the primary care setting, EHRs identify patients that are in need of a screening for an illness, vaccinations, or a checkup, and track the status of key health indicators. This health information technology can then be used to send out reminders to patients for upcoming appointments, preventative care screenings and other procedures. Unlike Electronic Medical

Records (EMRs) that is a record of a patient's medical history, EHRs are interoperable between multiple healthcare settings, and more detail report of the overall health of a patient. Patients may also receive a print out of their medical records for personal use. EHRs are also administratively beneficial for reducing medical errors, accurately coding diagnosis and procedures, easier billing transactions, and improving provider productivity. It is financially beneficial for reducing the costs to maintain paper charts, and lowering the medical costs of duplicated tests. Lastly, a benefit to the healthcare system is the government's ability to can track health status and identify populations of patients in various islands who are contributing to negative health trends. Furthermore, that data can be used for public health purpose to manage chronic diseases on a population level, trace outbreaks of disease, identify populations contributing to negative health trends, track population health status, and for research.

In a hospital setting or long-term care facility, EHRs improve the efficiency of care because physicians can better monitor progress and document quality measures. A report of nine hospitals in the United States that were early adopters of EHRs found that the key drivers for adoption included the integration of inpatient and outpatient care, the coordination of numerous services across organizations in the healthcare system, and the improved communication of medical information (Carroll, Edwards& Rodin, 2012).

Kaiser Permanente implemented its fully operational EHRs system with Epic Systems in 2012 and now patient health information is available to all of its hospitals, primary care physicians, specialists, and emergency rooms. It also has an analytic program that monitors patients for prescription refills, necessary tests, and call reminders. Kaiser has launched a Health 360 project that aims to mobilize health information for accessibility on mobile devices to both patients and physicians (Snyder, 2013). EHRs are also useful for physicians to be knowledgeable of the care

received in other settings and to be able to coordinate care with the information from those settings. In order to realize the cost and quality benefits of coordinating care between delivery settings, it is important for clinical data to follow patients (Health Information Technology in the United States, 2014).

The adoption of EHRs is incentivized by the Medicare and Medicaid Incentive Program. Adoption and implementation of EHR systems are carried out in six steps. The first is to assess the practice's readiness by examining the current organization, efficiency, workflow data collection, reporting protocol, and goals for the meaningful use of EHRs. The second step is to plan the approach for adoption by examining how the EHRs will improve inefficiencies, creating a contingency plan for unforeseen events, creating a project plan to switch from paper to EHRs, and identify privacy and security concerns. The third step is to select or upgrade to a certified EHRs system. This involves test runs to customize the system to the specific needs of the practice, clarifying all startup costs, and integrating billing and other systems. The fourth step is to conduct training and implement the EHRs system. The fifth stage is to achieve meaningful use by meeting the objectives of improved quality, safety and efficiency, patient and family engagement, improved care coordination, improved population health, and privacy and security of health information. The final stage is to continue quality improvement by evaluating the goals and needs of the system and ensuring that they are being met (How to Implement EHRs, 2013).

Physicians must meaningfully use EHRs in order to qualify for the CMS incentive program. Figure 8 outlines the core objectives to be accomplished within the first two years. Some of those objectives include the EHR being able to electronically prescribe medications, maintain a list of active medications, record and chart changes in patient vital signs, and also have the ability to protect the health information. In order to meet these objectives patient data must be captured



and shared in a standardized manner that can be used to track clinical conditions, and to generate reports on clinical quality measures and population health status. The objectives also strive to improve the coordination of care and clinical processes (Medicare and Medicaid EHR Incentive Program, 2010).

The Centers for Disease Control and the National Center for Health Statistics in the United States conducted a National Ambulatory Medical Care Survey on the use and adoption of EHRs among office-based physicians in the United States. Table 2.1 shows the difference between a fully functions and basic EHRs systems. A fully functional EHR features include the recording of patient history and demographic information, recording a list of patient problems, ordering prescriptions, warning of drug interactions and counter interactions, electronically sending pharmacies prescriptions, ordering laboratory test results, electronically sending test orders, viewing laboratory results, viewing imaging results, recording clinical notes, notes on medical history and follow-ups, list of medications, and providing guideline-based interventions or screening test reminders. A basic EHR features include the recording of patient history and demographic information, a list of patient problems, ordering of prescriptions, viewing of lab results, viewing of imaging results, recording of clinical notes and list of medications. As seen in Figure 9, 71.8% of office-based physicians used any type of EMR or EHR system, 39.6% used a basic system, and 23.5% used a fully functional system (Hsiao Hing & Ashman, 2014). Adoption was found to be more common in younger, primary care physicians, and physicians in larger practices. Perhaps these physicians were more open to reaping the benefits of EHRs and larger practices had a greater need and financial resources to invest in EHRs.

### ***Issue 1***

The start-up cost of EHRs adoption is high, particularly for small practices in the Bahamas. This cost includes software training, installation, hardware, lost revenue due to decreased

productivity. Ongoing costs are also required for software maintenance and support, hardware replacement, and information systems staffing. Over a long period of meaningfully using EHRs, financial benefits will be realized due to increased coding levels for diagnoses and procedures, improved time efficiency, paper savings, increased visits, and ease of billing transactions (Miller, West, Brown, Sim & Ganchoof, 2005).

The cost of EHRs in the Bahamas will not be the same as the cost in the United States due to differences in the economic climate, population size, and other factors. Therefore, the Bahamas would need to conduct its own cost-effectiveness analysis to determine how beneficial an investment in EHRs would be in yielding improved health outcomes. Furthermore, a continuous systematic evaluation of the EHRs system would be necessary to improve its design, development, and implementation specifically for the needs of the Bahamian population. There are currently no plans for an incentive program to fund the adoption and implementation of EHRs. There is also no plan for in the current draft of the NHI policy for how EHRs would be designed to meet the specific population needs, evaluated for core objectives, or analyzed for improvements.

### ***Issue 2***

The adoption of EHRs bring about delays in achieving the aforementioned benefits. In a practice, each physician can spend about 134 hours in preparation for using the system (Fleming, Culler, McCorkle, Becker & Ballard, 2011). Within the first few weeks, providers may also experience billing complications because they are still becoming accustomed to the new system. This learning curve also led to providers working longer for the first few months due to patient data entry and automating paper records.

### ***Issue 3***

A critical concern of EHRs is the susceptibility to breaches in security that can lead to unforeseen expenses. Additionally, patient information can be mishandled in the event of

mismatched encoding or decoding of orders across different EHRs systems. Patient information can also be compromised across multiple facilities within a healthcare system in the event of a technical glitch. An example of this was when The McAfee Antiviral software misidentified a harmless file as a virus and resulted in the repeated rebooting of computers in multiple hospitals in Rhode Island (Sittig & Singh, 2012). As a result, elective surgeries and non-emergency cases temporarily ceased to be rendered in the emergency room (Anti-Virus Program, 2010). EHRs are also susceptible to ransomware where offshore operations can require money from hospitals to have its information decrypted.

### ***Barriers to Implementation***

The first barrier to the adoption of EHRs in the Bahamas is the large startup costs and the initial lost in productivity. Physicians in private practices of varying size may be hesitant to adopt EHRs despite their benefits because they cannot afford the cost of automating their patient health records. They may also not want to experience productivity lost in initially automating patient information. A second barrier is the lack of national standardization in billing and diagnoses codes that can seamlessly be applied across healthcare organizations. This complicates the process of decoding patient information and may delay reimbursement and other healthcare services. A third barrier is difficulty in the interoperability of different EHRs within the healthcare system. If more than one type of EHRs system is adopted, there can be complications in the sharing of information across healthcare organizations that are not compatible. A fourth barrier is the lack of policy provisions for funding and incentive programs to initiate the adoption and implementation of EHRs. This is particularly an issue for Family Island clinics that may struggle to financially support this investment. If EHRs are localized to New Providence the capital only, it would defeat the purpose of increasing coordination of care among the family of islands. The fifth barrier to implementation is the initial lost in productivity due to physician training and learning how to

properly use the system. A sixth barrier is physicians becoming overwhelmed by having to revise the extensive medical histories of their patients after already being accustomed to making medical decisions without extensive patient information. (Health Information Technology in the United States, 2014). There are currently no analytic tools that allow physicians to filter the information in EHRs and generation only the information that is relevant for the patient appointment. Searching through extensive medical history of a patients to find the necessary information may also be time consuming and counterproductive.

### ***Recommendations***

From the American healthcare system, the Bahamas can learn that the adoption of EHRs is dependent on the specific needs of the physician and the practice. The long-term financial, administrative, and system benefits should outweigh start-up costs and loss in productivity. The Bahamas can also learn that EHRs are essential to integrating care among the family of islands. Primary care settings can use EHRs to manage chronic diseases and develop individualized self-management plans for patients. The first recommendation for the development of EHRs provisions in NHI is for The Bahamas to conduct an analysis of the population health needs of Bahamians in relation to its goals for improving quality and cost-effectiveness of care. The feasibility of the implementation of EHRs should be evaluated based on the ongoing costs and long-term benefits.

After these analyses, the second recommendation is for NHI planners to develop and adopt a model for the proper implementation and deployment of EHRs similar to the one seen in Figure 10. The first phase in the pathway involves the identification of drivers and goals to determine the feasibility and appropriateness of adopting EHRs. The second phase seeks to understand the needs, concerns, and values of the stakeholders and reaching an agreement on the objectives and increase the support for the expected provisions of the system. The third stage is to design, develop, assess and adopt the system. During this stage, qualitative and quantitative data may be collected to

identify flaws in the system, make necessary adjustments and then meet the need for training. The last stage is for the implementation of EHR system across the healthcare system. Ongoing evaluations should be conducted to determine whether the system is meeting the intended purposes and benefits are being realized. Any further drivers for change may be identified to improve and ensure optimal function (Catwell & Sheikh, 2009). The Bahamas' pathway for EHRs adoption should satisfy the intended purpose and meet specific goals of physicians in order to incentivize nationwide adoption.

The final recommendation is for the government of the Bahamas to make monetary provisions for physicians, private practices, clinics and other healthcare facilities that wish to adopt EHRs. An incentive program similar to the CMS Electronic Health Record Program may be developed to incentivize adoption by making funds available over a five-year period. Physicians may form a committee to develop objectives that must be met to demonstrate meaningful use in order to qualify for continued funding to support the startup and maintenance costs.

From the American healthcare system, the Bahamas can glean that the adoption and implementation of EHRs are initially pricey and requires physicians to invest time learning to demonstrate proper use of the system. However, the time savings, improved efficiency, fewer medical errors, ease of information sharing, and increased coordination outweigh these disadvantages. Given that the Bahamas is archipelagic in nature, EHRs are pertinent for integration in the fractured healthcare system, and sharing of patient health information among physicians in various islands. A summary of these issues, implementation barriers, and recommendations are seen in Table 1.2.

## **END OF LIFE CARE**

### ***Background***

End of life care (EoLC) focuses on delivering medical care to a dying patient and support to their family during the death experience in the comfort of their residence. In the United States, 20% of patients die in a nursing home and 58% dying in a hospital compared to only 22% dying at home. More patients dying in institutions than at home contributes to increased health spending at the end of life. About 30% of all of Medicare's health spending is during the last year of life and more than 50% of that expense is attributed to acute hospital care (Morhaim & Pollack, 2013). To curtail this hospital spending, hospice care involves the palliation of pain and symptoms without the delivery of curative measures. A team of physicians, nurses and caregivers work together to meet the specific physical, mental, emotional, spiritual, and practical needs of the terminally ill patient. Elderly patients with multiple chronic diseases as well as adults with medical crisis may seek EoLC if the illnesses become terminal. Home nurses deliver care to the patient at their place of residence whether at their personal home or nursing home facility. A physician's order for medical equipment and supplies can also be made for the delivery of care at the patient's residence.

EoLC typically commences when the prognosis of the patient is six months or less. Before patients start EoLC, they must sign a statement agreeing to accept palliative and hospice care instead of curative treatments (Coverage of Hospice Services, 2015). Hospice care is delivered on four levels. The first is routine home care which is the most common form of hospice where nursing care and home aid services are delivered. The second is continuous home care which is the intensive 24-hour delivery of care to manage pain and acute symptoms. The third is general inpatient care where the patient stays in a short-term hospital or hospice facility for pain and

symptom management that is too severe to be effectively managed elsewhere. Lastly, respite care is the short-term inpatient care to temporarily relieve the caregiver of their duties for up to five days every three months at a hospital or hospice facility (Hospice Levels of Care, 2014). Other hospice services may include family grief counseling, patient dietary counseling, and social work services (Coverage of Hospice Services, 2015).

Planning for end of life decisions requires the dying patient to discuss with their family and physician instructions about life-prolonging measures, and desires about where they would like to die. These life-prolonging decisions relate to cardiopulmonary resuscitation (CPR), the use of a ventilator, artificial nutrition and hydration via feeding tubes and intravenous fluids, and comfort care. Advanced care planning documents may also outline instructions on blood transfusions, kidney dialysis, do not resuscitate orders, and organ donation (Advanced Care Planning, 2016). These directives may also be outlined in a living will which records the patient's wishes on end of life care as related to their illness. In the event that the patient becomes incapacitated and unable to make their own decisions, they may identify a healthcare proxy through the living will or a health attorney to make health choices in their place. The proxy places themselves in the position of the dying person and makes decisions in the best interest of the patient. Advanced directive documents follow the patient wherever they are admitted. It contains information needed for providers to make EoLC decisions regarding based on personal wishes, religion, culture, and other needs. Revisions to the living wills can be made even after the person becomes ill or as they continue to age and their desires change (End of Life, 2016).

In the United States, each state is responsible for developing its own advanced care planning regulations. The advanced directive form in Georgia has four parts. The first part allows the patient to choose a health care agent who will be permitted to make healthcare decisions on

their behalf should they become unable or unwilling to do so. They are also responsible for decision making after death regarding autopsy, organ donation and final disposition of the body. The second part is the outlining of treatment preferences that only becomes effective if the patient becomes permanently unconscious. The third part allows the patient to choose a guardian who is responsible to ensure patient welfare, safety and support. This person may not necessarily be the same as the health care agent. The final part requires the patient to sign the directive along with the signatures of two witnesses (Georgia Advance Directive, 2010).

Primary care physicians typically initiate plans for patients to seek hospice care. They are expected to be available for telephone consultations because they are still primarily responsible for the patient. The referring physician is also expected to write an order for admission, work with the hospice team to manage symptoms, refill medication prescriptions, certify the eligibility for continued hospice care and complete and sign the death certificate (Weckmann, 2008).

The National Institute for Health and Care Excellence's guideline on EoLC highlights the importance physicians first recognizing symptoms of the end of life like progressive weight loss, fatigue, loss of appetite, lowered mobility, decreased consciousness, and social withdrawal may serve as indicators. Every 24 hours, the dying patient's care plan should be updated to reflect changes in health status. The individualized care plan should include personal wishes, preferred setting for care, preferences for symptom management, and care after death. Plans should be used to determine which medications are clinically appropriate and to avoid exacerbating the impact of the current condition (Care of Dying Adults, 2015).

### ***Benefits of EoLC Planning***

EoLC planning between the patient and physician involves educating patients on their options by initiating conversations as a part regular checkup visits. Eligible beneficiaries who do



not die within the six-month prognosis because their illness endured longer can have their eligibility extended and the hospice team can be recertified (Kaiser Family Foundation, 2015).

In 2011, Medicare spent an average of \$33,486 as seen in Figure 11 per beneficiary over age 65 that died. Spending declines after age 70 because patients along with their families and physicians choose less intense interventions as the patient grows older (Kaiser Family Foundation, 2015). As the illness continues to progress and both the patient and family become comfortable with the inevitability of death, and EoLC becomes more financially feasible. By accepting the reality of death and opting to forgo futile curative care, Medicare is able to save more money as the patient ages and the illness progresses. However, these cost savings do not compromise the dignity of human life.

It is evident that timely enrollment in hospice care is cost-effective. The sooner patients accept their prognosis and become comfortable with the dying experience, and the sooner they enroll, less money would be spent on curative procedures and more focus will be placed on hospice palliative care. From the CMS provision of hospice care in the United States, the Bahamas can learn that EoLC requires extensive planning through conversations among patients with physicians and family members. Advanced directives and living wills play a role in EoLC cost savings by forging curative care that is futile and accepting hospice and palliative care.

### ***Issue 1***

In the Bahamas, elderly persons typically die in hospital because of a deficit in hospice care facilities. The Cancer Society of the Bahamas built the first 10-room hospice facility in New Providence to provide palliative care and support services caregivers and visiting family members (Cancer Society, 2015). The second hospice center is Comfort Haven in the island of Grand Bahama that is funded by the Cancer Association of Grand Bahama. It is a 7-room hospice care center for cancer patients that is staffed with registered nurses, on-call physicians, palliative

caregivers, counselors and spiritual counselors. These are the only two hospice facilities in the country. Although they are essential for cancer patients, there are no accommodations for terminally ill non-cancer patients. The geriatric and residential nursing centers mostly offer adult day care and long-term care only. Currently, there are geriatric nurses who make monthly visits to the elderly to provide counseling and resource referrals. Home visitations allow nurses to assist in giving medications, change catheters and deliver personal health care (Community Nursing, 2011). Nevertheless, the deficit in hospice care delivery plans is alarming due to the fact that chronic diseases are the leading causes of death and the population of The Bahamas is aging.

### ***Issue 2***

Another significant concern is the lack of conversations both nationally and during physician visits about EoLC for Bahamians. This firstly raises concern for the preservation of human dignity and the patient's ability to express their dying wishes in advance, have personal matters resolved, understand their prognosis, and have a sense of autonomy. The lack of national awareness on the importance of EoLC is reflected in the lack of data found on the percentage of the healthcare budget that is spent at the end of life, statistics on hospitalization of terminally ill patients, and the standardized process of documenting advanced directives in the Bahamas.

### ***Issue 3***

End of life care in the United States was initially incorporated into the draft version of the ACA. However, it was politically misconstrued as a "death panel" where curative care is restricted to terminally ill patients who elected to only receive palliative and hospice care. This controversy led to the deletion of EoLC from the final ACA policy (Giovanni, 2012). Should EoLC in the Bahamas be similarly misconstrued as a death panel, it may also struggle to make its way to the final draft of NHI. Even though there are currently no published data on the quality and spending

on EoLC in the Bahamas, overtime, there may be negative implications for health expenditure on futile curative care to terminally ill patients.

### ***Barriers to Implementation***

The presentation of EoLC in the Bahamas may create opposition as it did in the United States. Palliative and hospice care are related to the end of life and many people are fearful of and try to avoid anything associated with death (Global Atlas of Palliative Care, 2014). Most Bahamians are reluctant to have conversations about death and advance directives, and are therefore ill prepared for that stage of life. Although there is no evidence to support this belief, from my personal experience, the medical culture around hospice care in the Bahamas is resistant because the healthcare sector places more emphasis on curing the sick than comforting the dying.

A second barrier to be overcome is the potential complaints by hospitals and physicians who will lose money as a result of performing fewer curative advanced procedures on patients at the end of life. Fewer procedures would cut into their profit margins despite the futility of life-sustaining care, particularly for cancer, heart disease, and other chronic illness.

### ***Recommendations***

The first recommendation is for the Bahamas to be careful in its word choice when introducing EoLC to the discussions of NHI. It should be careful to not mislabel EoLC as a death panel but to present it as a means of preserving human dignity.

The second recommendation is for provisions for EoLC planning to be made in the NHI policy as a benefit that can be received during primary care visits. The framework must also be constructed for the delivery of hospice and palliative care that cater to non-cancer patients. Both the private and public sectors should play a role in the operating of these services at home. For EoLC delivered at hospice care facilities, qualifications for operation should be determined by criteria for certification. These criteria should be specific to the needs of the dying population in

the Bahamas. Hospice facilities that meet the criteria should then be eligible for reimbursements which may be increased as studies are performed to reveal the feasibility and cost-effectiveness of the programs. These programs should continue to be developed, financed, and evaluated.

The third recommendation is for the Bahamas to deploy community workers to educate the public on the importance of hospice care and palliative care, and create awareness of the available options to receive this care. This education may transpire through community forums that respond to the questions and concerns of Bahamian people about EoLC. The aim of education is to stimulate conversations about advanced care planning within families. These conversations should then be had with physicians to document EoLC plans. Education may also occur via radio and television campaigns sponsored by public and private healthcare organizations that partner with the government. The education and awareness around EoLC need to be ongoing both on the national and personal levels.

The final recommendation is for physicians to undergo training to develop their communication skills in starting EoLC conversations with their patients. Healthcare professionals should be encouraged to keep their communication skills updated through continued professional development. Physicians in various healthcare settings like primary care, emergency rooms, or outpatient care should also have brochures and resources readily available to aid these conversations. Patient conversations need to be guided by a checklist of goals that address key issues. According to the American College of Physicians High Value Care Task Force, it is essential for physicians to ascertain the patient's awareness and acceptance of their illness, their preference for being involved and learning about their illness, and the level of prognosis information the patient desires. Physicians should also create personalized care plans that give the patient the feeling of dignity and autonomy. Communication must seek to ascertain and dispel the

fears of the patient, understand the critical abilities and quality of life that the patients would like to maintain, and the level of family involvement that the patient desires in EoLC decisions (Bernacki & Block, 2014).

The planning of NHI provisions must involve the input of physicians and nurses who will be referring and delivering hospice and palliative care. Given their experience in delivering care under the Bahamian healthcare system, their input on ways to effectively implement EoLC is pertinent for consideration. Additionally, hospice care professionals must be trained and mobilized throughout the archipelago to provide EoLC. A centralized office for EoLC should be created for dispatching hospice professionals as soon as physicians have given clearance to begin palliative care. That office should also be responsible for supplying the medical equipment and other basic medical items needed for hospice care. A summary of these issues, implementation barriers, and recommendations are seen in Table 1.3.

## **Conclusion**

Primary care, electronic health records, and end of life care are only three areas that were analyzed in this capstone for the improvement of the quality, integration, and cost-effectiveness of healthcare in the Bahamas. A similar analysis need to be conducted in other areas such as telemedicine, preventative care, examining the role of behavioral health in combatting chronic non-communicable diseases, and the role mental health professionals in end of life care. National Health Insurance is the proposed reform that seeks to improve the delivery of quality primary care, the integration of the healthcare system through EHRs adoption, and preserving the dignity of human life through EoLC. NHI in the Bahamas must also seek to improve the health outcomes for its chronically ill and aging population while maximizing every dollar spent.

Providing health insurance for 70% of the population that is currently uninsured will increase access to primary care and lessen the burden on the emergency rooms. The roles of non-physician health professionals will also need to be expanded in order to maximize the labor of the primary care workforce. Reimbursement reform for specialists and primary care physicians should be focused on improving performance and yielding better health outcomes. These health outcomes may be tracked using quality measures that identify areas for improvement.

Electronic Health Records are pertinent for the communication and coordination of care in the fragmented system of the islands of the Bahamas. If properly implemented and meaningfully used, EHRs would reap the benefits of reduced medical errors, accurate coding and billing, improved productivity, improved patient-physician communication, and lowered healthcare spending. The Bahamas has to conduct an analysis of its population health needs in relation to the quality and cost-effectiveness goals for EHRs adoption. It must also develop a model for proper implementation and objectives for proper use. Most importantly, the Bahamas has to create an incentive program that encourages nationwide EHRs adoption.

Finally, NHI must make provisions for EoLC in the Bahamas that emphasizes the documentation of advanced directives and living wills for terminally ill patients. The awareness levels of the importance of EoLC needs to be raised through national campaigns and personal conversations. Physicians should also be trained to have the conversations with their patients that are aided by brochures and resources that are readily available at various point of contact within the healthcare system.

The reformation of the Bahamian healthcare system will not be a quick and easy process. It requires the analysis of the specific health needs of its chronically ill and aging population.

The burden of good health should not just be on physicians to perform well on quality measures but also on patients to manage their health by making good lifestyle choices. Healthcare reform must also be inclusive of multiple stakeholders like medical and mental health providers, governmental legislators, public and private healthcare organizations, and community leaders. Their experience and expertise in delivering and advocating for good health are essential to planning how care should be delivered under NHI. Finally, the best way to track progress in the healthcare reform and identify areas needing improvement is to develop quality measures for every area of healthcare system. Accountability for producing improved health outcomes are created when every stakeholder in the healthcare system seeks to perform optimally and maximize the healthcare spending in the Bahamas.

## Appendices

**Table 1.1: Summary of Primary Care Issues, Implementation Barriers, and Recommendations for the Bahamas**

<b>Primary Care Issues in The Bahamas</b>	<b>Barriers to Implementation</b>	<b>Recommendations</b>
<b>Issue 1</b> Lack of Primary Care due to being uninsured can overburden the ER	Resistance for Reimbursement reform	<ul style="list-style-type: none"> <li>▶ Collaboration of primary care and specialized physicians</li> <li>▶ Develop quality measures to track health status improvements</li> <li>▶ Reimbursement reform based on performance</li> <li>▶ Expand the role of allied health professionals</li> </ul>
<b>Issue 2</b> Pull from Primary Care to Specialized Professions		

**Table 1.2: Summary of Electronic Health Records Issues, Implementation Barriers, and Recommendations for The Bahamas**

<b>Electronic Health Records Issues in The Bahamas</b>	<b>Barriers to Implementation</b>	<b>Recommendations</b>
<b>Issue 1</b> Large startup cost of EHR	<ul style="list-style-type: none"> <li>▶ Large startup expense and initial lost in productivity</li> <li>▶ Lack of national standardization in billing and diagnoses codes</li> <li>▶ Lack of interoperability</li> <li>▶ Lack of funding and incentive programs to initiate adoption</li> </ul>	<ul style="list-style-type: none"> <li>▶ Analysis of population health needs in relation to quality and cost-effectiveness goals for EHRs adoption</li> <li>▶ Develop a model for proper EHRs implementation and objective for proper use</li> <li>▶ Finance incentive programs for health practitioners to adopt EHRs</li> <li>▶ Sifting through extensive patient history for relevant information</li> </ul>
<b>Issue 2</b> Delays in Benefits		
<b>Issue 3</b> Security Compromised		



**Table 1.3: Summary of End of Life Care Issues, Implementation Barriers, and Recommendations for The Bahamas**

End of Life Care Issues in The Bahamas	Barriers to Implementation	Recommendations
<b>Issue 1</b> Lack of hospice care facilities <b>Issue 2</b> Lack of national awareness of importance of EoLC <b>Issue 3</b> Potential to be misconstrued as “Death Panel”	<ul style="list-style-type: none"> <li>➤ Medical culture emphasizes healing the sick than comforting the dying</li> <li>➤ Complaints by hospitals and physicians that lose money for advanced procedures</li> </ul>	<ul style="list-style-type: none"> <li>➤ Incorporate EoLC in NHI as a benefit and make provisions for reimbursement system</li> <li>➤ Deploy community educators to raise awareness of the importance of EoLC</li> <li>➤ Launch national campaign to stimulate ongoing conversations</li> <li>➤ Train physicians to have conversations</li> <li>➤ Make resources and brochures readily available to refer families for services</li> </ul>

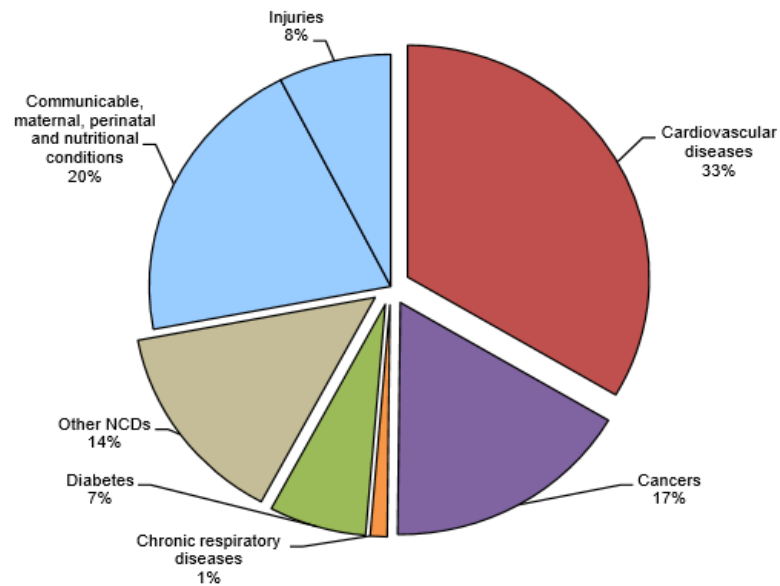
**Table 2.1: Difference Between Basic and Fully Functional Electronic Health Records**

Features of EMR or EHR systems	Basic system <sup>1</sup>	Fully functional system <sup>1</sup>
Record patient history and demographic information . . . . .	Yes	Yes
Patient problem lists . . . . .	Yes	Yes
Order prescriptions. . . . .	Yes	Yes
Warnings for drug interactions or contraindications. . . . .	..	Yes
Prescriptions sent to pharmacy electronically . . . . .	..	Yes
Order lab tests . . . . .	..	Yes
Test orders sent electronically . . . . .	..	Yes
View lab results. . . . .	Yes	Yes
Out-of-range values highlighted <sup>2</sup> . . . . .	..	Yes
View imaging results. . . . .	Yes	Yes
Electronic images returned <sup>3</sup> . . . . .	..	Yes
Orders for radiology tests <sup>4</sup> . . . . .	..	Yes
Record clinical notes . . . . .	Yes	Yes
Medical history and follow-up notes <sup>3</sup> . . . . .	..	Yes
List of medications <sup>5</sup> . . . . .	Yes	Yes
Provide guideline-based interventions or screening test reminders . . . . .	..	Yes

No of deaths (000s) 2012	
Ischaemic heart disease (13.3%)	0.3
HIV/AIDS (13.2%)	0.3
Stroke (8.9%)	0.2
Diabetes mellitus (6.5%)	0.1
Hypertensive heart disease (6.2%)	0.1
Lower respiratory infections (4.3%)	0.1
Interpersonal violence (2.6%)	0.1
Prostate cancer (2.6%)	0.1
Kidney diseases (2.5%)	0.1
Breast cancer (2.1%)	<0.05

**Figure 1: Top 10 Causes of Death in The Bahamas in 2012**

**Proportional mortality (% of total deaths, all ages, both sexes)\***



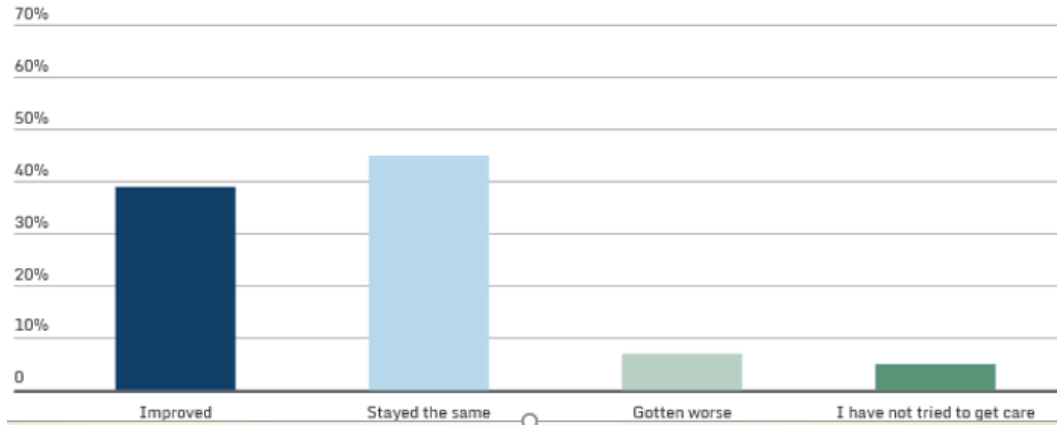
**Total deaths: 2,200**

**NCDs are estimated to account for 72% of total deaths.**

**Figure 2: Proportion of Non-Communicable Disease Deaths in The Bahamas in 2012**

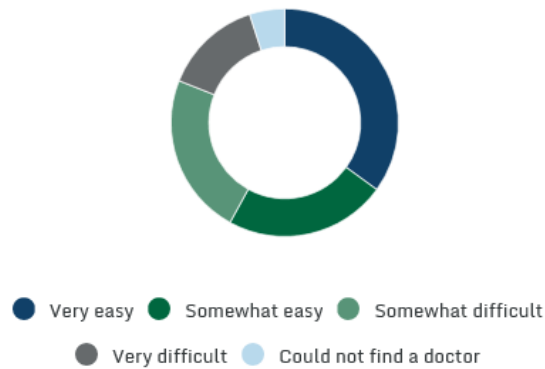


Since obtaining Medicaid or health coverage through the marketplace, would you say your ability to get the health care that you need has improved, stayed the same, or gotten worse?



**Figure 3: Ability of Adult with New Coverage to Access Care**

How easy or difficult was it for you to find a new primary care doctor or general doctor?



**Figure 4: Accessibility of Care for Adults with New Insurance Coverage**

Comparison of present value of career wealth*					
	Cardiologist	Primary care physician	MBA graduate	Physician assistant	College graduate
Base-case model present value of wealth	\$5,171,407	\$2,475,838	\$1,725,171	\$846,735	\$340,628

Figure 5: Comparison of Present Value of Career Wealth

Cumulative Wealth Potential For Cardiologists, Primary Care Physicians, And Other Career Tracks, Ages 22–45

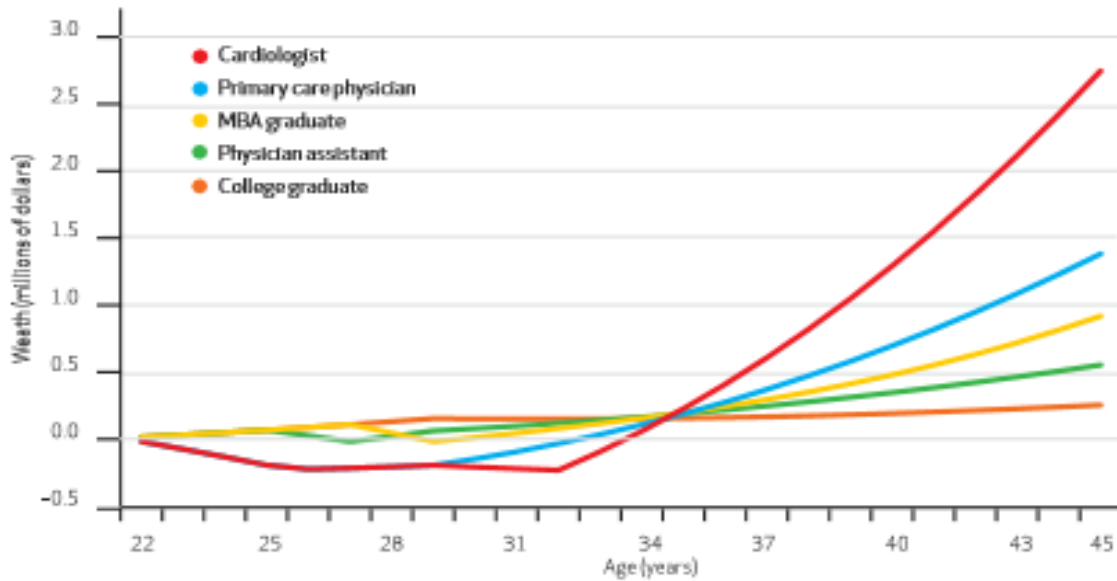


Figure 6: Cumulative Wealth Potential For Cardiologist, Primary Care Physicians, and Other Tracks

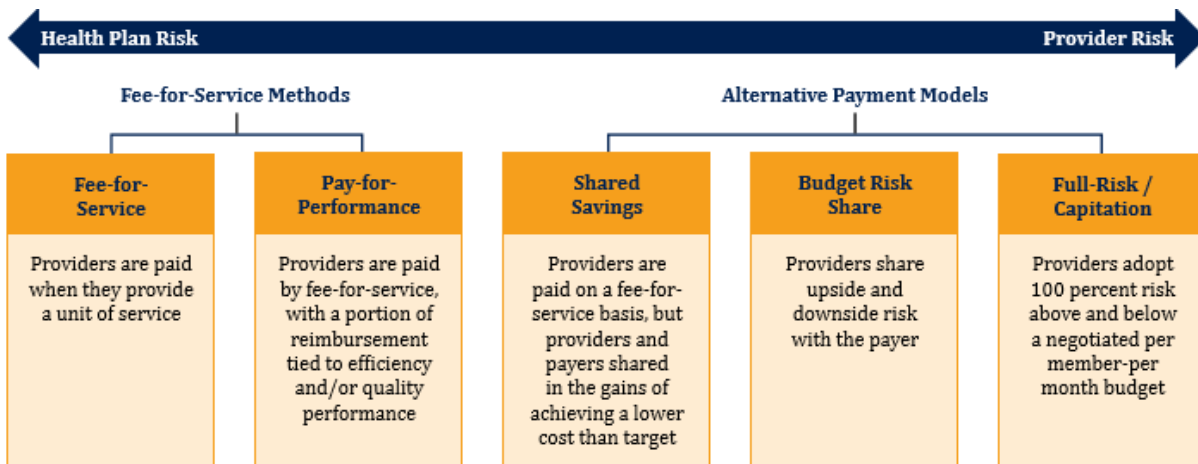
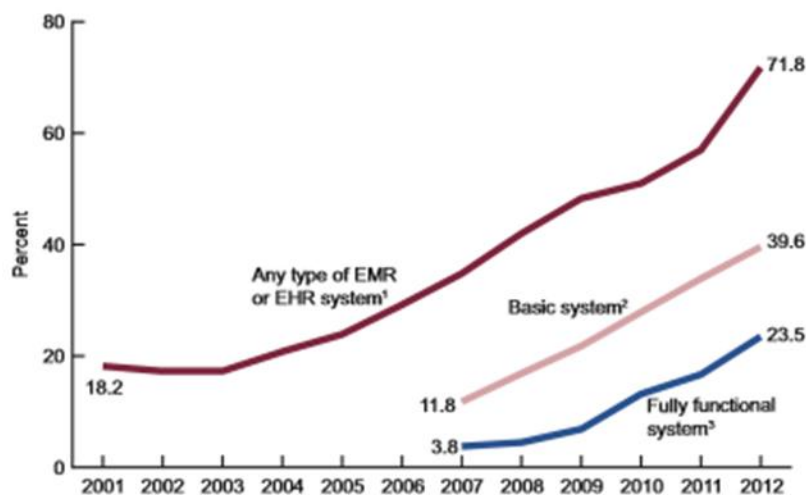


Figure 7: Payment System of the Watertown Massachusetts Tufts Health Plan.

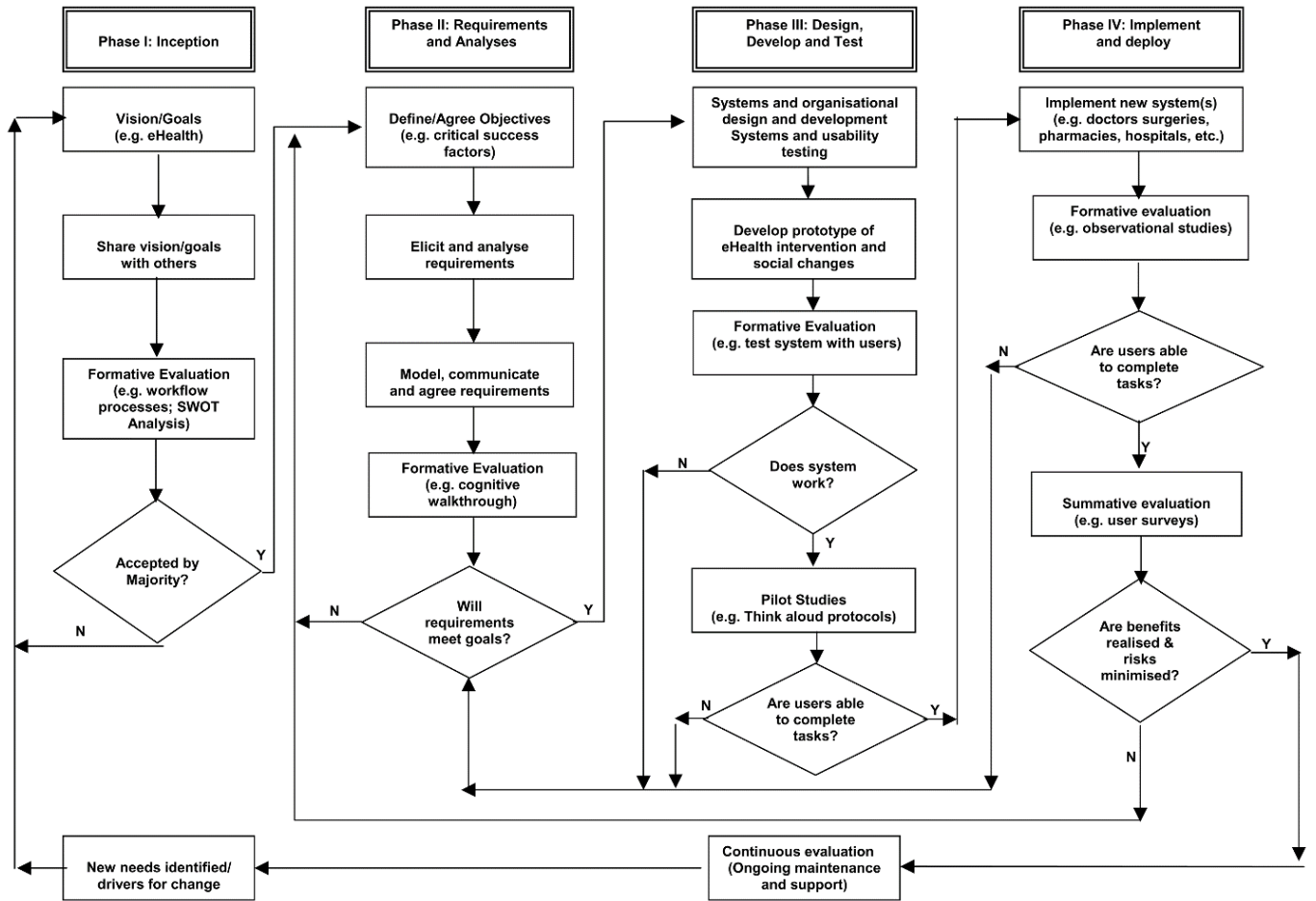
## Eligible Professionals – 15 Core Objectives

1. Computerized provider order entry (CPOE)
2. E-Prescribing (eRx)
3. Report ambulatory clinical quality measures to CMS/States
4. Implement one clinical decision support rule
5. Provide patients with an electronic copy of their health information, upon request
6. Provide clinical summaries for patients for each office visit
7. Drug-drug and drug-allergy interaction checks
8. Record demographics
9. Maintain an up-to-date problem list of current and active diagnoses
10. Maintain active medication list
11. Maintain active medication allergy list
12. Record and chart changes in vital signs
13. Record smoking status for patients 13 years or older
14. Capability to exchange key clinical information among providers of care and patient-authorized entities electronically
15. Protect electronic health information

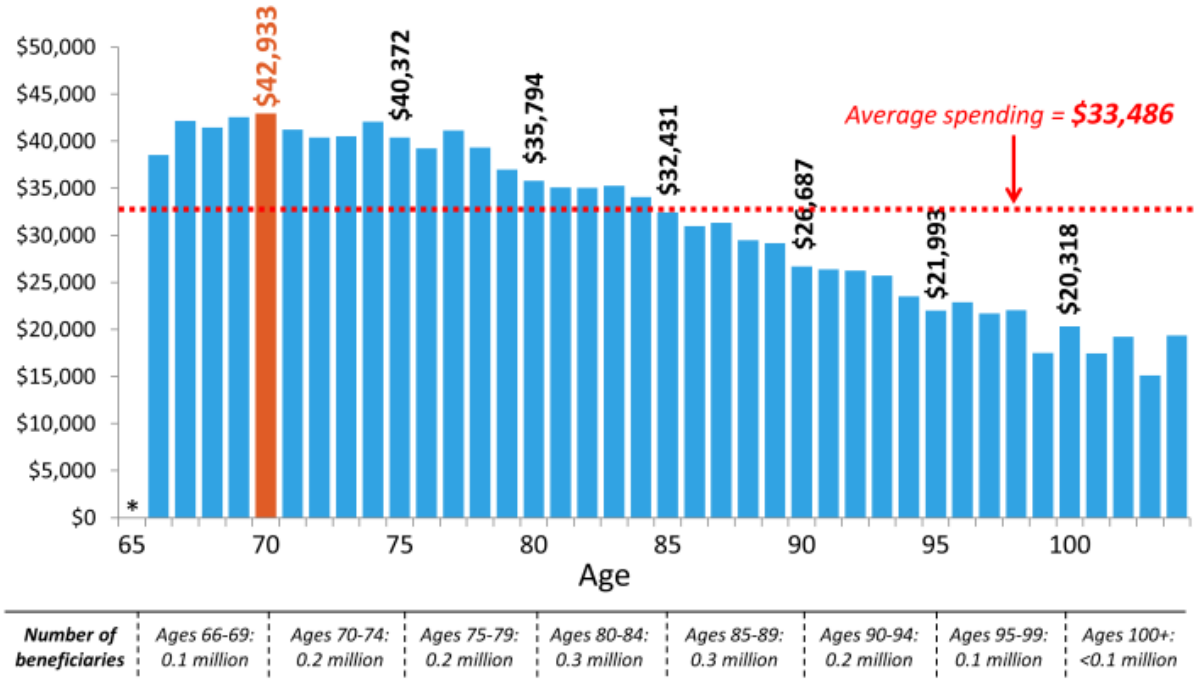
**Figure 8: Meaningful Use Core Objectives of Centers of Medicare and Medicaid Electronic Health Records Incentive Program**



**Figure 9: Office-Based Physicians With an Electronic Medical Record or Electronic Health Record System: United States 2001-2012.**



**Figure 10: Model of Pathway for Proper Implementation and Deployment of EHRs**



SOURCE: Kaiser Family Foundation, "The Rising Cost of Living Longer: Analysis of Medicare Spending by Age for Beneficiaries in Traditional Medicare," January 2015.



**Figure 11: Medicare Spending Decreased With Age for Beneficiaries Over Age 65 Who Died During 2011.**

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