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Chapter

First Draft

ECONOMIC DEVELOPMENT PLAN FOR THE HEALTH SECTOR

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Introduction

This report is the first part of a comprehensive analysis and assessment of the health sector in Puerto Rico. This part will include a historical review, a diagnosis and a SWOT analysis for the health sector to determine its current status in Puerto Rico.

At the start, it is important to consider that unlike other sectors of the economy, the fundamental objective of any health care system is to improve the quality of life of the general population. While the system undoubtedly creates employment and income, these are not the main measures of its contribution to the social well-being of its people, and the economy.

Chapter 1 will present a demographic and economic analysis, identifying the behavior of several relevant variables by periods. Then we will make an assessment on the resources available in Puerto Rico to provide the health care services for the population. In Chapter 2 we will present a SWOT analysis. The overall purpose of this report is to identify patterns affecting the health system at present and during the next decade.

CHAPTER 1
Diagnostic Assessment of Puerto Rico's Health Sector

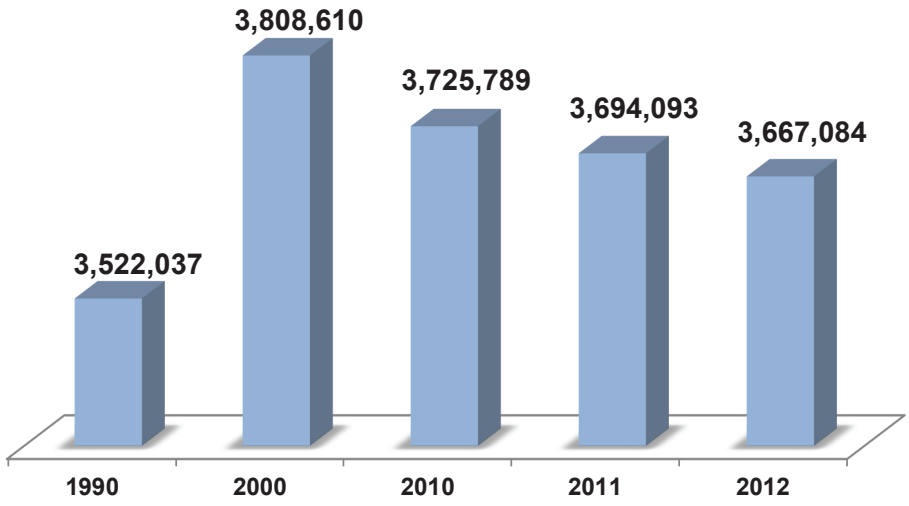
General Demographic and Economic Profile

Demographic Profile

Population Size

According to the US Census Bureau, in 2010 Puerto Rico had a population of 3,725,789. This represented a decrease of 2.2% or 82,821 persons compared to 2000 when the population was at its historic high of 3,808,610. The 2012 census estimate shows that the rate population decline has continued, with an estimated population of 3,667,084, representing an additional decrease of 0.7%. This population decline is the result of two observable demographic patterns: migration and low birth rate. In fact, net migration in 2012 was estimated at 54,000 people and birth rate has declined by 27% between 2000 and 2010.

Table 1: Puerto Rico Population 1990 -2012



Source: Census 2010

Table 2: Population Change 1980 - 2010

1980-1990	1990- 2000	2000-2010	2011	2012
10.2%	8.1%	-2.2%	-0.9%	-0.7%

Source: Census 2010 and US Census Bureau estimates 2011, 2012

Municipalities with highest and lowest population

Most of the population of Puerto Rico lives in the Standard Metropolitan Area (SMA) of San Juan. This area includes the most populated municipalities: San Juan, Caguas, Carolina and Bayamon. Together these municipalities have a population of 923.097 or 24.7% of the total population of the Island. Ponce has the largest population in the southern region of Puerto Rico, with 166,327 persons in 2010. Within the SMA, Caguas was the only municipality that did not experience a decrease in its population.

The less populated municipalities in the island are: Culebra, Florida, Las Marias and Maricao. The municipality with the largest population decline in Puerto Rico was Ceiba, located at the east of the island. According to 2010 census, Ceiba lost 24.9% of its population between 2000 and 2010.[1]

Table 3: Municipalities with highest and lowest population

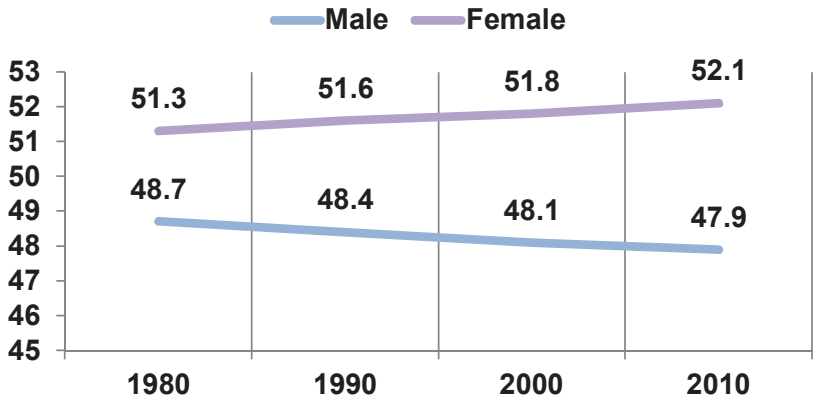
Municipality	2010	2000	Change	%
Bayamon	208,116	224,044	-15,928	-7.1
Caguas	142,893	140,502	2,391	1.7
Carolina	176,762	186,076	-9,314	-5
Ponce	166,327	186,475	-20,148	-10.8
San Juan	395,326	434,374	-39,048	-9
Puerto Rico	--	--	--	--
Culebra	1,818	1,868	-50	-2.7
Florida	12,680	12,367	313	2.5
Las Marias	9,881	11,061	-1,180	-10.7
Maricao	6,276	6,449	-173	-2.7

Source: Census 2010

Sex Distribution

With the declining population, the ratio between men and women has widened. According to the census of 2010 the ratio was 52.1% females and 47.9% males. The gender gap has widened since 1980 when the ratio was 51.3% females to 48.7% male.

Graph 2: Sex Distribution of Population



Source: Puerto Rico Planning Board

[1] *The retion in Ceiba's population is mostly due to the closure of Roosevelt Roads Military base in 2004. In 2000 the population in Roosevelt Roads wards accounted for over 20% of the Municipality total population.*

Table 4: Sex Ratio by Age in 2010

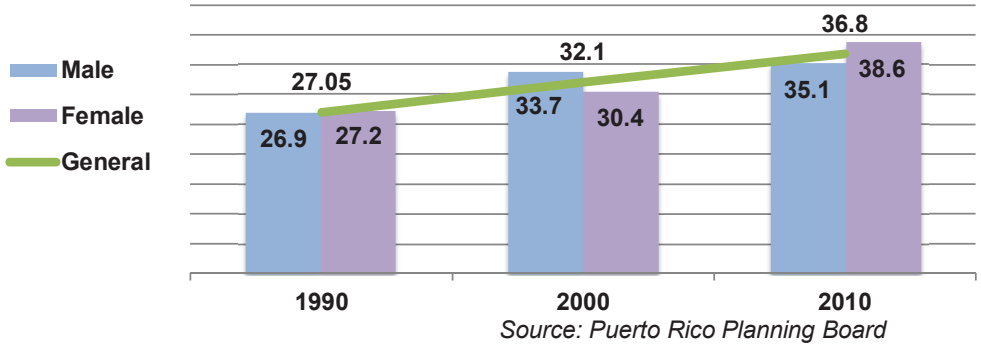
Male population	1,785,171	Female population	1,940,618
Under 5 years	3.1	Under 5 years	2.9
5 to 9 years	3.3	5 to 9 years	3.1
10 to 14 years	3.7	10 to 14 years	3.5
15 to 19 years	3.9	15 to 19 years	3.7
20 to 24 years	3.5	20 to 24 years	3.5
25 to 29 years	3.2	25 to 29 years	3.4
30 to 34 years	3.2	30 to 34 years	3.4
35 to 39 years	3.1	35 to 39 years	3.4
40 to 44 years	3.1	40 to 44 years	3.4
45 to 49 years	3.1	45 to 49 years	3.6
50 to 54 years	3.0	50 to 54 years	3.5
55 to 59 years	2.7	55 to 59 years	3.3
60 to 64 years	2.7	60 to 64 years	3.2
65 to 69 years	2.2	65 to 69 years	2.6
70 to 74 years	1.7	70 to 74 years	2.0
75 to 79 years	1.2	75 to 79 years	1.5
80 to 84 years	0.7	80 to 84 years	1.1
85 years and over	0.6	85 years and over	1.1
Median age	**35.1**	**Median age**	**38.6**

Source: Census 2010

Median Age

The age structure of the population is essential for demographic analysis. If a population has an average age over 30 years it is considered old. The 2010 census indicates that Puerto Rico's population is undergoing an accelerated aging process. The median age increased from 32.1 years in 2000 to 36.9 years in 2010. Graph 3 shows the average age by sex since 1990 when it was 27.05 years.

Graph 3: Median Age 1990 - 2000



Source: Puerto Rico Planning Board

The municipality with the highest median age is San Juan. In fact, the 2012 census estimates shows that the median age of this municipality is higher than the median for Puerto Rico: San Juan's median age is 39.8 years versus Puerto Rico's median age of 37.8 years.

Table 5: Median Age in High Populated Municipalities

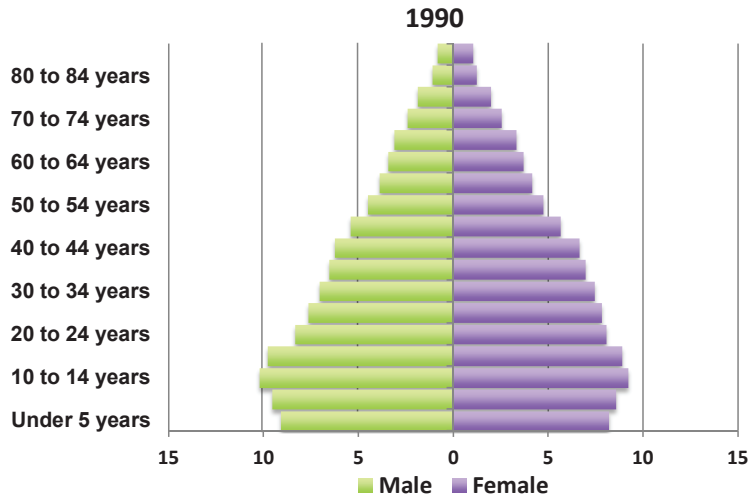
	2010			2012		
Municipality	Median Age	Male	Female	Median Age	Male	Female
Bayamón	35	40.5	38	38.8	35.6	41.6
Caguas	35.2	39.2	37.4	38.1	35.9	40.1
Carolina	35.7	40.2	38.2	39	36.4	41.3
Ponce	34.3	38.7	36.6	37.6	35.3	39.9
San Juan	36.6	41.1	39.1	39.8	37.4	42.1
Puerto Rico	39.9	35.1	38.6	37.8	36.0	39.7

Source: Census 2010

Puerto Rico's Population Pyramid

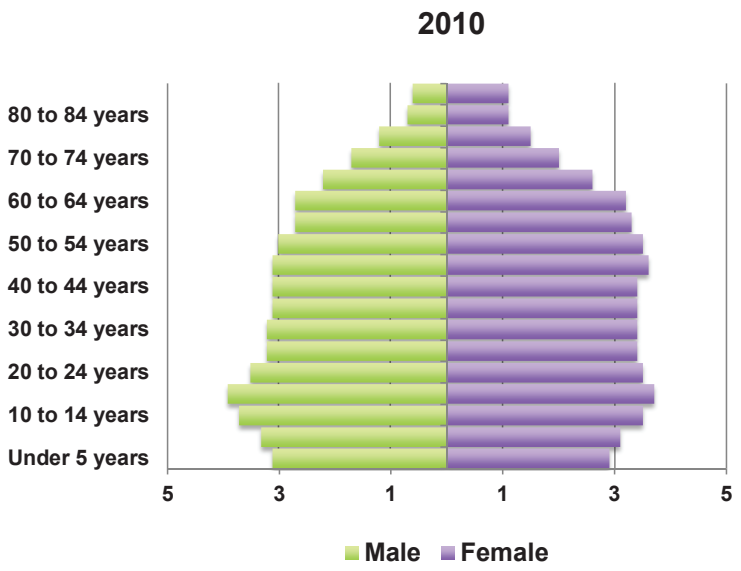
As a sign of the aging process in Puerto Rico, the population pyramid has become thicker in its older cohorts. This process is evidenced in the population pyramids of 1990, 2000 and 2010.

Graphic 1: Population Pyramid 1990



Graphic 2: Population Pyramid 2000

Graphic 3: Population Pyramid 2010



Demographic Facts

As a consequence of an aging population, the proportion of individuals older than 65 in Puerto Rico has increased from 11.2% in 2000 to 14.5% in 2010. The most recent estimates for 2012 suggest that this proportion further increased to 15.9%.

Table 6: Population Over 65

	1990	2000	2010	2012
Value	340,884	425,137	541,998	582,034
Percent	9.70%	11.2%	14.5%	15.9%

Source: Census 2010

Table 7: Population Under 18

	1990	2000	2010	2012
Value	1,154,527	1,092,101	903,295	849,363
Percent	32.8%	28.7%	24.2%	23.1%

Source: Census 2010

In 2010, life expectancy at birth for Puerto Rico's population was 78.91 years. This represented an increase from 2000 when the life expectancy was 78.43 years. For males the life expectancy was 75.07 years and for females it was 82.95.

Birth Rate per 1,000 women has declined during the last three decades. Along with this decline, the fecundity rate that measure the number of women in reproductive age per 100 females has also declined as another sign of an aging population. On the other hand, the mortality rate has shown a moderate increase throughout these decades. Two of the main factors explaining this increase are heart diseases and the number of homicides in Puerto Rico (see Health outcomes).

Table 8: Demographic Facts 1990, 2000, 2010

	1990	2000	2010
Life Expectancy at Birth	78.07	78.43	78.91
Birth Rate	18.9	15.6	11.3
Fecundity Rate	71.25	60.64	46.55
Mortality Rate	7.4	7.6	7.9

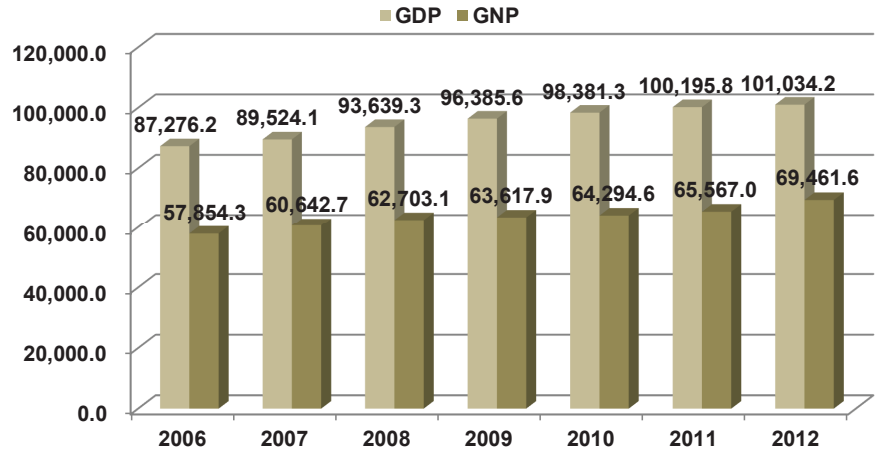
Source: Puerto Rico Health Department

Economic Profile

Puerto Rico's Economy

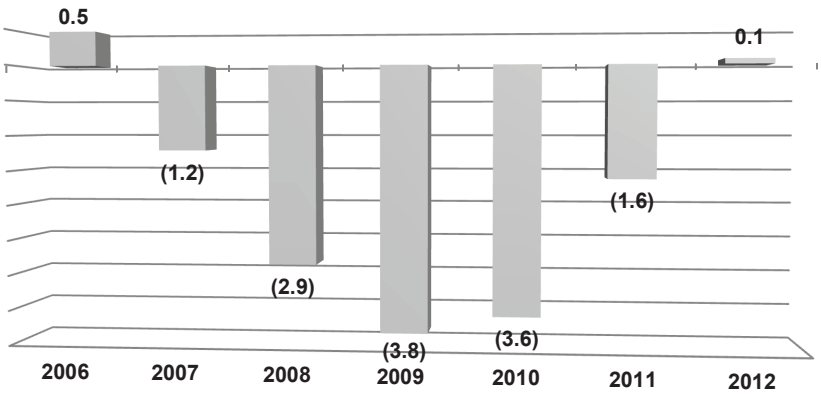
In 2012 Puerto Rico's Gross Domestic Product (GDP) reached $101,034 million in nominal prices; an increase of 0.1% in comparison with 2011. Gross National product (GNP) was $69,461.6 in 2012, an increase of 5.9%. The GDP composition by sectors was manufacturing, (45.6%); insurance, finance and real estate (20.5%); commerce (7.5%); service (18.8%); government (8.1%); transportation and utilities (2.7%) construction and mineral (1.4%); agriculture (.8%).

Graphic 4: GNP and GDP 2006-2012 (Millions of current dollars)



Source: Puerto Rico Planning

Graphic 5: Percent of Real GDP Growth 2006-2012



Source: Puerto Rico Planning Board

Labor Force

According to the US Bureau of Labor Statistics (BLS), by December 2013 the labor force was estimated to be 1,197,168. That represents a decrease of 0.7% with respect to December 2012. Employment decreased by 19,616 jobs to 1,012,607 causing an increase in the unemployment rate to 15.4%. The total unemployed people were 184,561 showing an increase of 11,195 with respect to December 2012.

Table 9: Labor Force 2005 - 2013

Year	Labor Force	Employment	Unemployment	Unemployment Rate
2007	1,350,623	1,198,436	152,187	11.3
2008	1,333,251	1,151,876	181,375	13.6
2009	1,285,327	1,080,096	205,231	16.0
2010	1,255,766	1,053,856	201,910	16.1
2011	1,229,226	1,038,726	190,500	15.5
2012	1,205,589	1,032,223	173,366	14.4
2013p	1,197,168	1,012,607	184,561	15.4

**Data for December of each year p: preliminary data*
Source: US Bureau of Labor Statistics 2013

Employment by Economic Sector

According to the BLS, in 2013 the distribution of employees by sector was 26.8% in government and 73.2% in private sector. The distribution of nonfarm employment was Construction and mining (3.2%); Trade, Transportation and Utilities (19.4%); Information (2.2%); Finance, Insurance and Services (4.9%); Finance, Insurance and Services (4.9%); Professional and Business Services (12.0%); Manufacturing (8.5%) Educational and Health Services (12.8%); Leisure and Hospitality (8.4%) and Other Services (2.0%). Table 10 shows the number of employees by sector and year.

Table 10: Employees by Economic Sector

Year	2009	2010	2011	2012	2013p
	In thousands				
Employed	935.9	920.1	932	929.3	904.3
Government	271	258.8	258.6	258.8	242.3
Private	664.9	661.3	673.4	670.5	662
Construction and Mining	35.6	31.6	36.2	34	28.9
Trade, Transportation, Utilities	172.2	174.4	174.2	174	175
Information	18.8	18.4	18.7	19.1	19.5
Finance, Insurance, Services	45.9	43.9	44.5	45.2	44.4
Professional & Business Services	102.6	104.6	108.7	110.7	108.1
Manufacturing	88.2	85.7	82.6	77.1	76.9
Educational and Health Services	111.9	113.3	117.5	117.5	115.3
Leisure and Hospitality	70.4	70.8	72.9	74.7	75.8
Other Services	19.3	18.6	18.1	18.2	18.1

**Data for December of each year p: preliminary data*
Source: US Bureau of Labor Statistics 2013

Median Income

The 2011 data indicated that median household income in Puerto Rico was $19,122. The applicable minimum wage that year was $7.25/hour. The family median income was $22,296. Of all households (1,230,093), 60.70% had a mean income of $35,490. And 41.50% received some form of Social Security income. These households had a mean annual income of $10,912. Another 13.5% received retirement income with a mean of $13,190. The median earnings of males and females that are full time employees showed minimal differences with $22,793 for males and $21,889 females.

Table 11: Households Incomes

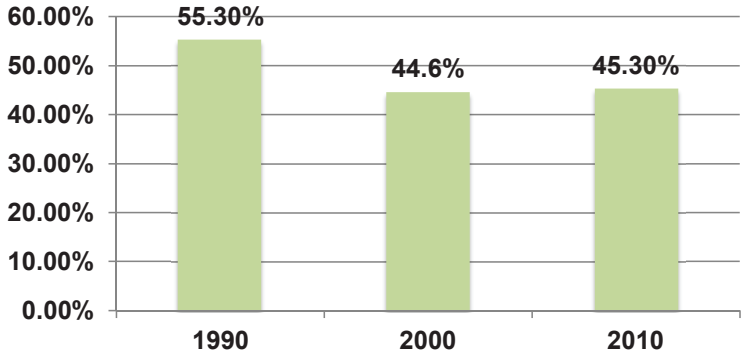
Total households	1,230,093	
Median household income	$19,122	
Mean household income	$29,872	
With earnings	746,974	60.70%
Mean earnings	$35,490	
With Social Security	510,022	41.50%
Mean Social Security income (dollars)	$10,912	
With retirement income	165,951	13.50%
Mean retirement income	$13,190	
With Supplemental Security Income	$4,322	0.40%
Mean Supplemental Security Income (dollars)	$7,274	
With cash public assistance income	$67,958	5.50%
Mean cash public assistance income (dollars)	$2,240	
With Food Stamp/SNAP benefits in the past 12 months	427,492	34.80%
Families	905,467	
Median family income	$22,296	
Mean family income	$33,037	
Nonfamily households	324,626	
Median nonfamily income	$10,862	
Mean nonfamily income	$18,640	
Median earnings for workers	$16,003	
Median earnings for male full-time, year-round workers	$21,793	
Median earnings for female fulltime, year-round workers	$21,889	

Source: Community Survey 2012

Population Poverty Line

The percent of population under the poverty line in 2010 shows an increase compared with 2000 census, but still below that for 1990. This was mostly due to the lack of economic growth between years 2006 and 2010 and the decrease in employment.

Graphic 6: Population Under Poverty Line 1990-2010



Source: Community Survey 2012

Table 12: Families Under Poverty Line

Families and People Whose Income in the Past 12 Months is Below the Poverty Level	2012	2011
All families	40.60%	41.70%
With related children under 18 years	50.90%	51.70%
With related children under 5 years only	52.40%	50.00%
Married couple families	28.90%	30.20%
With related children under 18 years	32.20%	33.90%
With related children under 5 years only	31.70%	34.50%
Families with female householder, no husband present	57.40%	58.40%
With related children under 18 years	68.30%	68.60%
With related children under 5 years only	70.20%	67.40%

Source: Community Survey 2012

Historical Review

History

A historical review of the health system in Puerto Rico since the 1900's reveals four mayor stages. The first was the creation of the Puerto Rico Department of Health in 1912. The second stage was the creation of what is known as the "Arbona System" implemented in 1958. The third, the Puerto Rico Health Reform of 1993 and the fourth and last is MI Salud in 2010.

The beginning of the Puerto Rico Health Sector

The Department of Health was created under the Act No. 81 of March 14, 1912 directed by a commissioner under the governor orders. At this time the public health was provided by municipal and district hospitals. During this stage, the private sector consisted of private hospitals from churches or medical practices (i.e. Auxilio Mutuo in San Juan; Santo Asilo de Damas in Ponce; La Concepcion in San German.)

In 1946 the Hill-Burton Act was enacted. This act provided federal funds for the construction and improvement of hospitals in Puerto Rico. The act sought to give free or low-cost medical care and to increase the amount of hospital beds in the United States. The law never achieved its goal due to a lack of regulation and a national health policy. However, the act allowed the construction of public hospitals and strengthened the private health sector in Puerto Rico. By this time the government continued to fund the public health services, while the private care was reserved to the population with resources to pay for it. There was no system of health care at that time.

The Arbona System

In 1954 a reorganization and change in the structure of the public health system of Puerto Rico was recommended. Those recommendations had as its main purpose to create a regional health system. Following those recommendations, Dr. Guillermo Arbona and John B. Grant from the Rockefeller Institute created a new health model. They organized a hierarchical system with different levels of services to different levels of care and geographic services area. The Arbona system, as it was known, had a decentralized structure with an integrated system that coordinated the health care services.

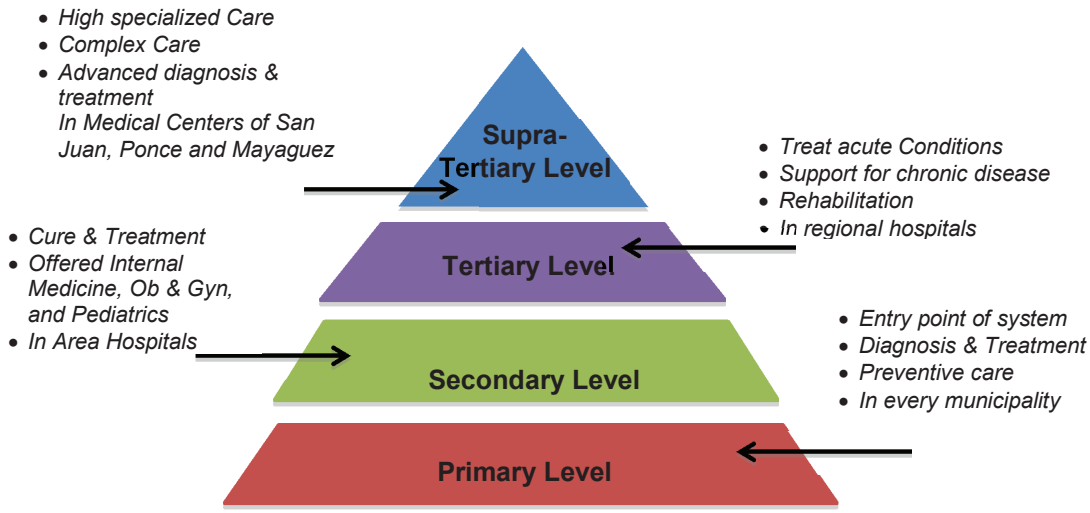
Under this model, Puerto Rico was divided into homogenous regions. As criteria of demarcation, the system considered the size of municipalities, political boundaries, transportation networks and epidemiological profiles. Each region was composed from three to seven municipalities.

To ensure the access of health care, every municipality had a center that provided a primary level of care, which worked as an entry point to the health care system. The services were ranked by level of complexity. When a more specialized and highly complex service was needed, the patient was transferred to a more specialized hospital. With this concept the health system had a viable administration and ensured the access to services for the population.

The Arbona System had three levels of care: the primary, secondary and tertiary level. A fourth, more specialized level, was known as supra-tertiary level. A Health Care Center or Diagnostic and Treatment Center (CDT) located in each municipality provided the primary level services. In this level, basic services such as orientation for prevention of diseases, diagnosis, and treatment were offered. The medical teams were composed of general practitioners and specialists with the help of other health professionals such as nurses. At this level, the services were provided for patients whose management did not require surgical procedures or the use of advanced medical equipment. When a patient needed those services, he was transferred to the Area Hospital where the secondary level of care was provided. At the secondary level, the hospital offered specialized medical services such as Internal Medicine, Pediatrics, Surgery, Obstetrics and Gynecology, and sometimes subspecialists. The Area Hospitals were located in the municipalities of Carolina, Guayama, Humacao, Manati and Yauco.

The tertiary level of care was offered for patient that required medical expertise and advanced diagnostic equipment. The regional hospitals for tertiary care was located at Caguas, Arecibo, Fajardo, Bayamon, Ponce, Mayaguez, Aguadilla and San Juan. These centers also provided a Medical Intensive Care Unit and Coronary Intensive Care Unit. The Medical Center of San Juan provided the Supra-tertiary level of care for the island.

Figure 1: The Arbona Regionalization System (1954 - 1992)



Source: Adapted from Ramirez 2008

Development of the Public Health Sector in Puerto Rico

The Arbona System coincided with the government project "Bootstrap", that was an integrated effort to develop the country's economy in the short term and improve the socioeconomic conditions of the population. The system should contribute to the development of healthy and productive human resources that could contribute to this economic development.

Along with the Arbona Model in 1954, the private system grew in terms hospital beds, medical supplies and specialists in Puerto Rico. This growth was supported by health insurance industries and the economic development experienced during that date.

In 1960, the prevalence of chronic and degenerative diseases that required highly specialized medical management stimulated the build of the Puerto Rico Medical Center in Rio Piedras. With this, the government created the Pediatric Hospital and the University Hospital for Adults. Those hospitals worked as an academic center for medical research and the training of doctors and other health professionals that were studying in the School of Medicine of University of Puerto Rico established in 1950.

In 1965 the U.S. federal government, amended the Social Security Act, embracing Puerto Rico in the Medicare program for population over 65 years and the Medicaid program for low-income citizens. This represented a source of federal funds to finance the health system. These measures strengthened the provision of services and expanded the government institutions to provide health care services. It also promoted the development of the insurance industry in Puerto Rico.

During this time, the government also created an insurance to cover car accidents and to address work related accidents/ conditions, creating insurances for drivers and injured workers. These organizations were the State Insurance Fund Corporation (SIFC) and the "Administracion de Compensacion por Accidentes Automovilísticos (ACAA).

A New Public Policy on Health

In 1976, under the administration of the Governor Rafael Hernandez Colón (1972–1976), he proposed a new public policy about the health care in Puerto Rico. This policy sought to ensure the best quality and access to health care for the population through prevention and primary care. As part of the new policy, the law 11 of June 23, 1976 known as The Puerto Rico's Comprehensive Health Services Reform Act was enacted. This law is still active as an official public policy for the government. Its three main premises were:

1. The government of Puerto Rico will be responsible for providing access to health services for the population.
2. The primary health care should be a priority in the health system.
3. The state should have the participation and collaboration of the private sector to address the health care needs of the population.

Along with the new public policy, the government created an entity to work with the drug-addicted community in the island. Also, an amendment was made to create the General Health Council. A regulatory base for hospital facilities, health services in the public and private sector, and for the health professionals was also created.

In 1979, the Governor Carlos Romero Barceló (1976-1984) made the first step towards the privatization of public health system, presenting his project "Democratization of Medicine". The project consolidated the primary and secondary levels of care into the Area Hospitals and allowed the private administration of these facilities. That model shared the risk and costs between the Department of Health and the private administrator. Hence, the profit generated by the private administrator worked as an incentive to be more efficient when offering health services.

During the second administration of Governor Hernandez Colon (1984-1992), he enacted a law that regulated the contracts for the private administration of public health facilities in Puerto Rico. This law allowed the transfer of these facilities to private sector and worked as a tool for the privatization process in the Health Reform of 1993.

Puerto Rico's Health Reform

In 1992, Puerto Rico had a dual health system. One ran by the government and the second one ran by private health insurances. The private model was perceived as efficient and with better quality. The public model was perceived to have a lack of access and with inferior services. The public model, which was based on the health regional system, presented an excess of expenditure and mismanagement of the fiscal resources. In addition, an increase in costs was projected, that would make it difficult to be assumed by the government.

In 1993, Pedro Roselló Gonzalez was elected as the governor of Puerto Rico. During his political campaign, he promised a health care reform that will provide health care insurance for the medically indigent population in Puerto Rico. The first effort was done with the implementation of Act No. 72 of September 7, 1993, which created the new Health Reform for Puerto Rico and a new public corporation: the Puerto Rico Health Insurance Administration (PRHIA). The new model sought to eliminate the disparities in health care services between public and private participants, ensure the access to services, and improve the service quality, the efficiency and effectiveness through competitive mechanisms. Through this model, the government changed his role from a health care provider to a health insurance provider.

With the reform, the Department of Health would be relegated to an agency for normative, regulatory issues and to oversee the general functioning of the health system. Then PRHIA would be authorized by law to make medical services contracts with insurance companies on the market and provide health insurance to indigent population.

To deal with the rising costs in medical technology of the public health system, the idea proposed by the Reform was to privatize all the public health system. With that, public and private systems were merged. By this time, the arguments were that with the free market forces, the health sector would grow and the cost would be lower.

In 2003, Governor Sila M. Calderon ended the privatization process of health facilities with the Law 3 of 2003. This law prohibited the sale, assignment, exchange and disposal of health facilities to private interests. The law also established that the Department of Health had the responsibility to provide health care to Puerto Rico's population.

MI Salud

In 2010, Governor Luis G. Fortuño introduced a new model for the public health system known as MI SALUD. This new plan focuses in preventive care, and seeked to resolve the lack of access produced by the Puerto Rico Health Reform. Amongst the steps taken to improve services were.

- Eliminates referrals for in-network services
- Extends hours of services.
- 5% of premiums are retained for quality enforcement.
- Prescriptions required no counter-signatures.
- Expands population eligible for Medicaid using ACA funds.

The health care reform has been widely criticized since its implementation. The statistics does not support its performance in a positively way. In fact, the statistical report of the Department of Health in 2010 does not show an increase in quality and access of services provided by the public health care system. The number of hospital beds in privatized hospitals has decreased from 3,495 (1993) to 2,130 (2010), a reduction of -1.365 hospital beds. Something similar occurred with the number of active physicians in public hospitals. When the reform began, the public system had available about 3,000 physicians, this number decreased to 1,722 in 2010. Furthermore, the rate of hospital beds has decreased from 3.74 per 1000 inhabitants in 1993 to 2.3 beds per 1000 inhabitants in 2010. The next section will show a profile for the actual Puerto Rico health sector and the transformation experienced by the public health system.

Diagnosis of the Puerto Rico Health Care System

Health Sector Productivity

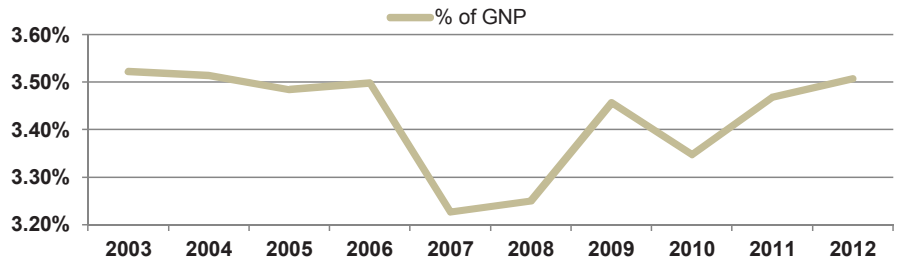
In 2012 the health sector in Puerto Rico grew by 2% when compared to 2011. Since 2003 the sector has contributed approximately 3.5% of annual gross domestic product, being the sixth most important productive sector in the economy of Puerto Rico. The value of services produced in 2012 amounted to $ 3.544 billion.

Table 13: GDP by Sector in Puerto Rico 2012

	Gross Domestic Product	101,034.2	--
1	Manufacturing	46,113.9	45.6%
2	Real Estate and Rental	16,011.5	15.8%
3	Government	8,278.0	8.2%
4	Finance and Insurance	4,754.3	4.7%
5	Retail Trade	4,693.5	4.6%
6	Health Care and Social Services	3,544.0	**3.5%**
7	Wholesalers Trade	2,942.7	2.9%

Source: Puerto Rico Planning Board

Graphic 7: Health and Social Services as a percent of GDP

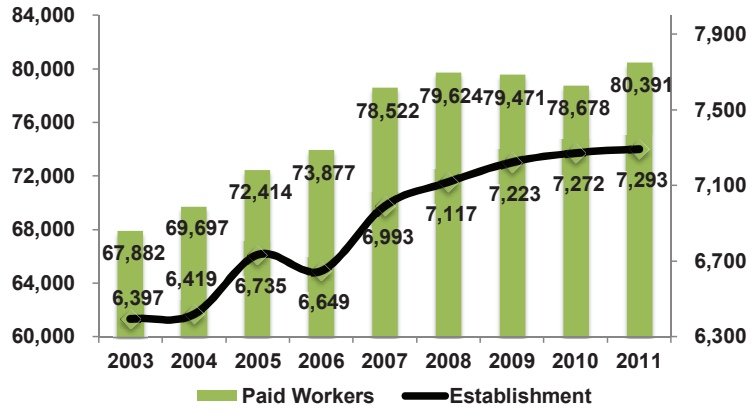


Source: Puerto Rico Planning Board

Health Sector Employment and Establishment

Despite the decline experienced by the island's economy since 2006, in 2011 the health sector had 7,293 medical establishments and generated 80,391 jobs.

Graphic 8: Health Sector Establishment and Workers



Source: Economic Census 2011

Table 14: Jobs by Medical Establishments Sizes

	2006	2009	2011
Number of Establishments	6,649	7,223	7,293
1-4	4,674	5,025	5,087
5-9	1,101	1,232	1,269
10-19	452	512	487
20-49	261	274	269
50-99	70	85	79
100-249	43	39	48
250-499	21	31	28
500-999	21	20	20
'1000 or more'	6	5	6

Source: Economic Census 2011

The health sector in Puerto Rico is highly fragmented. It operates through many different types of establishments: from elderly care to highly specialized medical services. Most jobs are created in smaller establishments like medical offices. The sum of establishments with 1-4 employees increased to 5,087 in 2011 as compared to 4,674 in 2006. Of the 7,293 medical establishments that were in operation in 2011 only 6 generated more than 1,000 jobs.

Providers and Facilities

Hospitals and Hospital Beds

According to the Puerto Rico Health Department, until 2010 there were 68 hospitals established. Of these, 53 were private and 15 were public. Between 2007 and 2009 there were 8,660 hospital beds in service out of the 11,887 beds that were approved by the government. This number represents 72.8% of the total capacity of hospital beds throughout Puerto Rico. This means that there could be 3,227 more beds in use in our health system.

Table 15: Rate of Beds 2010

Beds Approved	Beds in Use	Capacity in Use	Rate of Beds (2010)
11,887	8,660	72.8%	2.3/1,000

Source: Puerto Rico Health Department 2012

During the 1993 health reform, the rate of beds in use per 1,000 inhabitants in Puerto Rico declined from 3.74 in 1993 to 2.3 in 2010. The United States had a density of 2.6 beds per 1,000 inhabitants. When comparing this data with states of the United States in 2010, Puerto Rico would rank 36-37, next to Wisconsin, Connecticut and Rhode Island.

Table 16: Rate of Beds Compared to US States 2010

State	Rate of Beds per 1,000	Rank
United Stated	2.6	--
Wisconsin	2.4	35
Connecticut	2.3	36
Rhode Island	2.3	37

Source: Center for Disease Control and Prevention 2010

If we compare the rate of beds in the Caribbean region, Puerto Rico is below Cuba, which has a rate 5.1 beds per 1,000 inhabitants.

Table 17: Rate of Beds Compared to Near Countries

Country	Rate of Beds per 1000
Cuba	5.1/,1000
Puerto Rico	2.3/1,000
Panama	2.4/1,000
Dominican Republic	1.7/1,000
Colombia	1.4/1,000

Source: World Health Organization 2013

Hospitals by Region

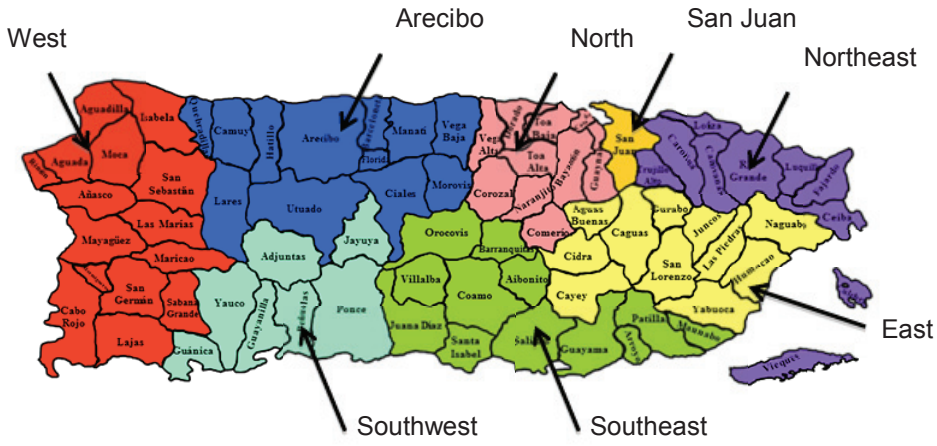
Health system in Puerto Rico is divided in seven regions. Table 18 shows the number of hospital beds and hospitals by region according to the Department of Health. The San Juan metro region has the highest number with 4,900 available beds distributed in 16 hospitals. The lowest numbers of beds are in the Arecibo Region.

Table 18: Hospitals and Beds by Health Region in Puerto Rico

	Hospitals	Type		Beds
Hospitals by Region		Private	Public	
Arecibo Region	8	0	8	1,019
Aguadilla/Mayaguez Region	8	2	10	1,484
Ponce Region	9	1	10	1,797
Bayamon Region	4	1	5	1,211
Caguas Region	8	0	8	1,476
Metro San Juan Region	16	11	27	4,900
Total	53	15	68	11,887

Source: SARAFS 2010, PRHCA 2012

Figure 2: Health Regions in Puerto Rico



Source: ASES 2013

Table 19: Population Facts of Health Regions 2012

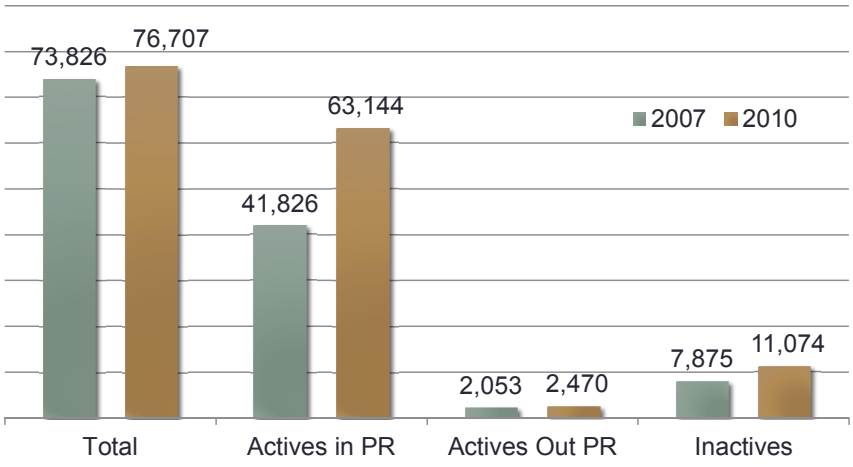
Region	Population	Median Age	Population Over 65	Median Income
Metro North	968,669	38.6	159,421	$22,691
Arecibo	456,036	37.6	71,183	$15,426
Aguadilla/ Mayaguez	535,488	37.6	46,924	$14,968
Ponce/ Guayama	565,683	36.5	43,842	$15,426
Bayamon	620,110	36.1	90,132	$19,251
Caguas	522,017	37.6	76,876	19,883

Source: Community Survey 2012

Health Care Professionals In Puerto Rico

According to the Puerto Rico Health Department's Register in 2010 there were 76,701 health professionals registered. This shows an increase of 2,881 professionals between 2007 and 2010. Of that number, 63,144 were active in the island, 2,470 were active out of Puerto Rico and 11,074 were inactive.

Graphic 9: Health Professional Registered 2007 - 2010



Source: Health Professionals Register 2007-2010, Puerto Rico Health Department

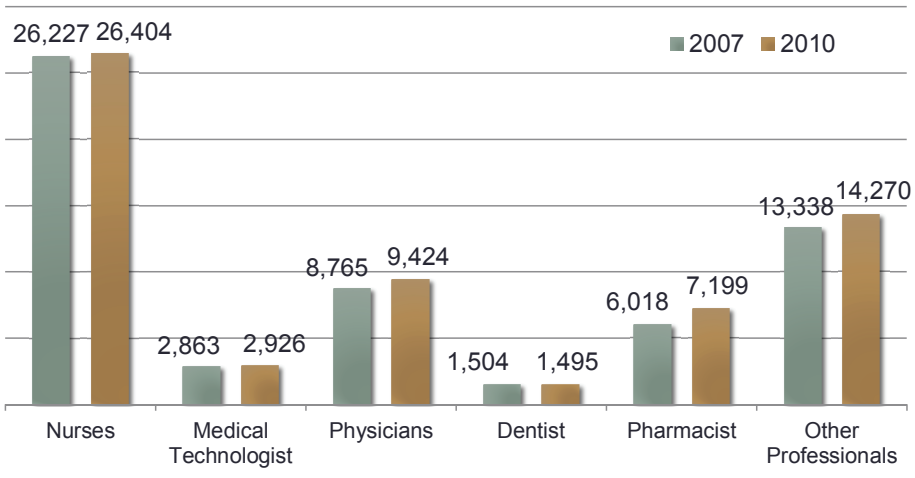
The registered professionals were divided between nurses, physicians, pharmacists, medical technologists and other professionals. Table 20 presents the registered health professionals by type of health profession according to Puerto Rico Health Department.

Table 20: Registered Health Professionals 2010

	Total Registered		Active in PR		Active Out of PR		Inactive		Unspecified	
	Value	%	Value	%	Value	%	Value	%	Value	%
Health Professionals	**76,707**	**100**	**63,144**	**100**	**2,470**	**100**	**11,074**		**13**	**100**
Physicians	**11,729**	**15.3**	**9,424**	**14.9**	**819**	**33.2**	**1,473**	**13.3**	**13**	**100**
Nurses	**32,271**	**42.1**	**26,404**	**41.8**	**1,005**	**40.7**	**4,862**	**43.9**	**0**	**0**
General Nurses	16,892	52.3	13,940	52.8	796	79.2	2,156	44.3	0	0
Licensed Nurses	843	26.1	6,669	25.3	72	7	1,672	34.4	0	0
Associated Nurses	5,894	18.3	4,871	8.4	111	11	2	8	0	0
Specialist Nurses	1,031	3.2	902	3.4	26	2.6	103	2.1	0	0
Obstetric Nurses	41	0.1	22	0.1	-	0	19	0.4	0	0
Total Pharmacist	8,669	11.3	7,199	11.4	231	9.4	1,239	11.2	0	0
Assistant Pharmacist	5,676	65.5	4,692	65.2	17	7.4	967	78.0	0	0
Pharmacist	2,993	34.5	2,507	34.8	214	92.6	272	22.0	0	0
Medical Technologist	3,476	4.5	2,926	4.6	42	1.7	508	4.6	0	0
Oral Health Professional	3,448	4.5	2,921	4.6	140	5.7	387	3.5	0	0
Dentist	1,728	50.1	1,495	52.1	135	96.4	98	25.3	0	0
Assistant Dentist	1,623	47.1	1,345	46	3	2.1	275	71.1	0	0
Dental Technologist	++	1.7	53	1.8	0	0	6	1.6	0	0
Dental Hygiene	38	1.1	28	1	2	1.4	8	2.1	0	0
Other Professionals	17,108	22.3	14,270	22.6	233	9.4	2,605	23.5	0	0

Source: Health Professionals Register 2007-2010, Puerto Rico Health Department

Graphic 10: Health Professionals Active in Puerto Rico by Type 2007 - 2010



Source: Health Professionals Register 2007-2010, Puerto Rico Health Department

Physicians

According to Department of Health, the number of active physicians in Puerto Rico has decreased slightly between 2004 and 2010, from 9,865 to 9,424 with a mayor drop in 2007 to 8,765. Along with the decreased of physicians, the number of hospital beds also dropped to 8,660 in 2009 from 9,422 in 2004. On this basis, when we compare this to hospital beds, Puerto Rico has more physicians than hospital beds. This does not means that there is no need for more physicians in the island.

Table 21: Physician and Hospital Beds in Puerto Rico

	2004	2005	2006	2007	2008	2009	2010
Number of hospital beds	9,422	9,187	7,078	8,129	8,728	8,660	
Number of physicians	9,865			8,765			9,424

Source: Puerto Rico Health Department 2012

With 9,424 active physicians in Puerto Rico and a population of 3,725,789 people in 2010, the rate of physicians per 1000 inhabitants is 2.53. The data for the United States is higher with a rate of 2.58 physicians per 1000 inhabitants. When we compare this information with States where there are a large number of Puerto Ricans living, the density is similar with the state of Florida, which in 2010 had a density of 2.54 physicians per 1000 inhabitants. This rate is largely exceeded by the states of New York and Pennsylvania, which in U.S. rank as states number 3 and 11 respectively with the highest density of physicians per population. On the other hand, the density of physicians in Puerto Rico is much higher than Mississippi, which is the state with lowest per capita income. Mississippi has a density of 1.76 physicians per 1,000 inhabitants.

Table 22: Physician Density per 1000

State	Density per 1000	Rank
Massachusetts	4.15	1
Maryland	3.68	2
New York	3.47	3
United States	2.58	--
California	2.56	20
Virginia	2.55	21
Florida	2.55	22
Puerto Rico	2.53	
Wisconsin	2.53	23
Missouri	2.47	24
West Virginia	2.46	25
Arkansas	1.89	48
Idaho	1.84	49
Mississippi	1.76	50

Source: Association of American Medical Colleges

If we compare the rate of physicians between near countries in the Caribbean region, Puerto Rico is above all countries except Cuba.

Table 23: Rate of Physicians in Caribbean Countries

Country	Year	Rate
Cuba	2010	6.72
Puerto Rico	2010	2.54
Venezuela	2001	1.94
Dominican Republic	2000	1.88
Barbados	2005	1.81
Panama	2000	1.5
Colombia	2010	1.47
Trinidad & Tobago	2007	1.18
St Kitts & Nevis	2000	1.16
St. Vicent & Granadines	2001	0.75
St. Lucia	2002	0.47
Antigua & Barbuda	1999	0.17

Source: World Bank 2013

Table 24 shows the proportion of physicians by hospital type, between public and private hospitals. There is an average of 115 physicians per public hospital, while there is an average of 152 physicians per private hospital. If we consider only the active physicians by hospital, the average would be 91.3 physicians by public hospital and 101.7 physicians by private hospital.

Table 24: Physicians by Hospital Type

Hospital Type	Physician Type[2]	Total
Public (15)	Active Physicians	1379
	Consulting Physicians	266
	Courtesy Physicians	77
	Total	1722
Private (53)	Active Physicians	5388
	Consulting Physicians	1050
	Courtesy Physicians	1640
	Total	8078

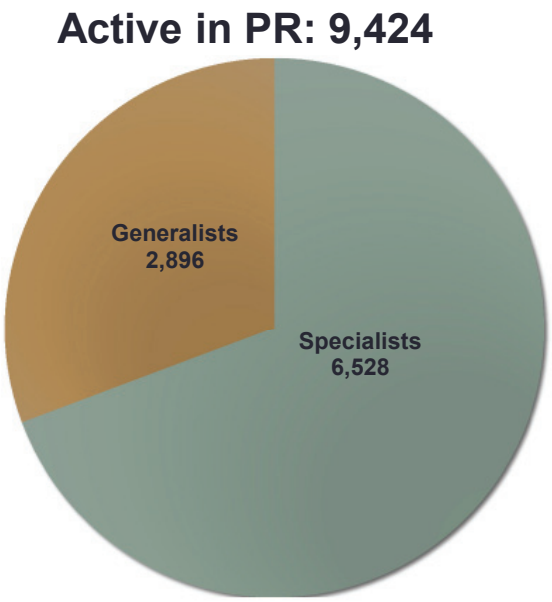
Source: Puerto Rico Health Department

Type of Physicians

Of the 9,424 physicians active in Puerto Rico, there are 2,896 general practitioners (generalists) and 6,528 specialists.

[2] *Active Physicians: Physicians who admit and treat patients in the hospital, working on committees, etc.*
Consulting Physicians: Physicians who do not admit patients to the hospital.
Courtesy Physicians: Physicians who admit patients to the hospital but do not participate in the program guards, nor part of committees, or participate in the activities of the faculty.

Graphic 11: Physicians Active in Puerto Rico 2010



Source: Health Professionals Register 2007-2010, Puerto Rico Health Department

According to the Puerto Rico Health Department's Register the most common specialties in Puerto Rico are Internal Medicine (1,300 physicians), Pediatrics (1,043 physicians) Family Medicine (498 physicians) and Obstetrics and Gynecology (475 physicians), followed by Physiatrist (413 physicians). (See Appendix 1)

The Medical-Surgeon College of Puerto Rico (MSCPR), lists 12,571 specialists in 60 specialties and subspecialties in Puerto Rico by 2013. Of these there are 18 specialties that have less than 10 physicians for all population. According to this list, the specialties with most needs are pediatrics and neurology. (Appendix 2)

The scarcity of physicians is difficult to demonstrate. There are different factors that determine the proper amount of doctors for any given population. The World Health Organization (WHO) estimates that a density lower than 2.3 medical workers (physicians, nurses, midwives) per 1,000 inhabitants puts at risk the development of the country. Fortunately, that is not the case for Puerto Rico because the number of doctors, nurses and midwives exceeds the minimum required for our population. But the lack of specialists in the island can result in an increased number of patients by each doctor, an increase in medical services' cost and poor treatment of diseases.

According to the Medical-Surgeon College of Puerto Rico, the main reason for the decline of professional doctors in Puerto Rico is migration. In a study questioning the reasons for migration of doctors abroad, specifically to United States, doctors in the island and migrants indicated as main reasons: malpractice insurance costs and high costs to maintain private offices (utilities). Also physicians who practice in Puerto Rico are in an inferior salary scale compared with doctors working abroad. Besides, the lack of specialized medical care assistants as well as the increase in their wages contribute to the closure of medical offices in Puerto Rico (MSCPR 2012). Another reason for migration is the lack of medical residencies in Puerto Rico's hospitals, forcing many students to do their residence abroad, get a job there and choosing not return to the island (Vanderbilt 2004).

Medical Schools

Puerto Rico has 4 schools of medicine and several residency programs, which could help increase the number of physicians available on the island and thus strengthen the health care system and promote its development. The rate of acceptance in these schools is below 10%, which could demonstrate the interest of young students in Puerto Rico

toward medical studies. Of those that are not accepted in Puerto Rico's schools of medicine, many decide to migrate to Mexico, the Dominican Republic, Spain or the Virgin Islands.

There are 13 residency programs in Puerto Rico, which are provided by public and private hospitals in Puerto Rico. By 2012 there were 797 residency positions, of which about 190 are available each year for around 250 graduated students each year. This promotes that many students emigrate to medical residency programs abroad. Once in foreign countries, some remain abroad attracted by better working conditions. The lack of medical residency programs is a limiting fact for the development and retention of specialist physicians in Puerto Rico.

Table 25: School of Medicine in Puerto Rico

School of Medicine	Enrolled	Total Students	Rate of Acceptance	Cost Per Year (Residents)
Universidad Central del Caribe	65	300	6.4%	$52,669
Ponce School Of Medicine	66	282	5.1%	$56,765
Unviersidad de Ciencias Medicas de San Juan Bautista	59	211	7.7%	$52,672
Puerto Rico School of Medicine	110	455	11.8%	$37,037
PR School of Medicine Average	75	312		$49,786
US Average				$51,971

Table 26: Medicine Programs Available in Puerto Rico

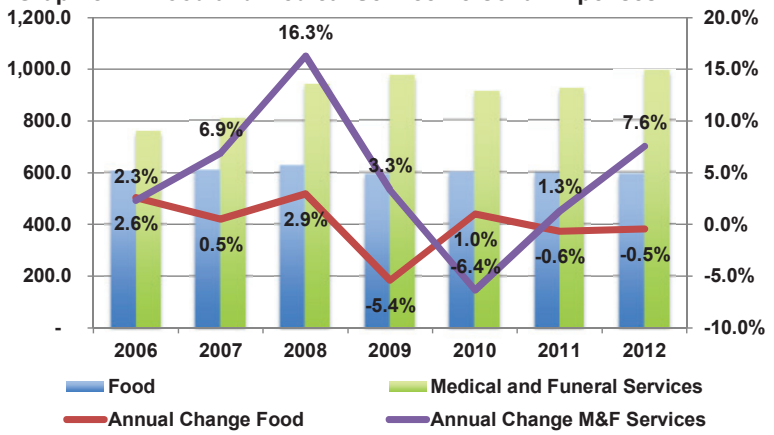
Program	Location	Residents
Caguas Regional Hosp	GUAYNABO	5
Damas Hospital	Ponce	45
Dr. R E Betances-Mayaguez M C	Mayaguez	15
Hospital Episcopal San Lucas	Ponce	78
Ponce School of Medicine	Ponce	10
San Juan City Hospistal	San Juan	97
U Central Del Caribe Sch Med	Bayamon	57
University of Puerto Rico School of Medicine	San Juan	343
VA Caribbean Healthcare System	San Juan	97
Dr. Pila's Hosp	PONCE	14
Hospital de la Concepcion	San German	16
Bella Vista Hospital	Mayaguez	16
Hospital San Pablo	BAYAMON	1
Hospital Dr Alejandro Otero Lopez	Manati	3
Total Medicine Residents in Puerto Rico 2013		797

Source : ACGME

Health Care Expenditure

According to Puerto Rico Planning Board, personal spending for health care and funeral services in 2012 was $991.6 millions. This demonstrates an increase of 8% compared to 2011 at constant prices. That amount is higher than food spending, which in 2012 was $593.5 million dollars. Noting the behavior of both costs since 2006, the average personal expenditure related to health services and funeral services grew at 4.5% annually, while that for food rose only 0.1%. When looking at the data since 2009, spending on food has decreased -1.4%, possibly due to a decrease in population, while medical and funeral expenses increased.

Graphic 12: Food and Medical Service Personal Expenses



Source: Puerto Rico Planning Board

Public Budget

Puerto Rico's budget for health care agencies and corporations associated for public health, for FY 2013-2014 was $4,190.4 million. It represents over 40% of total government budget. The budget allocation for health over the last three fiscal years has remained above $4billions. ASES, which is the agency in charge of the public health care insurance services takes the largest share of the budget (See Table 27).

Table 27: Budgetary allocation for health

Public Agency or Corporation	2010-11	2011-12	2012-13	2013-14
	in thousands			
Dept. of Health	913,652	876,093	830,169	821,214
ASES	2,107,983	2,173,503	2,250,274	2,226,236
CFSE	436,850	421,206	467,684	472,528
ACAA	82,162	86,328	97,398	98,398
ASEM	184,690	235,750	234,605	238,120
Dept. of Correction	73,436	73,495	71,148	70,393
ASSMCA	140,255	149,483	138,699	139,594
Medical Emergency Corps	36,175	38,015	36,544	35,751
Cardiovascular Center	89,622	89,171	89,531	88,158
Total Budget for Health	**4,064,825**	**4,143,044**	**4,216,052**	**4,190,392**

Source: Office of Management Budget

The total budget for agencies or health-related corporations does not necessarily represent government spending on health. The budgets includes public corporations that generate their own income from external sources. The State Insurance Fund Corporation (SIFC) and the Administration Automobile Accident (ACAA) are public insurances corporations. However these insurances are part of the health system.

Insured Population in Puerto Rico

Data from the Office of the Commissioner of Insurance of Puerto Rico (OCI), shows that in 2012 95.9% of the population in Puerto Rico was covered by medical insurance. Of these 36.5% of the population was privately insured, 38.9% was with the private plan funded by the government of Puerto Rico and 20.2% were Medicare beneficiaries. When comparing the 2012 population estimates with the insured population, the result is that 149,173 or 4.1% of the island's population are uninsured.

Table 28: Population in Health Insurance

Health Insurance Coverage 2012		
Private	1,337,356	36.5%
Public	1,426,785	38.9%
Medicare	741,685	20.2%
Dept. of Correction	11,885	
Total	3,517,711	95.9%
Population	3,667,084	-
w/o Insurance	149,173	4.1%

Source: Office of the Commissioner of Insurance, 2012

Private Insurers and Their Premiums

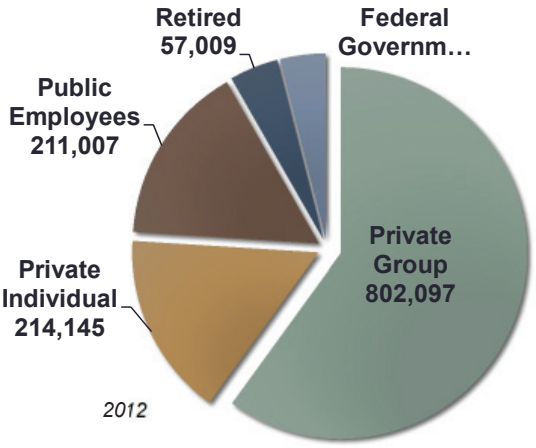
In Puerto Rico in 2012 there were twelve private health insurance companies that insured 1,337,356 people. Triple S Salud is the biggest one. In 2012 these private insurances generated $1,875.4 million in premiums. The sales of private health plans are divided among groups: individuals, public employees and retirees of local and federal government. Table 29 shows the distribution of insured and the premiums value by each group.

Table 29: Population and Premiums in Private Plans

	Insured	Premiums
Private Group Plans	802,097	$1,070,811,858
Private Individual Plans	214,145	$207,421,202
Public Employees of Commonwealth of PR	211,007	$347,424,054
Retired Employees of Commonwealth of PR	57,009	$93,989,433
Federal Government Employees	53,098	$155,725,450
Total Private Plans	**1,337,356**	**$1,875,371,997**

Source: Office of the Commissioner of Insurance, 2012

Graphic 13: Population in Private Insurance

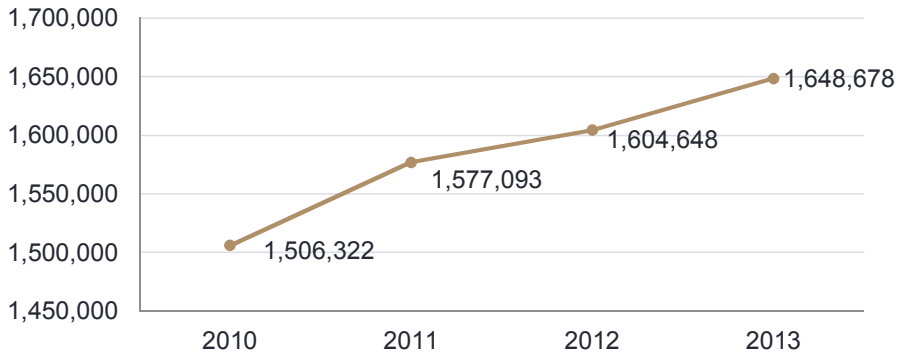


Source: Office of the Commissioner of Insurance,

Insured and Costs of Public Health Insurance MI Salud

Puerto Rico Health Insurance Administration (ASES) had a budget of $2,250,274 million in FY 2012-2013 and insured 1,426,785 from MI Salud and part of the Medicare Platinum subscribers for a grand total of 1,684,678 participants in 2012. For this population the government paid a premium of $2,209,745,000 million.

Graphic 14: Insured by MI Salud



The way that ASES provides the government health plan is through the contract of private medical healthcare plans. Of these private insurers, the principal is Triple S Health Insurance, which insured 1,337,356 people in 2012 (including participants of MI SALUD). In 2012 each health region of Puerto Rico had a contract for the provision of health insurance. The average contract rates for physical health was $ 118.15 per insured person. On the other hand, the insurance for mental health care was provided by APS Healthcare Puerto Rico. This insurer charges a fee of $ 8.47 per insured (mental health).

Table 30: Mi Salud Physical Care Tariffs (FY 2012-13)

Region	Insurer	Total
East	HUMANA	$144.56
SouthEast	HUMANA	$127.88
Southwest	HUMANA	$120.16
North	ASES/SSS TPA Contract	$109.07
Metro North	ASES/SSS TPA Contract	$127.25
San Juan	ASES/SSS TPA Contract	$148.67
Northwest	ASES/SSS TPA Contract	$123.32
West	ASES/SSS TPA Contract	$102.42
Virtual	ASES/SSS TPA Contract	$63.60

Source: ASES 2013

Table 31: MI Salud Mental Care Tariff (FY 2012-13)

Region	Mental Health Care Provider	APS 2012-13
East	APS	$8.47
SouthEast	APS	$8.47
Southwest	APS	$8.47
North	APS	$8.47
Metro North	APS	$8.47
San Juan	APS	$8.47
Northwest	APS	$8.47
West	APS	$8.47
Virtual	APS	$8.47

Source: ASES 2013

Table 32: Medicare Insured

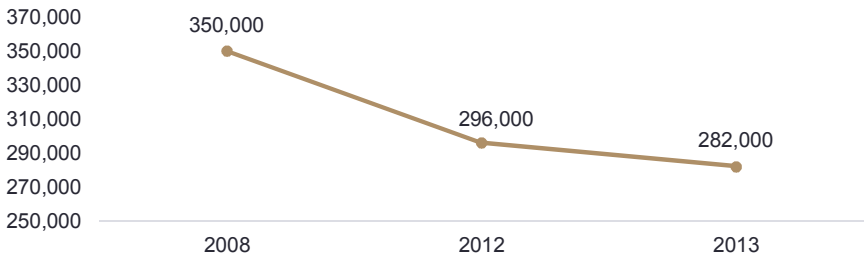
Type of Medicare	Subscribers	Premiums
Medicare Supplementary	28,795	36,537,346
Medicare Platinum	89,942	314,857,134
Medicare Advantage	423,461	4,439,170,323
Part A + Part B Medicare*	199,487	
Total Advantage	**741,685**	**4,790,564,803**

Source: Office of the Commissioner of Insurance, 2012

Uninsured Population in Puerto Rico

As we have mentioned before, according to data from the OCI by 2012, 95.9% of the total population was insured. This results in a population of 149,173 uninsured or 4.1% of the population On the other hand, according to reports made by external consultants, the number of uninsured persons in Puerto Rico has benn decreasing since 2007, when there were 350,000 uninsured people. The most recent estimates for 2013 indicated that the number is around 282,000 uninsured. The reason for discrepancy in the official numbers versus that of the external consultants can explained be the double count made by public agencies in their reporting.

Graphic 15: Reported Uninsured Population



Source: Figueroa, 2008; Advantage Consultin Group 2012 [3]

Anyhow, the proportion of insured population is high, reaching over 90%. If we get as correct that 149,173 people (4.5% of the population) are uninsured and compare that number with other states, Puerto Rico is above 49 states. Only surpassed by Massachusets, with 4.1% of their population uninsured according to 2012 census data. Below Puerto Rico are Vermont (7.0%), Hawaii (7.7%), District of Columbia (7.9%) and Connecticut (8.1%).

Table 33: Uninsured By State 2012

State	Uninsured Population	Rank
Massachusetts	4.10%	1
Puerto Rico	4.50%	--
Vermont	7%	2
Hawaii	7.70%	3
District of Columbia	7.90%	4
Connecticut	8.10%	5

Source: Census 2012

[3] *2008, Perfil de la población sin seguro de salud en Puerto Rico, Figueroa R. et.al. 2012, Puerto Rico Health Benefits Exchange Feasibility Assessment and Planning Project, Advantage Business Consulting.2013, Análisis de población sin seguro médico y sub-asegurada en Puerto Rico, Advantage Business Consulting.*

Aggregated Expenditures on Health

If we add the amounts of government budget, private insurances and Medicare, and an estimate of self-insured expenditures, the aggregate expenditure on health for fiscal year 2012 was $11,878,938,800. That amount divided by the 2012 Census' estimate of population (3,667,084) results in an aggregate per capita expenditure of $3,239,34 in Puerto Rico.

Table 34: Aggregated Expenditures on Health 2012

Health Coverage	Premium
Government Budget of Health Agencies (Including MI SALUD)	$4,213,002,000
Private Premiums	$1,875,371,997
Medicare	$4,790,564,803
Auto insured	$1,000,000,000
Total	$11,878,938,800
Population estimate 2012	3,667,084
Per capita expenditure	$3,239,34

Medicaid Spending Cap and Affordable Care Act

Since the Medicaid program was established in 1965, federal Medicaid spending in insular areas as Puerto Rico, are subject to an annual limit or cap. As a result, the federal government will match every Medicaid dollar spent by the insular areas up to each area's limit, and any insular area spending above the limit is not matched. This produced a lack of federal funds in comparison with the states. The cap to insular areas increased with the Affordable Care Act (ACA) to 35%.

With the Affordable Care Act (ACA), Puerto Rico received an increase in federal funds that began in 2012. The figure that the government of Puerto Rico will get until 2019 will be $7,268.6 million.

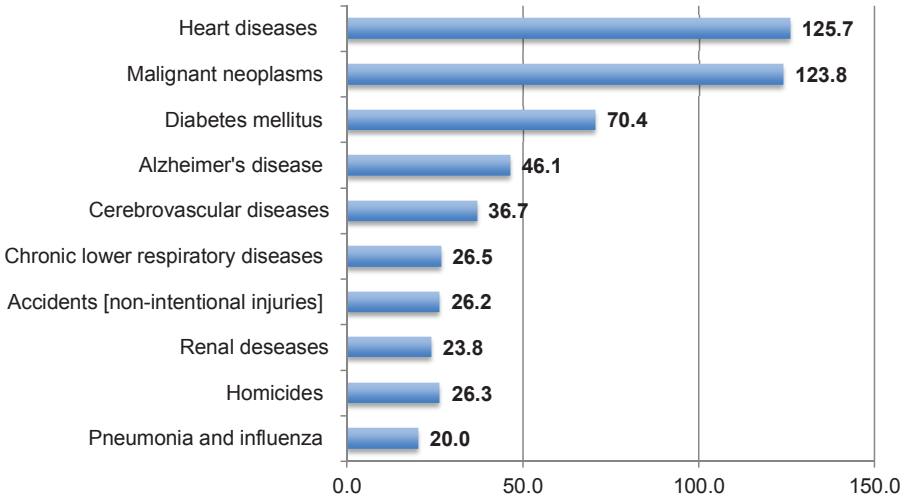
Health Outcomes

Although much of the population had a health care insurance funded by either the government or private citizens, the population of Puerto Rico continues to have chronic health problems that diminish the quality of life of citizens. The next few tables show the leading causes of death in Puerto Rico and the comparison with some of the U.S. states.

	Value	Rank
Diabetes	70.2	3 of 56
Deaths Due Heart Diseases per 100,000	124.9	55 of 56
Cancer Deaths per 100,000	123.3	54 of 56
HIV/AIDS Cases	28.6	8 of 55
HIV Deaths Rate per 100,000	21.5	2 of 55

Source: Center for Disease Control and Prevention

Graphic 16: Leading Causes of Death, Puerto Rico 2010



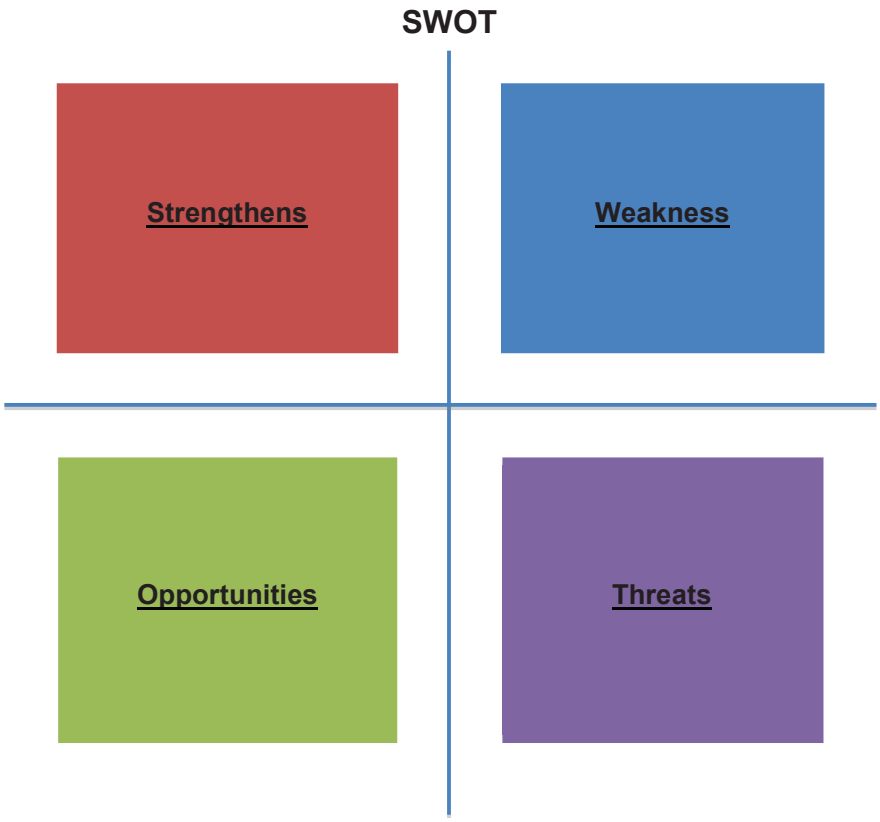
** per 100,000 inhabitants*
Source: Puerto Rico Department of Health 2012

Table 35: Prevalence of Risk Factor and Chronic Diseases, Puerto Rico 2011

Prevalence of Risk Factors and Chronic Diseases, Puerto Rico 2011			
Indicator	Male	Female	Total
Risk factors			
Current smoker	20.80%	9.40%	14.80%
Lack of physical activities	39.60%	54.20%	47.30%
Overweight or obese	71.10%	61.70%	66.10%
Diseases			
Arthritis	13.4%	25.3%	19.7%
COPD	2.1%	4.0%	3.1%
Coronary heart disease	6.7%	7.6%	7.2%
Current asthma	6.6%	13.2%	10.1%
Depression	15.0%	18.5%	16.8%
Diabetes	12.0%	14.2%	13.5%
Heart attack	5.0%	4.6%	4.8%
Kidney disease	1.8%	2.1%	2.0%
Other type of cancer	2.9%	3.6%	3.3%
Pre-diabetes	1.8%	2.5%	2.2%
Skin cancer	0.9%	0.7%	0.8%
Stroke	1.4%	2.0%	1.7%

Source: Behavioral Risk Factor Surveillance System. Risk Factors.

CHAPTER 2: SWOT Analysis



SWOT Analysis

In this Chapter a Strengths, Weaknesses, Opportunities and Threats (SWOT) evaluation will be performed of the health care system of Puerto Rico. This analysis is preliminary and will feed of the remaining phases of this study.

Strengths

Puerto Rico's health care system has many important strengths that may allow this sector to grow and continue to improve the quality of life of the patients it serves.

One of the most important ones is the fact that both the local and U.S. governments value this sector as one of the cornerstones of a developed and productive society. The total resources assigned to this sector show that it is a priority for public policy makers both local and abroad. It is estimated that expenditures on health care are over $10 billion a year in Puerto Rico. Although there is always more to be done, local government spending on this sector is the second highest only behind education, another pillar of our society. The allocation of these resources within the sector needs to be reevaluated and aligned to ensure better health outcomes and cost-effectiveness in the future. In such difficult economic times this is one of the few sectors in Puerto Rico that could thrive without significant increases in spending.

Another temporary strength are additional Medicaid and other funds assigned by the Patient Protection and the Affordable Care Act of 2010 (ACA) to Puerto Rico. The ACA awarded $5.5 billion in additional funds to the state Medicaid program as well as $925 million of flexible funds that the government decided to use to strengthen their

Medicaid program.[4] These funds are available until 2019 and there is no guarantee they will be re-awarded. The implications of this will be discussed in the threats section of this analysis. These funds allow the MI Salud program to insure over 1.6 million lives, although not all are funded by Medicaid. It also provides relief to a scarce local government budget which historically has financed most of the Government Health Insurance Program (GHIP).

One of the main objectives of the ACA was to remedy or at least alleviate the high uninsured population of the United States. Some estimates place the number of uninsured individuals at close to 50 million Americans. In Puerto Rico this problem is not as severe with under 300 thousand people uninsured which represents close to 7% of the total population which is significantly better than the 15% the U.S.A. experienced before the ACA was enacted. While having your population insured is desired it is not the final objective. The final objective is to have a healthy populations which is not assured just by the fact of having health insurance.

Another strength of Puerto Rico's health care system is medical infrastructure. There are several specialized health centers throughout the island that have advanced technology like gamma knifes for example that other countries in the Caribbean do not. Puerto Rico also possesses and ample supply of hospital beds and a solid group of health care professionals especially at the primary level. This is not so in the specialist and subspecialist groups.

Weaknesses

While Puerto Rico does enjoy several strength in its health care system it also endures several weaknesses and inefficiencies in the system. The most glaring weaknesses are that the system is very expensive and shows relatively poor health outcomes. Puerto Rico has one of the most expensive health care systems in the world spending close to $3,000.00 per capita a year. At the same time Puerto Rico has one of the highest obese and overweight prevalence (70%) in the US, extremely high diabetes (cifra) and hypertension rates (cifra) amongst other chronic conditions. These chronic conditions are related to high medical expenses, losses in productivity and premature deaths amongst other things.

These high medical expenses are attributed to the fragmentation of the health care system. While Puerto Rico historically has had a dual system, in other words a public and a private system working parallel, the change to a privatization model in the 1990s converted the whole system into a mainly profit driven one. This has created an insurance driven market that has historically been known to create market distortions. These factors amongst others have created a fragmented system. The lack of proper incentives, care coordination and delay in the implementation of electronic health records have worsened the problem.

As a product of a reduction of medical residence programs, proper remuneration to health care professionals and a reduction in population Puerto Rico faces a shortage of medical specialist. For example a country with an extremely high prevalence of diabetics has less than 50 endocrinologist (verify cifra). Any substantial improvement in the health status of Puerto Ricans especially in the treatment of chronic conditions will require an adequate supply specialized physicians.

Another weakness and threat which becomes larger with each passing day is the limited resources available from the local government. The worsening fiscal situation continues to reduce the available paths to improve the countries health care system.

[4] *It is important to emphasize that Medicaid funds are matched in a 55% federal 45% local distribution currently. This means the state must match these funds with local ones to obtain the benefits.*

Opportunities

In economic theory inefficiencies are always an opportunities to improve. The Puerto Rico health care system is not an exception. A fragmented health care system can always benefit from integration. A better use of inefficient resources can lead to savings and better outcomes.

The historical approach to health care in Puerto Rico has always been one of inclusion, this has meant Puerto Rico has been a leader in health care management in past eras like the Arbona regional model. The Puerto Rico health care system is better than the United States in some categories. Puerto Rico has the chance to continue this philosophy and continue to improve. The social and cultural importance placed on health in Puerto Rico for decades has been extremely high. Public health systems like the Arbona model have been pioneers in the world. This concern and view on health provides an opportunity for growth and improvement.

Puerto Rico has an enormous opportunity with the $6.4 billion it will have received in Medicaid funds because of the Affordable Care Act. These funds must be consumed before 2019. There is enormous uncertainty of what will occur in 2020 but for the next several years it will be in an improved federal funding situation. It is important to note that because these funds require local matching (45%) then this implies that Puerto Rico fiscal problems might complicate the local portion but at the same time the federal funds (55%) are alleviating local coffers. These ACA funds have allowed an expansion of over 300,000 in 2011 and an additional 100,000 in 2014. Puerto Rico has an opportunity to assist the medically needed during the next 5-6 years in ways it has not been able to do until de ACA. By the same token if the ACA funds are not reauthorized then it is crucial the financial situation of these citizens improve so that by 2019 they no longer need government assistance in obtaining health insurance.

Another medullar area that Puerto Rico has a chance to improve is it's health information technology. Puerto Rico has access to millions in federal funds for the adoption of medical records and other tools. Any improvement in care coordination or reduction in duplicity of service must be preceded by an improvement in health IT. While Puerto Rico is in the process of implementing these systems it is of crucial importance to deploy these as quick as possible.

Better coordination of care and a larger emphasis on preventive care are ways in which Puerto Rico can improve the health of its citizens and generate enormous financial savings. New models like the Patient Centered Medical Home (PCMH) and Accountable Care Organizations (ACO) are vehicles to obtain these savings and better care. Puerto Rico is in the process of developing a PCMH model for the western region of the Island that can positively impact the health of this population and move us towards a more efficient system.

Puerto Rico has several medical facilities that are unique in the Caribbean. Devices like gamma knives and others are quite costly and Puerto Rico is fortunate to have them. Puerto Rico has a solid medical infrastructure especially in hospitals that can serve as a base for future growth of the sector.

Medical tourism has become a priority in recent years. We have seen the development of various hotels located next to hospitals. The one in Manatí was inaugurated this month. We have also seen the government actively discuss this as an alternative for growth. If Puerto Rico can improve the dissemination of health care metrics and increase the amount of foreign patients that acquire medical services in the island it can generate additional jobs and increase national production.

The health care sector is one of the better funded and highest priorities for the local and US governments. It is one of the few sectors that have shown growth in these recessionary years. The future of this sector relies on IT, better coordination of care and medical tourism.

Threats

Puerto Rico's health care system faces large threats from a funding, population and provider perspective. In other words in both supply and demand for health services.

Funding

Puerto Rico's health care system is funded by our local government, the federal government, businesses and individuals. The local government in Puerto Rico is going through one of it's most difficult moments in recent history. Although the Puerto Rico Health Insurance Agency is the second highest funded agency in Puerto Rico the funds are not enough. Not only are they not enough but they will probably decrease in the next budget. This is aggravated by the fact that close to 2/3 of the Island's population depend on the government for their health insurance.

Federal fund for MI Salud is at an all time high and should continue for the next several years. The threat is that there si no certainty of what will happen after the ACA funds expire. States do not have this issue because Medicaid matches their expenditures on Medicaid without a limit. In Puerto Rico our usual Medicaid funds are capped ($284M in 2013). This implies that after this amount the local government must pay with local funds which are not a problem in the states. The ACA has allowed PR to use Medicaid money over the cap but it did not remove it. Removal of this cap would be the single most beneficial event that can occur in terms of financing for the medically needed population of the island. People and businesses especial small and medium sized are struggling with higher taxes, a decrease in their demand and higher costs especially in energy. This makes it tougher for businesses to offer health insurance for their employees, citizens to purchase coverage and may place a higher burden on the government health plan.

Patients

Puerto Rico's population is aging quickly. Life expectancy is increasing and birth rates have decreased. For the first time in our history we have a median age (38) that is older than the United States. Not only is our population older, the younger cohorts are leaving the island in search of better opportunities which aggravates the problem. This phenomenon is and will continue to affect society in multiple ways like putting pressure on retirement systems, public services and others. It will undoubtedly affect the health care system as well because these individuals consume more health services than their younger counterparts.

Not only is our population aging it is also riddled with chronic health diseases like obesity, diabetes, asthma and cardio-vascular conditions amongst others. The need for better preventive care and disease management is enormous. Better education to improve patient behavior is also of the essence. While efforts are underway these outcomes of benefits take year to come into effect and will not all help in the short run.

Health Care Providers

Health care providers face several threats as well. They also face increased taxes, and high energy costs like other sectors. They also have to deal with an exodus of professionals and lack of new professional being educated locally. Medical school residence programs have decreased in recent years and many of the few that are being graduated will take their talents and education elsewhere. It is important for the government to develop a mechanism to correct this issue and have the proper foresight as these professional take years to develop.

Puerto Rico's health care sector faces enormous threats. The two main ones are funding and the health status of an aging population. Although the first one could be reduced with better federal funding and local economic growth, the second is much more complex. Puerto Rico must control the exodus of population, increase their birth rates and provided education and coordinated care for its citizens to achieve a better Puerto Rico for all.

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Apendix 1: Specialties Active in Puerto Rico

Generalistas	2896
Especialistas	6528
Especialista	**Activos en PR**
Medicina Interna	1300
Pediatría	1043
Medicina de Familia	498
Obstetricia y Ginecología	475
Psiquiatría	415
Cirugía General	226
Anestesiología	200
Medicina de Emergencia	181
Oftalmología	174
Medicina Preventiva General	152
Medicina Física y Rehabilitación	146
Radiología Diagnostica	143
Medicina Ocupacional	123
Gastroenterología	119
Neurología	109
Urología	82
Dermatología	72
Enfermedades Cardiovasculares	64

Radiologia Pediatirca	6
Radiación Oncológica	6
Psiquiatría Geriátrica	6
Patología Forense	5
Ortopedia Pediátrica	5
Cirugía Cabeza-Cuello	5
Radiologia Vascular e Intervencional	4
Patología	4
Neurología Clínica	4
Neuropatología	3
Neurofisiología Clínica	3
Neumología	3
Nefrología Pediátrica	3
Cirugía Vascular	3
Psiquiatría Forense	2
Oncología	2
Obstetricia	2
Neurología Vascular	2
Nefrología e Hipertensión	2
Medicina Deportiva	2
Citopatología	2
Cirugía Torácica	2
Cardiología Pediátrica	2

Enfermedades Infecciosas	62
Patología Anatómica y Clínica	49
Reumatologia	45
Nefrología	45
Radiología	40
Otorrinolaringología	40
Cirugía Ortopédica	40
Endocrinología	37
Medicina Nuclear	36
Hematología	34
Ortopedia	33
Psiquiatría de Niños y Adolescentes	32
Otorrinolaringología-Cirugía de Cabeza y Cuello	32
Patología Anatómica	28
Medicina Geriátrica	26
Fisiatría	26
Cirugía Neurológica	25
Cirugía Cardiovascular y Torácica	22
Cirugía Ortopédica y Fractura	19

Cardiología Intervencional	2
Urología Pediátrica	1
Spinal Cord Injury	1
Reumatologia e Inmunologia	1
Retina y Vitreo	1
Radiologia Nuclear	1
Radiología intervencional	1
Proctología	1
Oncología Médica	1
Oftalmología Pediátrica	1
Neurotología	1
Neonatología	1
Medicina Submarina e Hiperbárica	1
Manejo del Dolor	1
Gastroenterología Pediátrica	1
Enfermedades Vasculares	1
Endocrinología y Metabolismo	1
Endocrinología Pediátrico	1
Dermapatologia	1
Cuidado Intensivo Pediátrico	1
Cuidado Crítico Quirúrgico	1

Urología Adulta y Pediátrica	17
Cardiología	16
Sin Especificar	15
Cirugía Plástica y Reconstructiva	15
Neuroradiología	14
Ortopedia y Traumatología	13
Hematología y Oncología Pediátrica	13
Enfermedades Pulmonares	13
Endocrinología, Diabetes y Metabolismo	13
Alergia e Inmunología	13
Cirugía Plástica	12
Hematología y Oncología	11
Neurología Pediátrica	10
Ginecología	9
Cirugía de Mano	9
Cirugía Urológica	8
Radioterapia	7
Radiologia Terapeutica	7
Cirugía Pediátrica	7
Cirugía Colon-Recto	7

Cuidado Crítico	1
Cirugía Periferovascular	1
Cirugía Perifero Vascular y Cirugía General Cirugía Periferovascular	1
Cirugía Abdominal	1
Alergista Pediátrica	1
Cardiología Invasiva	1
Toxicología Médica	0
Psiquiatría de Niños	0
Perinatología	0
Patología Clínica	0
Patología Anatómica y Patología Oncologica	0
Neurología-Eeb & Epilepsia	0
Medicina Materno Fetal	0
Ginecología Oncológica	0
Anestesia Cardiovascular	0