5 MEGA TRENDS

IN LATIN AMERICAN HEALTHCARE

A look at major shifts that will affect the sector both now and in decades to come

2019 EDITION

Updated with the most recent data available on LatAm hospitals

global health intelligence
insights that empower action

About Global Health Intelligence

Global Health Intelligence (GHI) provides detailed information on healthcare infrastructure in emerging markets in order to help clients understand the competitive landscape and identify opportunities for growth.

Founded on more than 20 years of research expertise in emerging markets, Global Health Intelligence has developed HospiScope, the world's largest hospital demographics database focused on Latin America.

Find out how Global Health Intelligence can help you grow in emerging markets:

Mariana Romero Roy
Director of Business Development & Market Intelligence
mariana@intelligence.health
+1 (305) 441-9300 x308

Guillaume Corpart
CEO and Founder
gc@intelligence.health
+1 (305) 441-9300 x302

Key Services

HospiScope

A Latin American hospitals demographics database covering 140+ points per hospital, including installed base of capital equipment, beds and staff. Offering detailed data on hospitals in 17 countries, HospiScope covers nearly 90% of the medical facilities in the region. HospiScope is your solution to identifying growth opportunities in Latin America.

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In-Scope

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Introduction

So…how many ultrasound machines were in Mexican hospitals in 2018?

It seems like a minor piece of info, perhaps a better fit for an obsessive healthcare trivia game rather than for anything else. Yet at Global Health Intelligence we track this sort of data all the time, focusing on the resources offered in Latin American hospitals. Working at this granular level, day by day, a bigger picture started to emerge. We noticed how demand grew sharply for certain types of equipment between 2017 and 2018:

- 34% growth in electrocardiogram machines in Costa Rica
- 37.9% growth in hemodialysis machines in Panama
- 73% growth in infusion pumps in Paraguay
- 12% increase in X-ray machines in Puerto Rico
- 9.8% growth in MRI machines in Brazil
- 10.5% growth in endoscopy towers in Colombia
- 5.8% growth in CT scanners in Brazil
- 20% increase in mastography equipment in Chile
- 18% growth in laparoscopic surgery equipment in Peru

But this wasn't just a 2018 phenomenon. When we tracked data back to 2015, we noticed persistent growth patterns — with the installed base of certain equipment doubling in some countries — even while Latin America was struggling with a recession and a currency devaluation.

Overall, we saw demand for specific equipment growing in markets big and small which told us that something greater was in play. As we extended our research to go beyond equipment counts and look at other healthcare issues in Latin America, we got a sense of what that "something greater" was.

Deep epidemiological, demographic and market shifts are taking place. Sometimes their effects are obvious, but in other cases they are more subtle and will unfold over the upcoming decades.

And while authorities have begun to discuss some of these trends, no one has broken down the big ones all together to help both patients and professionals get a broader view of what's happening with health in their countries — and why.

Our goal with this whitepaper is to document and explore these shifts, using a combination of academic research, our own proprietary data and perspectives from healthcare experts in the region. What we hope to offer readers is a broader range of insights into what's happening, why and what can be done to mitigate and manage these 5 mega-trends in Latin American healthcare.

— Guillaume Corpart
CEO & Founder, Global Health Intelligence

P.S.
And in case you just *have* to know, Mexican hospitals had 5,320 ultrasound machines installed in 2018 — an 6.5% growth over 2017 and underscoring the heightened demand for more diagnostic equipment to better care for a population that's dealing with a host of challenging health conditions.

Mega-Trend #1

Obesity and NCDs Expand

In decades past, Latin America faced a different set of challenges when it comes to public health: infant mortality, communicable diseases such as yellow fever, cholera and malaria, malnutrition, violent deaths due to war, crime and other critical concerns.

Over time, many of these issues have improved through better health care, the widespread availability of vaccines and political stability. [Despite this, it's important to note that malnutrition is still a significant concern in the region and was addressed in detail in the 2018 *Panorama of Food and Nutrition Security in Latin America and the Caribbean*, a report from the Food and Agriculture Organization of the United Nations, the Pan American Health Organization (PAHO) and the World Health Organization (WHO).]

As strides were made and these challenges generally abated, a new set of concerns emerged: non-communicable diseases (NCDs) that are often linked to lifestyle and daily habits, such as diabetes, high blood pressure, heart disease and more. Our coverage of this particular trend will focus on the prevalence of these conditions in Latin America and some of the challenges in treating them, including governmental policies to help mitigate the risks and the corresponding rise in demand for medical equipment to diagnose and treat them.

A Powerful Prevalence

There's no question that obesity is a growing health concern all over the world, but in no region is that concern more acute than in Latin America. The Obesity Society collected statistics on this matter in January 2015, and found obesity to be on the rise throughout the region. Overall, it is anticipated that rates of obesity in Latin America will reach more than 60% for women and more than 50% for men by the year 2030. [1]

The obesity trend is also pervasive when broken down by individual country. According to a 2017 report from the United Nations, the total percentage of Mexicans who are overweight or obese is 64%. In Chile, the number is 63%. And the Bahamas has the highest overweight/obese rate at 69%. [2]

Even children are not immune to the phenomenon: The rate of obesity among Latin American children and adolescents ranges from 19% to 37%.[3] When seen over time, the problem is even more notable. The World Health Organization tracked obesity in children under age 5 from 1990-2015, noting that Latin America was consistently above the world average. [4]

1 Obesity in Latin America, Obesity Society, 2015

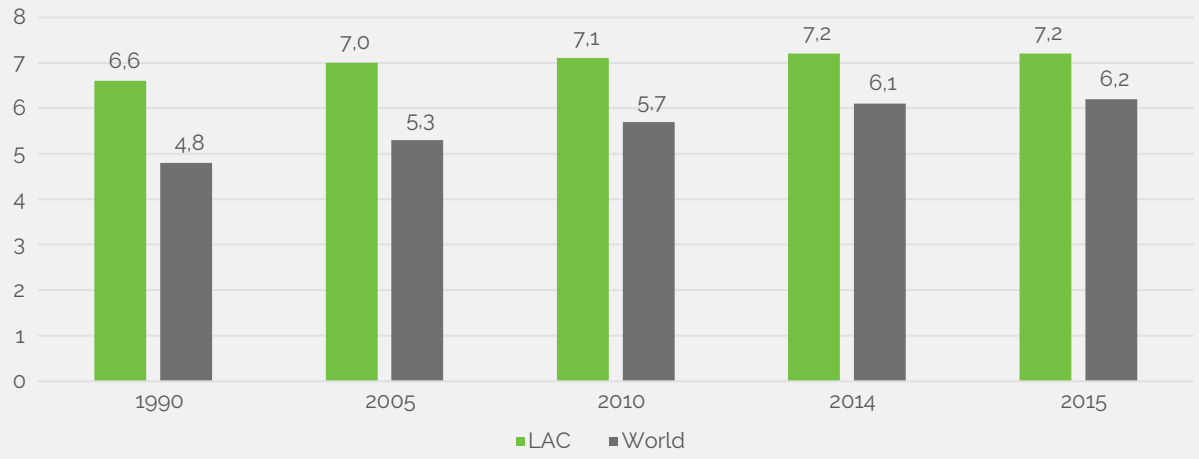
2 Food and Agriculture Organization of the United Nations, "Overweight affects almost half the population of all countries in Latin America and the Caribbean except for Haiti."

3 Obesity in Latin America, Obesity Society, 2015

4 World Health Organization, Global Health Observatory data, 2016

Prevalence of overweight and obesity in children under 5 years in the world and in LAC, 1990-2015, in percentage

Source: World Health Organization, Global Health Observatory data, 2016



Reasons for the Rates

Obesity is a complicated, multi-faceted issue, with several factors playing a role in the rise of obesity rates. It is clear that the traditional Latin American diet is evolving to reflect more closely that of the U.S. The intake of fast food and other carb-heavy, calorie-dense foods is increasing, along with a drop in physical activity as countries continue to modernize. It's a perfect storm that tends to lead to growing waistlines.

As an example of this, the World Health Organization noted that sales of ultra-processed foods and soda in Latin America grew by 48% between 2000 and 2013. Consulting firm Euromonitor discovered that the sale of processed and packaged foods grew 25%

between 2011 and 2016.[5] In a 2017 report, the United Nations noted that these changes in dietary patterns are one of the primary contributors to rising rates of overweight and obesity in the region.[6]

Other Diseases in Latin America

Healthcare professionals know that the impact of obesity involves much more than expanding waistlines. A growing volume of research has shown that obesity in the population has far-reaching health effects that can increase the risk of a variety of other health problems. Type 2 diabetes is probably the most well-known disease that's linked to obesity, but those extra pounds also increase the risks of heart disease, stroke, cancer, arthritis, breathing problems, high blood pressure and other conditions.

1.1 million
new cases of cancer are diagnosed in LAC every year.

Not surprisingly, many of these problems continue to persist in Latin America with alarming frequency. A recent report from the Defeat Diabetes Foundation found that rates of heart disease, though still high, are beginning to regress slightly in developed countries such as the United States. That regression, however, is not occurring in Latin America. The primary suspect for this continuing problem is an increase in high blood pressure throughout the region. [7]

A 2015 report from the World Hypertension League seems to support this theory. They estimate that between 20% and 40% of all Latin American adults cope with high blood pressure.[8, 9, 10] The League further estimated that high blood pressure played a role in the 1.6 million deaths related to cardiovascular disease each year. [11]

Obesity, heart disease and high blood pressure often go hand in hand with diabetes and kidney disease, two other problems that are prevalent in Latin America. In 2017, the World Bank estimated that 10% of the Latin American population had diabetes and that this rate was rising.[12] Latin America also has the highest death rate from chronic kidney disease in the world, according to a recent report by *The Lancet*.[13]

NCDs (non-communicable diseases) not related to obesity also persist at worrying rates. For example, there are approximatively 1.1 million new cases of cancer diagnosed in Latin America and the Caribbean each year, as well as 600,000 deaths from cancer, according to data from the American Cancer Society.[14] In fact, one report projects that the cancer death rate in Latin America will increase by 106% by 2030.[15] This is further compounded by the rising costs of cancer drugs, which rose to an annual median price of US$ 120,000 by 2015, according to the Global Cancer Institute. [16]

5 Exporting Obesity: How the food industry is changing the world's diet, Yahoo, 2017
6 Food and Agriculture Organization of the United Nations, "Overweight affects almost half the population of all countries in Latin America and the Caribbean except for Haiti".
7 Rising Hypertension, Cardiovascular Disease, in Latin America, Defeat Diabetes Foundation, 2014
8 Schargrodsky H, Hernández-Hernández R, Champagne BM, et al. CARMELA: assessment of cardiovascular risk in seven Latin American cities. *Am J Med.* 2008;**121**:58–65. Rivera-Andrade A, Luna MA. Trends and heterogeneity of cardiovascular disease and risk factors across Latin America and Caribbean countries. *Prog Cardiovasc Dis*. 2014;**57**:276–285.
9 Burroughs Peña MS, Abdala CVM, Silva LC, Ordúñez P. Usefulness for surveillance of hypertension prevalence studies in Latin America and the Caribbean: the past 10 years. *Rev Panam Salud Pública*. 2012
10 Rivera-Andrade A, Luna MA. Trends and heterogeneity of cardiovascular disease and risk factors across Latin America and Caribbean countries. *Prog Cardiovasc Dis.* 2014;**57**:276–285.
11 Hypertension Prevention and Control in Latin America and the Caribbean, *Journal of Clinical Hypertension*, 2015
12 Diabetes: An Invisible Threat to Development, The World Bank, 2017
13 Facing the Challenge of Kidney Disease in Latin America, *The Lancet*, 2017
14 The Cancer Atlas, American Cancer Society, 2018
15 The Economist Intelligence Unit, *Cancer in Latin America*, July 2017
16 The Problem of High-Cost Cancer Drugs in Latin America,

As the population continues to age, Alzheimer's and other forms of dementia are experiencing exponential growth. Recent projections anticipate that the incidence of dementia in Latin America will increase from 7.8 million cases to 27 million by 2050, based on data compiled in the journal *Frontiers in Aging Neuroscience*. [17] Cases of Parkinson's disease have followed suit: Mortality from Parkinson's disease in Latin America has increased 158% since 1990. [18]

5% to **58.7%**

YOY growth in MRI machines in LatAm hospitals in Argentina, Bolivia, Chile, Colombia, the Dominican Republic, Panama and Puerto Rico from 2017-2018

Responding to This Crisis

Despite this torrent of adverse conditions affecting health in Latin America, there have been encouraging initiatives to help countries combat some of these challenges. One of these has been with food labeling. Chile, for example, has implemented bold new front-of-label warnings if foods are high in salt, sugar, fat or calories. [19] Ecuador has a similar system based on the bold colors of a traffic light to inform consumers about unhealthy foods. [20]

A tax in Mexico on food/beverage products with high sugar content went into effect in 2014, and it had a strong impact. Sales of sugary drinks in Mexico fell by 5.5% in 2014 and by 9.5% in 2015.[21]

Global Cancer Institute, 2017

17 Dementia in Latin America: Epidemiological Evidence and Implications for Public Policy, *Frontiers in Aging Neuroscience,* 2017

18 Parkinson Disease in Latin America and Caribbean, HealthGrove, 2017

19 Latin America leads the fight against junk food with the US on the sidelines, *The Guardian*, 2014

20 5 Food Policy Lessons the U.S. Could Learn from Latin America, Civil Eats, 2014

21 Sales Fall Again in Mexico's Second Year of Taxing Soda, *New York Times*, 2017

Scoping out Trends in LatAm Healthcare

Until recently, while disease trends in Latin America were well-tracked by organizations such as the PAHO and others, there was little to no tracking of the medical equipment used by hospitals in the region. To shed more light on this area — which is helpful in understanding the overall health picture in Latin America — Global Health Intelligence (GHI) created a number of data-driven products, some of which fueled different parts of this whitepaper. These products include:

HOSPISCOPE: This online hospital demographics database for Latin America includes more than 18,000 hospitals around the region, with overall penetration of nearly 90% of the region's hospitals. It tracks both equipment counts of base installed equipment in hospitals and also medical staff.

SURGISCOPE: Launched in 2018, this online database documents all of the different types of medical procedures performed in Latin American hospitals.

SHARESCOPE: This GHI product uses analysis of import data and other sources to determine market size for different modalities, as well as the market share that specific medical equipment and device brands have in different LatAm markets.

IN-SCOPE: Custom research that drills down further into closely-held data to help companies gain competitive intelligence, analyze pricing and costs, best practices, positioning opportunities, market due diligence and more.

An Unfortunate Correlation

Despite some of the initiatives to raise awareness about nutrition in Latin America, NCDs that are both related and unrelated to conditions like obesity are clearly on the rise. As a result, Global Health Intelligence (GHI) has observed a rise in demand for certain types of medical equipment to help treat these issues. According to HospiScope — GHI's LatAm hospital database — some of these equipment and devices include:

- **Dialysis machines:** For patients with kidney failure, a dialysis machine is a critical piece of equipment that can often spell the difference between life and death. When healthy, the kidneys serve as filters for the blood, removing wastes and fluids and expelling them from the body. Damaged kidneys are no longer able to serve this function, so the dialysis machine is needed to handle the filtering of waste from the blood. People with severe kidney failure will need regular dialysis in order to live. Latin America has seen an uptick in demand for dialysis machines in recent years. According to data extrapolations from HospiScope figures, the overall amount of hemodialysis machines in LatAm hospitals — i.e. installed equipment — reached 18,589 in 2018, an 13% jump over 2017. In specific markets, extrapolations of HospiScope numbers indicate that Argentina saw a 5.2% increase in hemodialysis machines installed in its hospitals from 2017 to 2018, as did Brazil (9.8%), Colombia (25%), Bolivia (70%) and Mexico (10%).

- **Respirators:** Medical ventilators and other respiratory equipment are important for individuals with respiratory problems, but that's far from their only requirement. People with severe conditions ranging from heart disease to cancer and other disorders may be reliant on this equipment to help them breathe. As Latin America's population ages, there's a reason that these machines continue to be in demand. For example, in reviewing extrapolated HospiScope data from 2016 to 2017, the amount of ventilators in place in hospitals increased in Argentina (60%), Brazil (5%), and Chile (18%).

- **X-ray machines:** Though computed tomography (CT), magnetic resonance imaging (MRI) and other imaging technologies have entered the scene in recent decades, X-ray continues to be the most common and most needed form of medical imaging technology for diagnosing a wide array of issues. And that need is clear as seen in recent numbers from Latin American countries. According to data extrapolated from HospiScope, counts for X-ray machines went up by 12% in Puerto Rico between 2017 and 2018, while also increasing by 36% in Panama for the same time period.
- **MRI machines:** This type of imaging equipment often handles more substantial tasks than an X-ray when needed for the diagnosis of severe medical conditions. Demand for MRI machines in Latin America remains strong. Extrapolated HospiScope data from GHI shows 2017 to 2018 growth in MRI machines installed in hospitals in Brazil (10%), Chile (7.1%), Panama (31.7%) and Mexico (6.2%).
- **Nebulizers:** Nebulizers are another important piece of breathing equipment for hospitals and medical centers. They safely and effectively deliver asthma medication to patients in both emergency and therapeutic settings. Data analyzed by GHI from its ShareScope service shows projected increases in the quantities of respiratory equipment (like nebulizers) that were imported into several LatAm markets in 2018, including Argentina, Chile, Colombia and Peru.
- **Blood sugar monitors:** The rising rate of diabetes in Latin American nations has led to an increased need for bedside blood sugar monitors. Doctors can make critical decisions for patients based on whether blood sugar levels are too high or too low. Recent data reviewed by GHI suggest that sales of blood sugar monitors throughout Latin American have remained fairly strong.

Mega-Trend #2

Shifts in LatAm Populations Impact Health care

The rise of obesity and related diseases are far from the only factors to alter the face of health care in Latin America. Changes in the population as a whole are shifting health needs, as well as the demand for devices and equipment.

A fundamental change area is the rapid aging of the Latin American population. Currently, there are 71 million people over the age of 60 in Latin America and the Caribbean. That number is expected to double by 2035. [22]

Another unique trend in the region is the shift toward smaller family sizes. While this is a global phenomenon, Latin America is seeing a dramatic shift in the reduction of family sizes. According to a study by the consulting firm Euromonitor International, the number of people per household in Latin America will drop 18% by the year 2020. This includes a drop from 3.9 to 3.2 people per household in Colombia and 3.6 to 3.3 in Chile. [23] While some of this is due to economic reasons, there are other factors at play as well. This too will shape the future of health care in Latin America.

In the following sections, we'll take a closer look at these trends and determine how they will impact medical device and equipment sales in the years to come.

22 Aging in Latin America and the Caribbean in Global Perspective, 2015
23 Trend Toward Smaller Families in Latin America, *Latin American Herald Tribune*, 2017

LatAm's Growing Population of Seniors

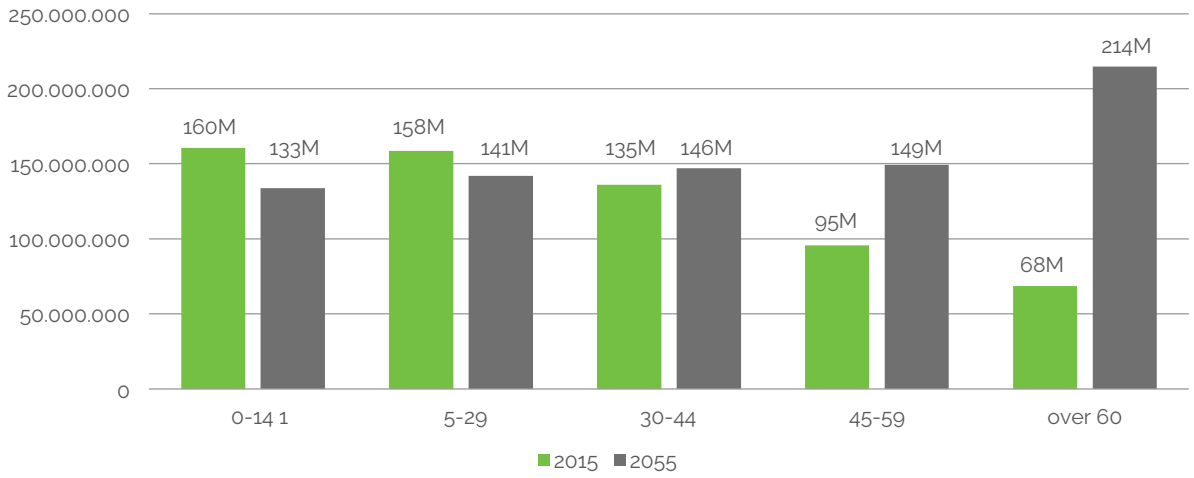
As with most parts of the world, the median age across Latin America is increasing as baby boomers reach their senior years. However, the demographic shift is even more pronounced in this part of the world than anywhere else. The numbers related to aging in Latin America are astounding.

Growing by Leaps & Bounds

The United Nations Economic Commission for Latin America and the Caribbean (ECLAC) recently crunched the numbers on the growth of the senior population across the region. What they found is that no part of the world is aging as rapidly as Latin America. When these numbers were tabulated in 2015, the percentage of Latin Americans over the age of 60 stood at a little over 68 million. By 2055, it's projected that there will be over 214 million people of that age group, a growth of more than 300%!

Population Growth by Age in Latin America 2015 vs. 2055 (in millions)

Source: ECLAC



Meeting the Age Challenge

How are healthcare systems going to handle this challenge of a rapidly aging population? It won't be easy, but the hospitals and medical centers of Latin America are already evolving to meet the growing demand.

One example of this is a rise in medical equipment imports and installed base equipment required by LatAm hospitals to meet the demands of an aging population. The amount of dialysis machines, for example, has seen steady growth in the region over the last three years. These are vital and expensive pieces of equipment for treating seniors who are coping with kidney problems.

Other categories of equipment related to elder care have also seen steady growth. For example, 2017 forecasts from ShareScope — GHI's service to measure market share and size for manufacturers based on medical equipment import data — indicates that the imports of electrocardiographs and related equipment for heart problems has grown significantly in countries such as Argentina (7%), Peru (51%), Chile (47%) and Brazil (43%).[24] Other medical equipment that

24 GHI ShareScope analysis of medical equipment import data for Latin America, 2017

The home health care market is set to nearly double in size by 2020.

has seen steady gains in Latin American hospitals include X-ray machines, CT scanners, radiographic equipment and other medical imaging devices that are vital in the early diagnosis of illnesses common among seniors. (More specific breakdowns are available under Mega-Trend #4 on page 26.)
Appliances and equipment that assist with breathing are another notable area of growth. According to ShareScope, Argentina, in particular, saw its number of imported equipment in this category shoot up 268% in 2017, while Chile saw 152% growth.[25] These are just a few of the many categories of medical devices that witness growing demand across markets. Generally speaking, import numbers are a direct proxy to sales, given that equipment is imported with the objective of being sold.

Telemedicine and Home Care

Beyond equipment acquisition, LatAm healthcare facilities are also looking to other services to help treat the expanding group of seniors in their populations. Given that 80% of Latin Americans reside in urban areas[26] and medical specialists tend to congregate there, it can be difficult for patients residing in rural areas to be seen by specialists. Telemedicine allows patients to "see" specialists via videochats that use technology enabled by companies like Cisco, among others.

Home health care is also on the rise in specific countries within the region. This sector is projected to have a CAGR of 8.7% through 2020, when its value will be US$ 17.5 billion — significantly higher than the US$ 9.8 billion value it had in 2013[27].

25 ibid
26 World Bank statistics, 2016
27 Transparency Market Research

Because both of these areas are related to connectivity — another one of the mega-trends we're covering in this whitepaper — we explore them in greater detail on page 24.

Why Private Insurance is Spiking in Latin America

While certain shifts in Latin America, such as a rapidly aging population, are more obvious, others are subtle yet still have a profound impact on health care. One of these is the growing presence of private health insurance among the population.

First, a little background on this topic. There are more than 18,000 hospitals in Latin America, 56% of them private and the rest public or mixed.[28] The public-private mix varies from country to country, but in many cases private hospitals outnumber public hospitals. This is in part due to the fact that private hospitals are usually smaller in size and are highly specialized (versus their public counterparts which aim to treat a broader array of conditions from a wider patient base).

- In Brazil, 58% of the hospitals are private
- In Mexico, 61% of the hospitals are private
- In Colombia, 51% of the hospitals are private
- In Argentina, 51% of the hospitals are private.[29]

Chile is one of the few markets where public hospitals are more predominant than private ones: 51% public as opposed to 45% private.[30]

Despite the greater number of private hospitals in Latin America, most countries have substantial public health systems, which often boast greater infrastructure when it comes to number of beds, equipment, and patients treated. High-specialty

28 Global Health Intelligence analysis based on HospiScope
29 Ibid
30 Ibid

public institutes are also home to some of the region's most capable doctors which tend to perform in both the public and private arenas.

For a health care service to be effective, it must offer a quality service in a timely manner. One without the other results in a deficient system. And while some public institutes are amongst the best in the region, most are highly underfunded, underequipped, and all have extremely lengthy and bureaucratic processes to access health care. In some cases, we have even seen physicians request payments to put patients at the top of the priority list.

> While a public health system that provides care for everyone seems like a good idea on the surface, the unfortunate reality in Latin America is that it's created a situation where there are "haves" and "have-nots."

A recent study carried out in Argentina, Brazil, Colombia and Chile concluded that many health systems concentrate on the needs of higher-income individuals at the expense of the poor. The result is many drugs and services are often priced too high for anyone outside of the upper class to afford.[31]

Yet given the time-sensitive nature of many health conditions, patients have grown accustomed to working with an efficient private healthcare system. In that regard, private health insurance is a growing phenomenon within Latin America's middle class. Insurance companies are tailoring products to the unique needs of middle and working class families. And on the care delivery side of the equation, small, highly specialized clinics are coming up with services tailored to the needs of this unique patient base. The array of available solutions for Latin America's middle and working class is growing.

As a result, most wealthy individuals in Latin American countries have traditionally relied on private health insurance to pay for their medical care. In fact, 80% of the care at private hospitals in Latin America is covered by insurance.[32] This gives wealthy individuals access to an entirely different — and often higher-quality — pool of private medical providers and facilities. The result is that private medical insurance has become big business. Consulting firm McKinsey & Company estimates that the global value of private insurance is US$ 1.4 trillion.[33] And companies such as UnitedHealth Group have recently penetrated the Latin American market in Chile and Brazil.[34]

The bottom line is that the insurance market in Latin America is a big business and growing. Industry experts indicate growth of more than 20% per year for an industry that accounts for less than 3% of GDP in countries like Mexico and Colombia. The industry is expected to continue to grow in coming years, fueled by the expansion of products and services tailored for the middle class. [35]

The Shifting Paradigm of Latin American Health Insurance

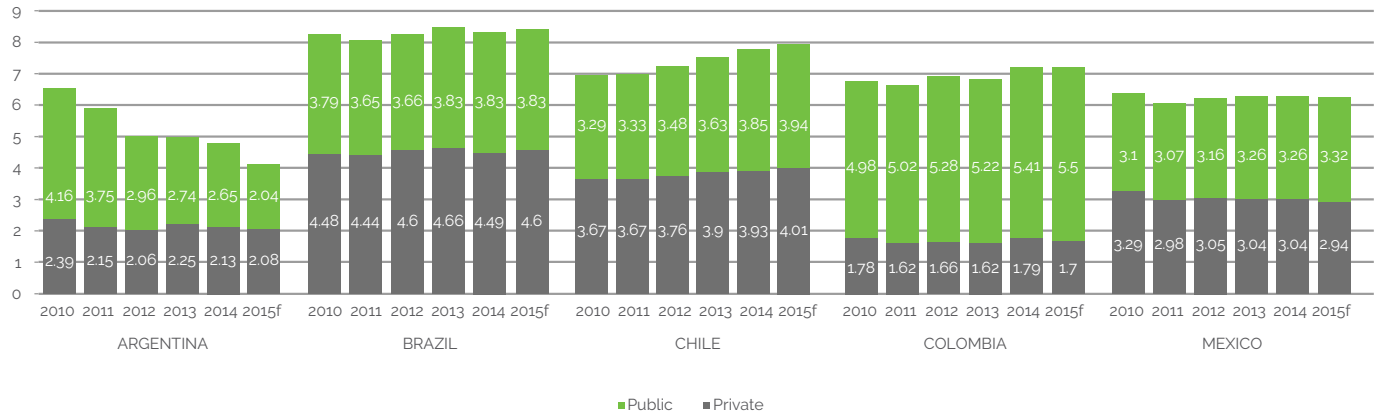
Now more than ever, middle class Latin Americans are complementing their public healthcare access with that of a private option. In fact, this expansion of insurance products to the middle class has been so significant that Latin American health insurance companies have the most rapid level of growth in the world, with 30% growth each year projected through 2025, according to McKinsey & Company.[36]

31 Análisis comparativo de la judicialización del acceso a medicamentos en cuatro países de América Latina, Universidad Nacional de Colombia

32 Global Health Intelligence analysis based on HospiScope
33 McKinsey Says Private Health Insurance is a Trillion Dollar Global Market, and Growing, Global Healthcare Insights, 2017
34 UnitedHealth's Big for Latin American Insurance Escalates Global Play, Forbes, 2017
35 2017 Latin American Insurance Outlook, EY, 2017
36 The Growth Opportunity for Private Health Insurance Companies, McKinsey & Company, 2017

Healthcare expenditure, % of GDP

Source: 2017 Latin American Insurance Outlook



The Good & Bad of Latin American Health Insurance Markets

Of course, having more people getting access to faster and better care through private providers can be seen as a positive development. Overall, the trend for health care in Latin America seems to be positive, with the World Bank indicating that nine countries have made substantial gains to health care access over the past 10 years. The result is that there are 46 million more people insured in Latin America who weren't insured in the early 2000s, according to a World Bank report from 2015.[37]

However, in some cases, the adoption of private insurance by the middle class has caused problems. For one, it's further exacerbated the disparity that's found between private insurance providers and the public health systems. It's also contributed to increasing healthcare costs throughout the region. For example, Willis Towers Watson estimated that health insurance costs would rise by 11.4% in Latin America in 2018. That's the highest cost increase in the world.[38] And falling GDPs (in U.S. dollar terms) in Latin America has put additional strain on public health programs. [39]

11.4%
The rise in health insurance costs in LatAm in 2018

How Changes in Insurance Impact the Medical Device Market

As with other changes in the healthcare market, the shift in people's approach to insurance has vast implications for medical equipment and device manufacturers. For one, the demand for providers and facilities who accept private insurance has increased as the middle class opts to use these facilities. Simultaneously, these smaller, highly specialized private centers need to expand their capacity to take on a growing array of patients. That means more equipment and more devices. It also means that the equipment types will likely shift, favoring devices for out-patient surgeries over those used in lengthy hospital stays.

37 Health Coverage Reaches 46 Million More in Latin America and the Caribbean, says New PAHO/WHO-World Bank Report, The World Bank, 2015

38 Willis Towers Watson, 2018 *Global Medical Trends Survey Report*
39 Global Health Intelligence, *Opportunities in Latin America's Healthcare Sector*, 2017

At the same time, public sectors across the region have made strides to bolster access to universal health care coverage. This, too, means additional investments. Brazil, for example, has introduced a tax-financed universal health system.[40]

Several other countries have implemented similar policies to improve their offerings. For example, in Argentina, President Mauricio Macri proposed a universal health coverage system that would use privatization and outsourcing to create a more organized, more equitable and less fractured healthcare system.[41] Colombia's healthcare system, in particular, is famous for its effectiveness. Since coming into existence in 1993, it has increased overall life expectancy and decreased rates of infant mortality (from 21 deaths per 1,000 births in 2000 to 14 in 2015). [42] And Mexico has the Seguro Popular (Popular Health Insurance) that gives financially struggling families access to care. [43]

And, of course, all of these providers will need additional equipment and devices for their public facilities.

Changing Roles for the 5 Ps in LatAm

We've outlined that the changes coming down the line for Latin American healthcare are broad and substantial. Whether it's an increase in certain health problems and diseases, changing demographics or shifts in how people choose insurance, all of these issues are sure to have a major impact on the future planning of hospitals and other medical facilities for decades to come.

When it comes to defining how each of these trends will shift the face of health care, however, that can often be difficult to predict. To help understand the broader picture of these changes, their impact on hospitals and medical centers, and how those will affect the bottom line, we spoke to experts on the topic and crunched the numbers. Based on their perspectives and available data, we're gauging the impact of these trends on the 5 Ps of healthcare systems: **P**atients, **P**hysicians, **P**rofessional healthcare administrators, **P**ayers and **P**olicy makers.

#1 Patients

By looking more closely at numbers from ShareScope — Global Health Intelligence's service to track market size and share for medical equipment companies via analysis of import data — it's clear that substantial investments are being made to upgrade hospitals and other medical facilities. The annual import value of medical equipment in many Latin American countries reaches several billion dollars, including more than US$ 3 billion in Brazil in 2017 and nearly US$ 5 billion in Mexico that same year.[44] (Note: Brazil has a significant local manufacturing base of medical equipment for its domestic market.). It's also clear that hospitals are making heavy investments in technology, with both telemedicine, electronic medical records (EMRs) and other cutting-edge systems on the rise.

But beyond hardware and software, care providers, device and equipment manufacturers have to become more adept at understanding patient psychology in order to elevate the standards of care. To do this, four key measures come into play for hospitals:

- Anticipating change
- Quantifying readiness
- Adapting to needs
- Improving services

This is a two-way initiative, in which the patient becomes a central point of input. As health care changes, patients want to be more involved in the process of care. Recent surveys indicate that 50% of 18-54 year-olds are ready to choose new health care options — and 81% want an equal say in care decisions

40 Brazil's March Towards Universal Coverage, World Health Organization, 2010
41 Argentina's Macri Moves Forward to Privatize Healthcare, Telesur, 2017
42 Colombia: A Unique Universal Healthcare Model in Latin America, Xcenda, 2017
43 Does Mexico Have Better Healthcare than the United States?, Healthline, 2017

44 Global Health Intelligence analysis of medical equipment import data for Latin America, 2017

Patients Are Talking

Another interesting shift among patients in Latin America is that they are talking with each other a lot more about hospitals and medical care. According to Cien+, a cultural insights company, in 2017 there were 27,384 conversations about hospitals online in Mexico, 38,419 in Brazil, 15,284 in Colombia and 10,586 in Chile. The vast majority of these conversations occurred on message boards, with surprisingly little (5 to 10%) occurring on social media networks.

Here's a look at which hospitals were discussed by patients online in different countries:

Mexico
- **654** conversations were about Médica Sur
- **601** conversations were about Centro Médico ABC
- **586** conversations were about Star Médica
- **492** conversations were about Grupo Hospital Español

Brazil
- **1,265** conversations were about Hospital Israelita Albert Einstein
- **575** conversations were about HCor
- **476** conversations were about Hospital Sírio-Libanês
- **318** conversations were about Hospital de Clínicas Porto Alegre

Colombia
- **609** conversations were about Fundación CardioInfantil
- **488** conversations were about Clínica Las Américas

Chile
- **597** conversations were about Clínica Alemana

This exchange of experiences and opinions may have an impact on the entire field in the years to come. As patients in Latin America more actively express their views online about their treatments and experiences in hospitals, this can offer medical institutions new insights about how they can do better and certainly may affect perception of certain hospitals in a big way. Although hospitals in LatAm may be active on social media and even employ social listening tools, Cien+ analysis suggests that this may not be helpful to find out what patients think.

This is why GHI will be working more closely with companies like Cien+ to offer hospitals more insights about patient experiences and attitudes so as to help them offer care that's more in line with the needs of the region's patients.

with their healthcare provider.[45] In addition, in a 2017 survey conducted by CDW, 70% of patients say they have become more engaged with their health care — compared to 57% in 2016. Only 29% of patients would give their healthcare provider an "A" for their use of technology to interact with patients, while 89% would like to be able to access their health care records more easily. [46]

Patients, like consumers, are evermore online. They conduct research on physicians, facilities, payers, devices, and equipment. Information asymmetry is quickly becoming history and the once-lofty doctor must adapt to the fact that patients arrive at consultations with a wealth of information and ideas. Stakeholders must adapt to this new era of information. In a recent presentation, Maggie Morales-Pérez, CEO of HIP (Healthcare International Partners), noted how device manufacturers needed to adopt marketing guidelines from consumer companies in order to improve their direct-to-patient communication: "Patients arrive at surgeon offices knowing what implants they want to receive and why. This is a game-changer for device companies, who have thus far been focused on marketing to payers, physicians and practitioners, but not the patient."

Patients are also evermore vocal about their opinion. And research in this area is just beginning. The "Patients Are Talking" box cites data from Cien+, a healthcare insights company focused on analyzing patient discussions of hospitals that take place online — but rarely on social media. Hospitals should focus on leveraging such insights to help them improve their positioning and gain a competitive positioning.

To be successful with greater patient engagement in terms of healthcare, hospitals will need to make significant changes while still finding a way to corral costs resulting from societal shifts.

"An aging demographic and increasing diseases are associated with higher costs of treatments and products for patients," says Rodrigo Araujo, the regional market leader for Latin America for Korn Ferry Consultants. "This is continuing to create challenges for patients and the hospitals who serve them."

#2 Physicians

With the median age of patients increasing, and chronic conditions on the rise, there's no question that physicians will continue to face many challenges.

Physicians are at the crux of the payer/patient interface — they play a key advisory role and relate to payers (public and/or private) the status of the patient's condition. Their role is being redefined by their relation to the institution and the insurance at play. It's a fragmented and dynamic situation which is further accentuated by the fact that physicians often work in multiple facilities. It is common practice, for example, for specialists to start their career in the public system, where they gain experience, notoriety and recognition, to then build a private practice where they make substantial financial gains. As a result, physicians often gain experience from multiple institutions where they are exposed to different environments, products, equipment and working habits.

Successful medical device and equipment manufacturers recognize the complexities of working with physicians who practice in multiple settings. They adapt their offering not only to the physician and specialty, but also the setting in which it will be used.

"Physicians, of course, are key to the entire healthcare system," says Araujo. "I believe in the future you will see much greater collaboration among physicians at different facilities and even in different countries, rather than them being focused on an individualistic approach."

#3 Professional Healthcare Administrators

Healthcare administrators have a difficult job ahead, compounded by the rapid aging of the population coupled with the rise of obesity and related diseases. Professional healthcare administrators are at the center of redesigning the future of care.

45 Institute of Medicine, 2013, PwC – Profitable Growth in the Digital Age
46 2017 Patient Engagement Perspectives Study, CDW

The pressure will be on private administrators to expand their service offering in order to stay ahead of the competition, yet maintain costs low so as to remain competitive. This will likely involve acquiring the right equipment and devices to keep up with a rapidly evolving environment. It will also induce reassessing processes and protocols to generate efficiencies and cost savings.

> "There's no question that administrators have a difficult job. The entire system is focused on improving service while lowering costs."

Public sector administrators will need to focus on efficiency gains in order to deliver care to a growing population of seniors. Rethinking and redesigning care protocols will be of essence. Technology solutions and home care services are key areas that can help with cost savings.

"There's no question that administrators have a difficult job," says Araujo. "The entire system is focused on improving service while lowering costs. Some of the newest systems for managing patient data and streamlining the experience should help in the future."

#4 Payers

Whether you are an insurance company or a government entity in charge of managing payments and budgets for health care services, your job is never easy. You have to manage delivering effective care in a timely and efficient manner, all on a budget.

In this regard, healthcare systems across the region could benefit from increased transparency about procedure costs, volumes and operational elements. This would enable stakeholders to adopt a more holistic approach to health care and provide efficiency-driven solutions.

Payers have the strongest case in pushing for a more data-driven system. As the saying goes, "You cannot change what you cannot measure." And this begins with procedure volumes. It seems unfathomable that in an era of big data, certain countries have yet to standardize procedure codes across public and private healthcare systems to measure the true burden of care. This is the case of Mexico, Colombia, Argentina and several other countries across Latin America.

In addition to procedure volumes, payers would benefit from greater transparency in hospital procurement processes. In fact, transparency on the costs of devices, equipment, and consumables would generate savings for both payers and administrators.

Tools like HospiScope and SurgiScope are an initial window into the acquisitions, expansions and purchases made by hospitals, so you can see if you're staying on track. This is the beginning of using information for actionable intelligence.

#5 Policy Makers

The policy makers, who are either the heads of hospitals, associations or who are government officials in various Latin American nations, may just have the most difficult jobs of all. They are staring at a rapidly changing, shifting and evolving region — one that, in fact, is changing more than almost any other region in the world. Latin America is aging more rapidly than all other regions. The rate of obesity is growing faster than any other region. Private health insurance is expanding at a higher rate than any other region. This is putting a strain on the social fabric and distinguishing those that have from those that have not.

Times are changing, and policy makers are faced with major challenges in making sure that Latin American healthcare is able to meet the needs of this changing world. And despite some of the public initiatives undertaken by governments to improve labelling, tax food/beverages with high sugar content and to offer dietary guidelines to help curb obesity, there's clearly more work to be done.

While policy makers historically measured the impact of their initiatives by focusing on the quantity of care delivered, the dialogue is changing to encompass discussions around quality of care. Dr. Enrique Ruelas, former Vice-Minister of Health in Mexico and IHI senior fellow & member of the Board of Directors, is a pioneer in this area with his initiative CICLOS (Consorcio Latinoamericano de Calidad y Liderazgo de Organizaciones de Salud or Latin American Consortium of Institutional Leadership and Quality in Healthcare). Along with his other organization, Instituto Internacional de Futuros de la Salud (International Institute for Health Futures), Dr. Ruelas and his partner hospitals seek to re-design the future state of health care in Latin America, focusing on quality of care. They aim to do this by creating best practices learning centers amongst leading institutions across the region. Such much-needed initiatives will shape the dialogue of policymakers for years to come.

Araujo says that policy makers must face the future with an eye toward being open to collaboration. “Only two years ago, Brazil allowed very little outside investment in their healthcare system,” he says. “However, they have opened up to outside investment, an important step in seeking to be at the forefront of healthcare in the region.”

Mega-Trend #3

Connectivity Closes the Gaps

While not quite as deeply connected as other world markets, Latin America has made impressive strides in improving the reach of technology throughout its population. One significant area this has happened with is in Internet users, with amounts of them jumping from 300 million in 2013 to 438 million in 2018.[47] Current estimates for 2019 indicate that as much as 61% of the population of Latin America is online. But perhaps most striking is the fact that 95% of Internet users in Latin America are also avid social media participants.

Smartphone penetration in Latin America is rising rapidly. While only 7.6% of the population used smartphones in 2011, in 2018 64% of all mobile connections in Latin America were smartphone connections.[48]

4G penetration is another factor driving technological advancements in the region. As of 2017, 4G penetration in LatAm is still behind that of many other parts of the world, but this is changing quickly. Penetration is projected to be nearly 90% in most countries by 2022.[49]

Gradually, this shift towards greater connectivity is impacting medicine, allowing for more efficient, organized care than was ever possible before. What's more, technology allows patients in some of the most remote areas to receive treatment.

47 Internet World Stats
48 GSMA: The Mobile Economy: Latin America and the Caribbean, 2018
49 Dataxis

Smart and Secure: 2 Key Tech Needs in Latin American Healthcare

While technology is gradually getting up to speed in Latin America, many hospitals and medical centers have critical needs to keep up with current trends. Some of these needs encompass smart devices as well as updated Internet security protocols.

Smart Devices in Healthcare

When one thinks about smart devices, of course the smartphone, smartwatch or tablet are often the first things that come to mind. But medical device manufacturers have taken the concept beyond this basic idea and added connectivity to a variety of critical medical devices. The end result is a US$ 5.0 billion business that's expected to grow to US$ 8.3 billion by 2021.[50]

Types of Smart Devices

Smart devices come in a wide variety of shapes, sizes and types. Many are monitors that can be used to constantly evaluate data such as breathing, heart rate, blood sugar and other data points. They are connected via Bluetooth to a device, where they can provide constant readouts as well as alerts for both patient and doctor.

Other advances in "smart" devices include imaging machines that interpret data from CT or MRI scans and learn from them. The end result is a more efficient use of older technologies to more accurately discover problems, and possibly even recommend future treatments.

Some smart devices can be used to deliver a treatment, whether it's a back massage or a dose of insulin. The possibilities for the appreciation in these devices are promising.

Smart Devices in Latin America

These smart devices are gradually changing the way health care is delivered. For example, the wearable medical devices market in Latin America is growing with a CAGR of nearly 17% and is projected to have a value of US$ 1.3 million by 2022 — a significant bump from its 2016 value of US$ 552 million.[51] (For this forecast, wearable medical devices include sleep monitoring devices, heart rate monitors, blood pressure monitors, activity monitors, glucose/ insulin monitoring devices and respiratory therapy devices.) Another market forecast projects a CAGR of 40% between 2014 and 2020 for the wearable sensors market in Latin America due to their use in smart devices to measure blood pressure, body temperature and heart rate.[52] Furthermore, a market estimate from Statista indicates that the Latin American market value for wearables like fitness bands, activity trackers and smart clothes to measure body functions will be US$ 240 million in 2018 with a CAGR of 4.9% from 2018-2022, with user penetration set to increase from 3.2% in 2018 to 4.5% in 2022.[53]

The expansion of smartphone usage in Latin America is driving the growth of other smart devices. This is allowing for expanded usage of apps and other tools that monitor health data directly on the smartphone. For example, there are apps for blood pressure, diabetes and heart rate management, among others.[54] Mexico, Argentina and Brazil currently account for 67% of the medical app usage in Latin America.[55] Research shows that consumers tend to exercise more and track their information more closely when using these devices.[56]

50 BCC Research, 2017

51 Market Data Forecast
52 Mordor Intelligence
53 Statista
54 Latin American Healthcare: Devices and Technology, Pharmaphorum, 2017
55 Grupo Sohin
56 BCC Research

An Increased Need for Cybersecurity

While smart medical devices are one area of need in Latin America, the other is less hardware-focused. Enhanced Internet security is needed to protect both hospitals and their patients from cyberattacks on some of these cutting-edge systems and technologies.

> "Internet security in many Latin American nations ranges from middling to poor."

Recent research indicates that Latin America is severely lacking in this area. A 2016 report from the Inter-American Development Bank (IDB) looked into this issue and found that the Internet security in many Latin American nations ranged from middling to poor.[57] Brazil and Mexico, in particular, have a low level of awareness of cybercrimes and also have no legislation in place to mandate that companies protect against it. It's no wonder that the estimated economic burden of cybercrime in Latin America is almost US$ 90 billion a year.[58]

"The healthcare CEOs that I work with consider cybersecurity one of their top three threats," says Rodrigo Araujo, the regional market leader for Latin America for Korn Ferry Consultants. "The sophistication of some of the most recent attacks is certainly something that has drawn their attention."

Why Enhanced Cybersecurity Is Important

In the health care sector, this is an important issue, particularly as hospitals and medical centers become more focused on technologies such as electronic medical records (EMRs), telemedicine and other Internet-based services. A major cyberattack on an unsecure network could result in a major invasion of patients' privacy, put patients at risk and bring down a critically important Internet-based system.

57 Inter-American Development Bank, *Cybersecurity: Are We Ready in Latin America and the Caribbean?*, 2016
58 Ibid

EMRs are an area of primary importance, as they are advancing in Latin America at a rapid rate. Countries such as Brazil, Peru, Mexico and others have created national EMR systems and are now beginning to implement them in order to connect healthcare systems. With personal healthcare data for millions of patients stored electronically, it is necessary that cybersecurity be an integral part of future planning for public and private hospitals. (See page 27 for more on EMRs in Latin America, including growth and penetration rates in the region).

Remote Care Rises in Latin America

There are major reasons why heightened cybersecurity is an important issue for Latin American hospitals and medical centers. The widespread adoption of electronic medical records (EMRs) throughout the region has put an emphasis on privacy and security. But there are other trends related to increased connectivity that are also on the horizon for Latin American hospitals and medical centers. Specifically, the increased use of telemedicine, and home healthcare along with it, has made the need for safe, reliable Internet connection essential throughout the region.

Telemedicine in Latin America

Though Latin American medical centers and hospitals have grown by leaps and bounds in recent years, there is much ground to cover in terms of technology implementation. Many facilities are still lacking in cutting-edge equipment. And when they do have the proper equipment, it is largely located in the hospitals and medical centers within major cities. While this is beneficial to the 80% of the Latin

American population that lives in cities[59], it can make it challenging for rural populations in the region to access the same level of care.

Telemedicine is a growing field that will bridge the gap between patients and facilities.
In a nutshell, telemedicine allows doctors, often specialists such as cardiologists, oncologists and the like, to examine patients in remote areas or facilities. This might involve hospitals in big cities like Buenos Aires partnering with smaller towns around the country. Or hospitals in the U.S. and Europe to participate alongside smaller communities throughout Latin America.

12%:
the increase in the penetration of home care monitoring in LatAm hospitals, 2017-2018

The growth and widespread adoption of telemedicine in Latin America could potentially alleviate a number of issues related to health care in the region. For one, there simply aren't enough specialized healthcare providers and physicians in deep rural areas.

Telemedicine could be a viable solution for this. Currently, telemedicine is a field that's in serious growth mode in Latin America. A recent report from Market Data Forecast valued the telemedicine market in Latin America at US$ 1.1 billion, with projected growth of up to US$ 2.5 billion by 2021.

An Emphasis on Home Care

One offshoot of the expanded use of technology such as telemedicine is a rise in home care. Increasingly, treatments are occurring at a patient's home, when possible, rather than in a medical facility. This means that devices and equipment suited for home use are also in demand.

There are several reasons that remote care is on the rise. One is the rapidly aging population. According to The United Nations Economic Commission for Latin America and the Caribbean (ECLAC), the population of seniors in LatAm stood at 68 million in 2015. But in 2018 it's projected to grow by 11% to more than 76 million and then to 98 million by 2025 — a 29% increase in just 7 years.[60] As discussed earlier, ECLAC projections indicate that the senior population in Latin America will reach more than 214 million by 2055[61], dwarfing all other age groups. As such, home care is also valuable in rural areas where seniors' access to facilities is not as easy.

Several countries are already seeing both public and private initiatives related to increasing access to home health care. In Chile, for example, a company called AccuHealth is offering telemonitoring services to patients in remote areas with chronic health conditions.[62] Brazil has the Brazilian National Telehealth Network Program, as well as the RUTE-Telemedicine University Network, which are both intended to implement more widespread use of telemedicine across Brazil.[63]

Countries such as Argentina, Peru and Mexico also have national initiatives in place to expand their fiber optic capabilities in order to more successfully support telemedicine and remote care.[64] They also have initiatives directly tied to helping hospitals implement more telemedicine whenever possible. These efforts will significantly close the gap between doctors and their patients and greatly improve the quality of care for patients who might have travel limitations.

On the ground, all of these efforts are leading to a rise in home care accessibility throughout the region. In 2017, extrapolations from Global Health Intelligence of its HospiScope data indicated that 19% of hospitals in Latin America offered home care monitoring. That number rose to 31% in 2018.

59 World Bank statistics, 2016

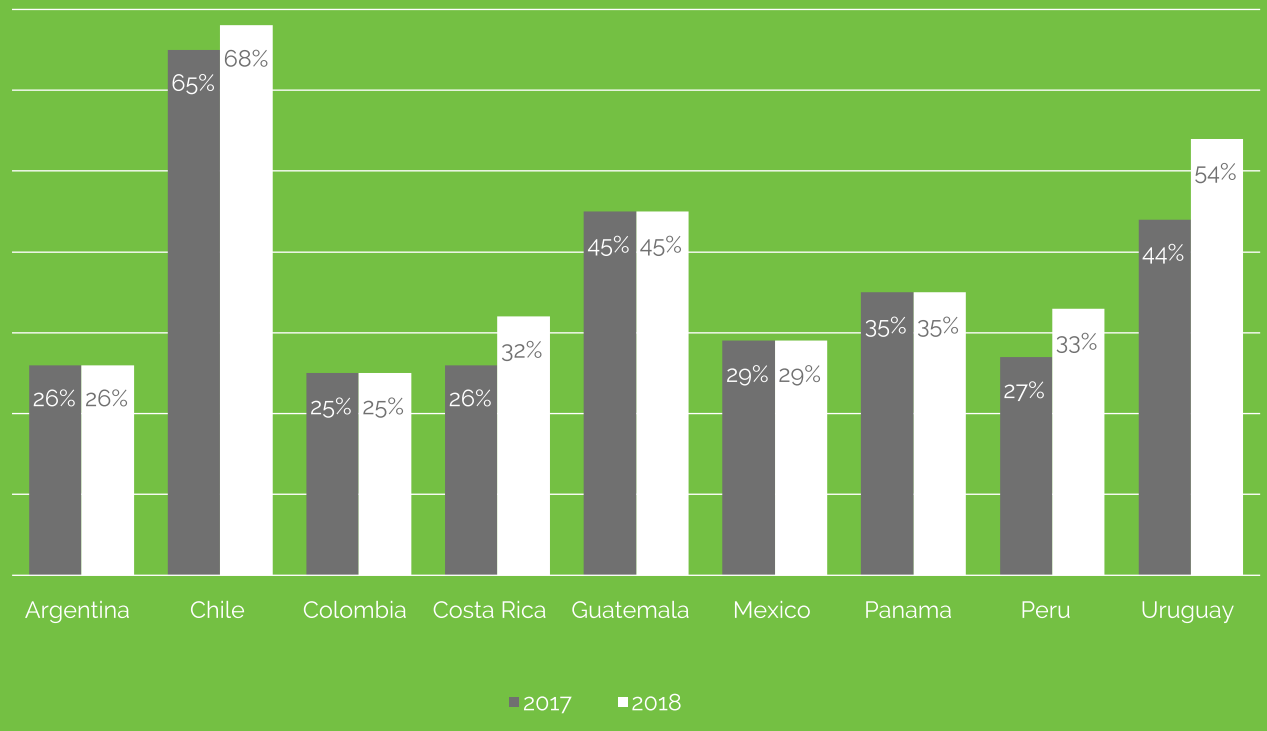
60 ECLAC, América Latina: Estimaciones y Proyecciones de la Población Total según Sexo y Grupos Quinquenales de Edad
61 Ibid
62 Telemedicine Trends in Latin America, Intel IT Peer Network
63 Ibid
64 Ibid

Expanding Telemedicine Use in Latin America

Besides the expansion of NCDs and the senior population, Latin American healthcare systems face a specific structural challenge: doctors are unequally distributed across the region's countries. As a result, Latin Americans in certain areas—particularly rural areas—don't often receive the same access to healthcare, as their fellow citizens. Telemedicine can be a viable solution for delivering this access, and it's growing across the region: a recent report from Market Data Forecast forecasts that the telemedicine market in Latin America will grow from US$1.57 billion in 2018 to US$3.48 billion by 2023, with a CAGR of 17% in that time period.

HospiScope data clearly reflects this surge, and a recent article in *Health Affairs*—a peer-reviewed journal of health policy—used 2017 data from HospiScope to support its analysis. Entitled "Health System Approaches Are Needed to Expand Telemedicine Use across Nine Latin American Nations," the article reviews the current state of telemedicine in Latin American hospitals, identifies factors holding back telemedicine in the region and recommends policies that would help expand it. Although the article used 2017 data from HospiScope, we're also including 2018 data in the chart below:

Telemedicine Penetration in Hospitals, 2017-2018



Leaders and Laggards in Telemedicine Adoption

As indicated by HospiScope figures. Chile and Uruguay lead LatAm in telemedicine penetration in their hospitals and both countries show growth between 2017 and 2018. While both Peru and Costa Rica both showed encouraging growth in telemedicine penetration in 2018, a number of large hospital markets—such as Argentina and Mexico—don't have strong telemedicine penetration.

Penetration Predictors

After a rigorous statistical analysis of the data, the article's authors (Cynthia LeRouge, Manjul Gupta, Alejandro Arrieta and Guillaume Corpart) identified several key predictors of telemedicine usage by Latin American hospitals:

- Presence of electronic medical records (EMRs), DICOM and PACS
- Presence of other forms of eHealth (e.g. home care/remote patient monitoring)
- Defined information technology leadership
- Number of computers and Internet connectivity
- Organizational Type (Public hospitals in Latin America are more likely to provide telemedicine than private hospitals)

Growth Factors

The authors argue that telemedicine has not yet achieved its full potential in Latin America in terms of broad program scale, and that efforts to implement it are often isolated and scattered. They posit that a systems approach—as employed in other areas where telemedicine has a longer history—is what will help telemedicine expand. As part of this systems approach, the authors recommend:

Engaging both public and private hospitals with appropriate incentives. Conditional financial incentives—in the form of grants or bonus payments—may help accelerate telemedicine adoption rates, particularly among private hospitals.

Increased funding. The authors note that Chile leads the region in telemedicine penetration and transitioned from international funding to government funding and observe that a more diversified source of funding should increase the sustainability of telemedicine services.

Legislation. This will help protect patient confidentiality and privacy when patients, as well provide a necessary regulatory framework to shape national and international policies to advance underserved areas within a country—as well as underserved geographical regions.

Technology. Lack of technical support and technological compatibility have compromised several telemedicine projects in Latin America. As a result, technical knowledge and leadership must accompany technology access so as to improve adoption.

Organization. The existing networks of telemedicine programs must be deepened by adding both new organizations and new types of telemedicine services. These expansion efforts should also align with actual health needs, as the authors observed that telemedicine programs in Latin America often don't focus on non-communicable diseases (NCDs) as often as they should—and NCDs are growing enormously in the region.

Education. The authors also advocate training and promotion to overcome cultural barriers to adoption, such as resistance from physicians and concerns from patients. Messaging can come from various sources, including policy makers, system leaders, peer networks and professional associations.

Mega-Trend #4

LatAm Hospitals Beef Up to Keep Up

Latin America is modernizing itself through an increased prevalence of smartphones, Internet penetration and social media use. And though the region may lag in terms of adoption of these technologies, it's catching up in a hurry.

When it comes to how societal — and also epidemiological — changes in the region are impacting the medical field, one only has to look at the numbers to get a clear picture. Hospitals are ramping up their equipment counts to meet the demand in serious ways. In this section, we'll look at market projections for different equipment categories through 2021-22. Going further, we'll share specific data straight from HospiScope — Global Health Intelligence's extensive database of Latin American hospitals — to show the growth in specific markets with specific types of installed base equipment.

We'll also use HospiScope data to take a look at how Latin American hospitals are meeting the rising tide of technological innovation, including electronic medical records (EMRs), picture archiving and communication systems (PACS) and radiology information systems (RIS).

The Role of Rapid Tech Adoption Rates

From the Internet to Wi-Fi to smartphones, technology is revolutionizing virtually every aspect of our lives. And its impact on healthcare has been arguably even more significant. The rise of electronic medical records (EMRs), telemedicine and other technologies have made patients more connected to their care — and hospitals more connected to one another — than ever before. The ability to share and exchange data has made health care more efficient, and that's ultimately better for both patients and providers.

EMR Expansion

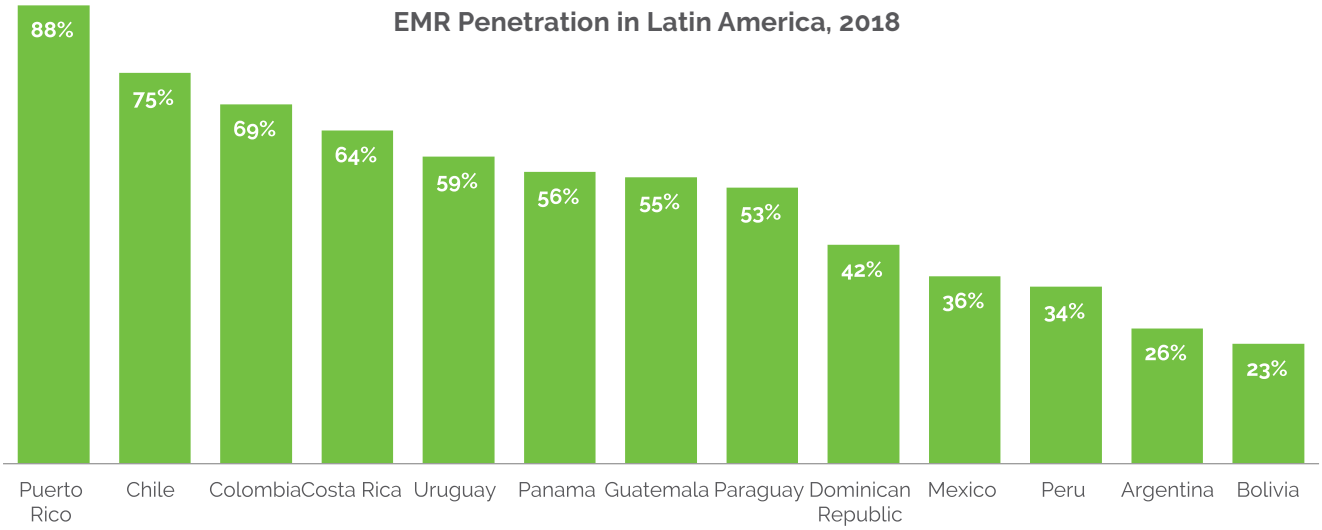
Though Latin America is behind other nations in the adoption of some of the components of the data revolution, the region has made up major ground in recent years. For example, countries such as Mexico, Brazil, Peru and Chile have national electronic medical records (EMR) systems (although implementation varies by country). EMRs are a valuable tool for enhancing the organization and efficiency of health care. Research on the systems has shown that they boost revenue, enhance profitability, lower operational costs and reduce medical errors. Though they have near-universal adoption in the U.S. and most other western countries, they are now gaining a substantial foothold in Latin America, as well. For example, in 2016, EMRs were utilized in 36% of Latin American hospitals, according to data extrapolations from HospiScope, Global Health Intelligence's Latin American hospitals database. HospiScope figures indicate that this number rose to 40% penetration in hospitals in 2017.[65]

This granular figure is well in line with broader market estimates, including a forecast indicating that the Latin American EMR market will grow at CAGR of 7.2% between 2014 and 2019.[66]

When drilling down into EMR penetration in specific LatAm markets, we find that:

- Brazil made a multi-million dollar investment in late 2016 in three supercomputers designed to unify all the government's EMRs into a single system.[67]
- Peru adopted its own national EMR system in 2015.[68]
- Mexico, one of Latin America's early EMR adopters in 2004, now has penetration rates between 25 and 50% for EMRs in its primary and secondary care facilities. Specialized care facilities have a rate of 75%.[69]
- Chile has 50-75% adoption of EMRs in its primary care facilities, and the number is growing.[70]
- Uruguay just adopted a national EMR system in 2014 and is still below 25% adoption in its primary, secondary and tertiary care facilities.[71]
- Costa Rica is also early in the stages of adopting EMRs after approving a nationwide system in 2011, with 25-50% adoption in primary care facilities and less than 25% adoption in its secondary and tertiary care facilities.[72]
- The Dominican Republic, Argentina and other countries are still in need of expanding the use of EMR systems.[73]

65 Analysis of HospiScope data from Global Health Intelligence
66 Research and Markets
67 Brazilian Health Ministry, December 2016
68 World Health Organization
69 ibid
70 ibid
71 ibid
72 ibid
73 ibid



Other Latin American Tech Trends

Telemedicine is also growing in Latin America. This tool, which enables doctors in one facility to diagnose and treat patients in another facility, has become a US$ 1.0 billion business in Latin America. Projections have the Latin American telemedicine market valued at US$ 2.5 billion by 2021.[74]

74 Market Data Forecast

Two other critical components of the healthcare data revolution are PACS (picture archiving and communication systems) and RIS (radiology information systems). These two systems can help facilities streamline their electronic imaging technologies and easily share the data between healthcare teams in one facility, or even between different facilities. This is a growing market that has major room for expansion in Latin America.

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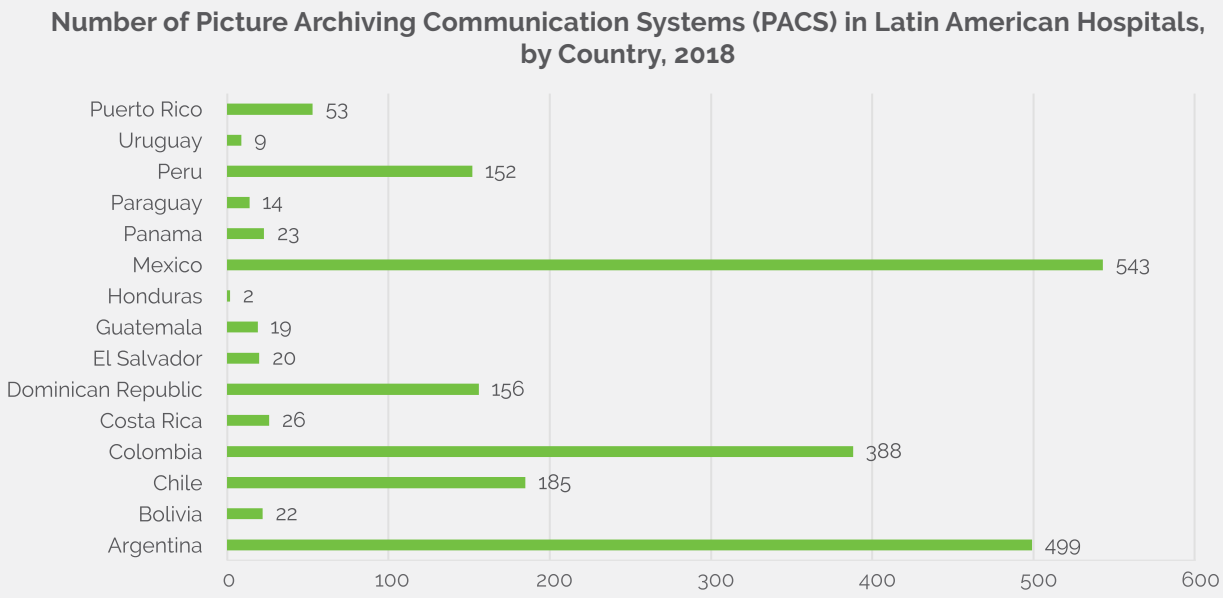

Both technological areas are already showing substantial growth in Latin American hospitals and medical centers. For example, according to data extrapolations from HospiScope — Global Health Intelligence's LatAm hospitals demographics database — PACS have grown slowly in recent years, from 15% penetration in hospitals in 2015 to 16.3% in 2018. RIS was not tracked by HospiScope until 2017, but this service uncovered 199 hospitals implementing the technology (3% penetration) in 2018, and that number is sure to grow in the years ahead.

Equipment and Staff Expand

While tech is becoming big business in Latin American hospitals, it's fueling growth in other ways. The combination of widespread tech adoption, coupled with growing populations of individuals with specific health needs, is leading hospitals to increase their equipment counts in a wide variety of ways.

To get a handle on this, we're going to start with broad market estimates for different equipment categories that include projections over the next years.

Diagnostic Equipment

Equipment that is integral in the diagnosis of medical conditions is one major area of growth. This includes medical imaging technologies such as X-Rays, CT and MRI scanners and ultrasound machines. Devices for monitoring heart rate, temperature and blood pressure, as well as other devices for monitoring or assessing vital signs, also fall into this category. Here are just a few examples that indicate the rate at which these areas are growing:

- **Capnography equipment:** The Latin American market for these machines, which are used to monitor breathing during medical procedures, has a current value of nearly US$ 10 million. However, that market value is projected to grow to more than US$ 30 million by 2021.[75]
- **MRI machines:** These imaging machines are seeing widespread adoption throughout Latin America. The LatAm market for MRI machines is expected to reach a value of US$ 1.3 billion by 2021.[76]
- **Ultrasound machines:** Ultrasound is another imaging technique that's expanding rapidly. The Latin American market for ultrasound equipment is forecast to reach US$ 804 billion by 2021.[77]

Between 2017 and 2018, hemodialysis machine counts went up by:

- 6.5% in Chile
- 25% in Colombia
- 14% in Costa Rica
- 5.2% in Argentina
- 37% in Panama
- 10% in Mexico
- 36% in Puerto Rico

Procedural Hospital Equipment

A growing population in need of medical care also requires rising counts of equipment for day-to-day management of patients. This includes items such as sterilization equipment, suction machines, surgical appliances and more. Here are a few ways in which these equipment categories are growing:

- The Latin American market for gases such as oxygen, nitrogen and carbon dioxide, as well as the equipment required to deliver those gases, is expected to grow by 10% over the next few years to a projected value of US$ 1.8 billion by 2020.[78]
- Systems for electronic medical records are projected to grow at a rate of 7.15% by 2019.[79]

75 Persistence Market Research

76 Market Data Forecast
77 Mordor Intelligence
78 Markets and Markets
79 WiseGuy Reports

Hospital Equipment for Treatments

Consistent growth has been seen in recent years across several care areas.

- Cardiac assist devices in Latin America are projected to grow at a CAGR of 7.5% and reach a market value of US$ 151 million by 2021.[80]
- The LatAm radiopharmaceuticals market is expected to grow at a CAGR of 12% through 2021.[81]
- In Latin America, infusion pumps and related accessories will be a US$ 672 million market by 2021, with a projected 6.6% CAGR.[82]

Installed Equipment Base Details by Country

While the previous numbers are market projections, there's no question that the medical equipment and devices market is growing year over year. GHI's HospiScope tracks installed equipment base in Latin American hospitals, documenting counts in specific hospitals and overall in different markets. Below is a look at increases in different types of equipment and devices based on data extrapolations from HospiScope.

GROWTH IN INSTALLED EQUIPMENT BASE IN HOSPITALS, 2017-2018:

Mexico:
- MRI machines grew by 6.2%
- Nuclear medicine systems – positron emission tomography (PET) increased by >50%
- Angiograms went up by 17.7%
- Linear accelerators increased by 14%

Brazil:
- Laparoscopic surgery equipment increased by 13%
- Endoscopy machines grew by 7%
- X-ray machine counts went up by 4%
- MRI machines grew by 9.8%
- CT scanners increased by 6%

Argentina:
- Ultrasound machines went up by 1.3%
- Incubators gew by 1%
- EEG machines grew by 1%

Colombia:
- Cath labs expanded by 42%
- Endoscopy towers went up by 10.5%
- Mastography equipment grew by 5.6%
- EKG machines grew by 1.1%
- Laparoscopic surgery equipment went up by 3.2%

Chile:
- CT scanners grew by >50%
- Mastography equipment went up by 20%
- EEG machines went up by 26%

Peru:
- Cath labs increased by 31%
- PACS went up by 12%

Puerto Rico:
- Echocardiogram machines grew by 22%
- Ultrasound machines went up by 33%
- Anesthesia machines expanded by 14%
- C-Arms grew by 6.7%

These aren't the only countries exhibiting strong growth, either. Between 2017 and 2018, data extrapolations based on HospiScope figures show that smaller markets like Guatemala, Costa Rica and Panama posted significant increases in installed base in their hospitals:

- From 2017-2018, Guatemalan hospitals posted a 12.5% increase in mastography equipment , a 3% increase in X-Ray machines, a 3.6% uptick in stereotactic mammography machines and a 3.5% spike in ultrasound machines.
- From 2017-2018, Costa Rican hospitals posted a 9% increase in anesthesia machines, a 70% gain in PACS, a 35% uptick in EKG machines, a 57% surge in gamma cameras a 10% increase in

80 Market Data Forecast
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C-arms and a 20% increase in endoscopy towers, among other forms of equipment.

- From 2017-2018, Panamanian hospitals posted a 16% increase in anesthesia machines, a 38% surge in hemodialysis equipment, a 25% growth in echocardiogram machines, and a 32% in MRI machines.

The demand for general doctors increased in several markets in 2017, ranging from

9% to 21%

Hot Growth Categories across Countries

While the previous section focused on specific product categories across markets, it's also helpful to look at HospiScope data to identify growth across broad equipment and device categories in Latin America, such as:

Nuclear Medicine Systems

Between 2017 and 2018, extrapolations from HospiScope data show an upswing in the amount of nuclear medicine systems installed in hospitals in markets such as Peru, Brazil and Mexico.

Imaging Technology

Between 2017 and 2018, extrapolations from HospiScope data show that imaging technology — including X-ray machines, MRI machines, ultrasound machines and CT scanners — grew in Brazil, Chile, Mexico, Panama and Puerto Rico.

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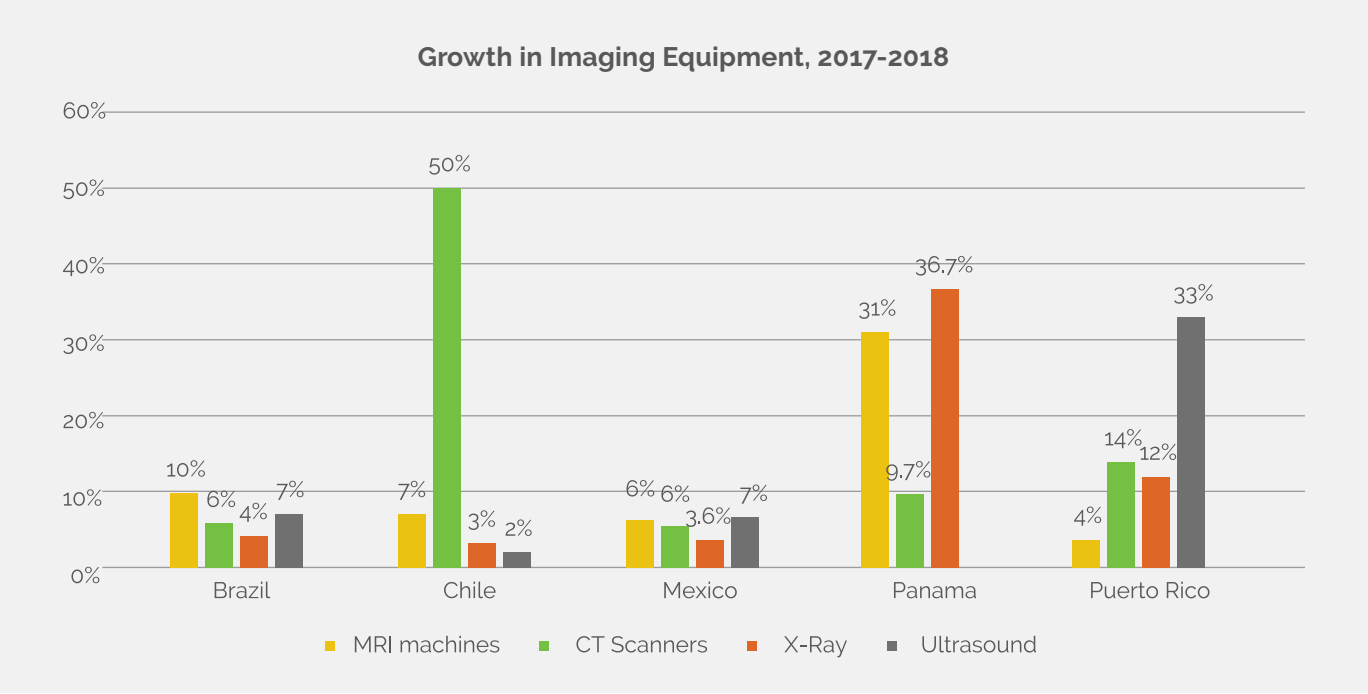


Hemodialysis

The rise in obesity, kidney disease and other health problems has led to an increased need for hemodialysis machines. This is one reason behind the growth from 2017-2018 as per HospiScope data, which shows upticks in the amount of hemodialysis machines installed in hospitals in Argentina, Brazil, Mexico, Colombia, and Costa Rica.

Cardiac and Diabetes-Related Equipment

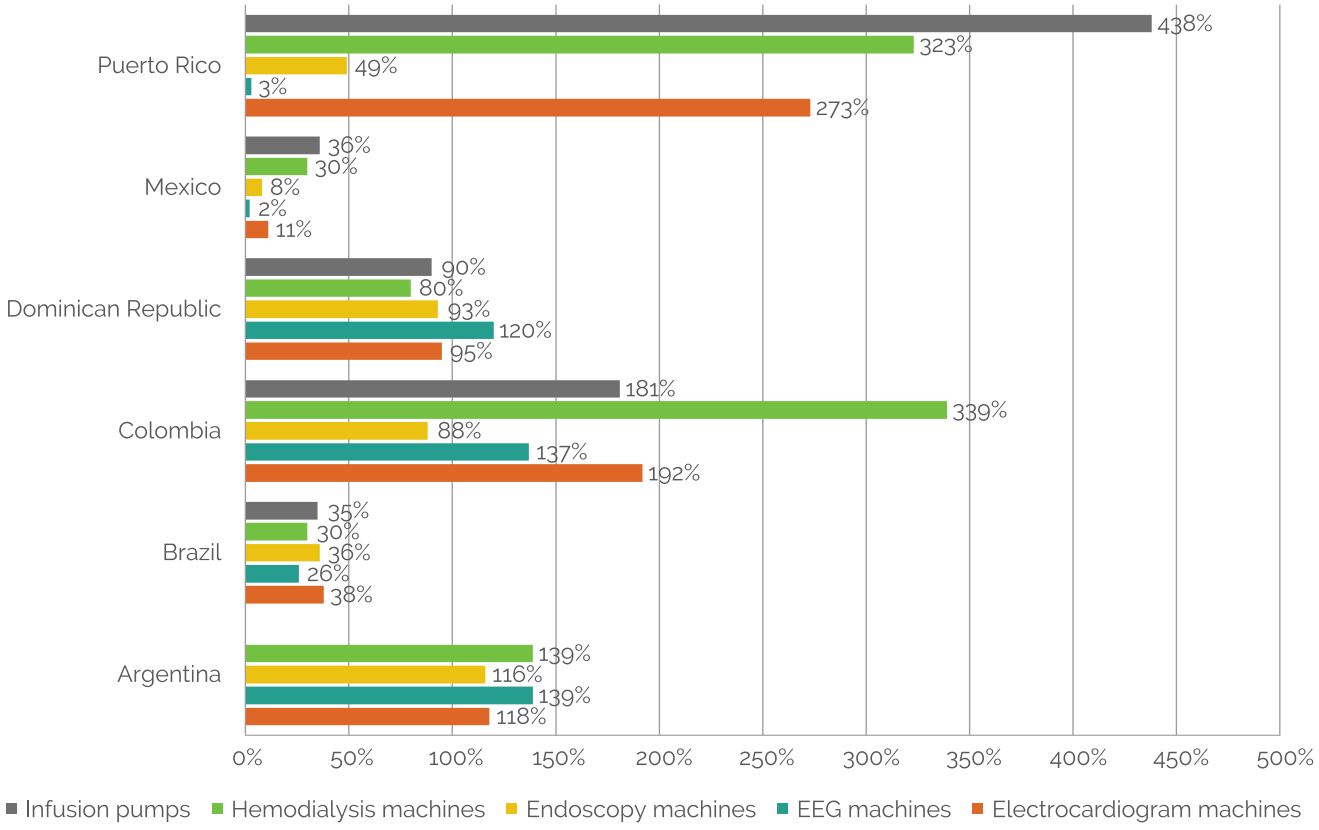
Rising rates of obesity, diabetes and heart disease have led to rising needs for electrocardiograms machines, echocardiogram machines and infusion pumps. Between 2017 and 2018, extrapolations from HospiScope data show increases in installed base equipment to diagnose and treat some or all of these conditions in the hospitals of Brazil, Mexico, Costa Rica, Guatemala, Panama and Peru.

Staff Increases

Not surprisingly, this increase in equipment resources is coupled with a rise in staffing needs in Latin American hospitals. According to data extrapolations from HospiScope figures, a number of hospitals in Latin American countries have shown increases in terms of medical staff when we tracked them from 2016 to 2017. Examples include:

- A 24% increase in doctors with patient contact in Costa Rica
- A 13% increase in general doctors in Chile
- A 47% increase in general nurses in Panama
- A 21% increase in doctors with patient contact in Puerto Rico
- A 9% increase in general doctors in Mexico

CAGR for Installed Base Equipment, 2015-2018



Data Transparency, Procedures and Costs

With needs rising and costs growing, healthcare administrators are looking for opportunities to implement changes in the most cost-efficient manner. One tool that is helpful in this regard is the ability to pool knowledge in order to reduce costs on a hospital level.

Examples of Data Transparency

The trend toward data sharing and transparency is catching on in a big way in American hospitals. One initiative, known as the Oncology Precision Network, allows doctors in 800 clinics, 79 hospitals and 11 states to share their data about almost 50,000 new cancer cases annually.[83]

Another successful initiative in the United States is the Statewide Alert Notification (SWAN) system in the state of Iowa.[84] It connects more than 100 hospitals across Iowa with data and procedure sharing. The result is the elimination of unnecessary procedures and an overall lowering of costs for everyone involved in the healthcare chain.

> "By simply making the costs of certain procedures and methods of care visible to all, it has the effect of driving prices down for everyone."

By simply making the costs of certain procedures and methods of care visible to all, it has the effect of driving prices down for everyone. For patients, it becomes a similar process to other purchasing decisions: They're likely to do a cost-benefit analysis with variables such as price, quality and timeliness. Giving patients the opportunity to make an informed decision may force professional hospital administrators, payers and physicians to develop more efficient — and therefore more economical — practices.

One stark example of this was recently uncovered by the U.S. Government Accountability Office. When healthcare providers were surveyed on the cost of a knee replacement, the price varied from US$ 33,000 to US$ 100,000.[85] This is just one of potentially thousands of examples of wide price variations in the healthcare market.

For routine procedures, patients may opt-in without questioning the price. The data asymmetry benefits private payers, practitioners, physicians and others at the expense of patients and public payers. But when the data is transparent, it can have a universal lowering effect on costs for everyone involved and produce efficiency gains throughout the system.

Data sharing can further help facilities eliminate common hospital mistakes that tend to drive up costs artificially. The Healthcare Financial Management Association documented examples of this, for example resorting to the use of specialists even when not needed (such as cardiologists for every example of chest pain), using higher-cost medicine or orthopedics when a lower-cost one would be sufficient, unnecessary diagnostic testing, not using proven care methods and other such situations.

More efficient systems for organizing and collecting data can save costs in areas beyond medical procedures, as well. In fact, even the paperwork related to checking out and invoicing can be a huge expense when it's not managed properly. In 2013 the American Medical Association estimated that US$ 15.5 billion is wasted each year on medical claims that are processed incorrectly.[86] With a more efficient, shared approach to data collection and organization, a number of these inefficiencies could be eliminated.

83 Press release, June 1, 2016, from Intermountain Healthcare, Stanford Cancer Institute, Providence Health & Services, and Synapse
84 Iowa Department of Human Services
85 Government Accountability Office
86 American Medical Association

"For the leaders in healthcare to succeed in this new environment, they'll need to unite and identify commonalities," says Rodrigo Araujo, the regional market leader for Latin America for Korn Ferry Consultants. "They need to determine how to deliver better care to their patients in a more efficient manner."

How Data Transparency Impacts Latin American Markets

While data transparency is catching on in other parts of the world, it hasn't made big waves in Latin America yet, which has led to a number of challenges for everyone involved in healthcare. One of the reasons behind this is simple: Reliable data on the procedures performed in Latin American hospitals is not standardized or available.

Global Health Intelligence is seeking to fill this gap. In 2018 we launched a procedure volume database called SurgiScope that documents the procedures performed in Latin American hospitals. Not only will SurgiScope promote data sharing, but it will also give manufacturers the tools necessary to conduct more precise account planning and promote a more holistic view on the institution's activities — a drastic change from the current transactional sales model.

Mega-Trend #5

Controlling Costs Is More Crucial — and More Challenging

Thus far, we've focused on discussing the changes that Latin American hospitals will need to face in coming years to keep pace with an evolving population and a technological revolution. These changes don't occur in a vacuum. Each one costs money, and hospital administrators are dealing with tight pocketbooks when it comes to implementing changes effectively and efficiently.

Health care is already a significant expenditure in most countries. In 2015, the most recent year for which the World Health Organization (WHO) has data, 6% of Mexico's total GDP was wrapped up in health expenditures. In Brazil, the number was even higher at 9%. Other expenditures around Latin America include 7% in Argentina, 5% in Peru, 8% in Ecuador, 8% in Chile and 6% in Colombia. [87]

The WHO indicates that health expenditures in middle-income countries like those of Latin America usually represent approximately 6% of GDP. While most countries are on track with this observation, some countries need to make up for lower investments in years past.

Hospital administrators have real challenges ahead of them when it comes to allocating their money efficiently. And for those in the medical device and equipment business, they'll likely be in competition with others to get a cut of precious hospital dollars. Economical equipment from low-cost regions such as Asia are likely to find a growing market in Latin America. Traditional market leaders will have to adapt to the new reality of low-cost products filling the markets by swarms.

87 World Health Organization, Global Health Expenditure Database

Generating Cost Efficiencies

It's clear that Latin America has a lot of changes ahead. The population of seniors is booming, and many will have severe chronic diseases tied to obesity, heart disease and other severe conditions. At the same time, technology is revolutionizing how hospitals do business.

It's evident that hospital administrators will need to go about their business efficiently to capture a growing share of the middle class and stay ahead of the competition, all the while keeping pace with the times. But how exactly will this happen?

Efficiency Challenges in Latin America

Latin American hospitals are not known for efficient service. A 2018 Bloomberg ranking examined the efficiency of healthcare providers in 55 countries. Latin American markets all ranked toward the bottom, including the Dominican Republic (#50), Venezuela (#39), Colombia (#47) and Brazil (#51 of 55).[88]

Latin American hospitals also face other challenges. For one, a majority of their medical devices and equipment are imported, which leads to increased costs in a time of depreciation. Given the lackluster economic performance of the region in recent years (with 1% growth in GDP in 2016, 1.3% in 2017 and 1.2% in 2018[89]), inflationary pressures are increasing the cost of services.

Making Hospitals More Efficient

An uphill battle lies ahead for many Latin American hospitals when it comes to creating cost efficiencies. The solutions are often not easy, but there are several steps that can help. Some of the keys to more cost-efficient care include improving operational effectiveness and communication to reduce errors and redundancies. In addition, increasing the speed of care without reducing quality is also important. Often, data analytics and business intelligence are critical in creating these efficiencies. As the saying goes, "You cannot change what you cannot measure."

Using such tools can help hospitals meet several of the smaller goals that ultimately improve cost efficiency overall: These include optimizing planning and scheduling, streamlining the use of rooms, staff and equipment, shortening wait times, reducing medication errors, reducing infection rates and shortening hospital stays. Measuring these factors, creating open discussions and using connected tools and software to focus on these changes can ultimately reduce costs and improve the efficiency of organization.

Tools to Track Costs

Controlling costs requires the right tools and equipment, and that's where hospital suppliers can prove their worth. Rodrigo Grossi, chief information officer for i2-Life Healthsciences, says that Latin American hospitals in particular face major challenges in this area. "Managing the costs of medical supplies is the biggest challenge for managers," he says. "Administrators often need to look for ways to contain operating costs down, often at the expense of quality."

> Whenever hospitals began thinking about integration of the supply chain, significant savings were generated.

The Cost Savings Conundrum

Naturally, most hospital administrators put their patients' needs first, as they rightly should. But Grossi adds that the high cost of care can become a Catch 22: "When a majority of the budgets is spent on patient care, there is little remaining to invest in the development and implementation of cost savings solutions."

88 Bloomberg, 2018 Ranking of Efficiency in Health Care Systems
89 ECLAC (United Nations Economic Commission for Latin America and the Caribbean) and the Americas Society/Council of the Americas

"The administrator rarely has the opportunity to invest in management mechanisms, such as processes and software," he says. "This, in turn, creates inefficiencies in the management of the supply chain due to product expiration, theft and excess inventory. All of these problems impact operational costs, often reaching 30% of the costs of medicine."

Combine & Conquer

The best approach, adds Grossi, is for managers to focus on supply chain integration. "Whenever a hospital begins to think about integrating the supply chain, they generate significant savings," he says. "One example is the Hospital and Clinics of the University of São Paulo. Each year, they have savings of 20% of their budget for purchases of medicine and medical supplies."

Grossi adds that there are a number of specific methods with which hospital administrators can take advantage of supply chain integration. "Optimization of the supply chain through joint purchases using the concept of GPO (Group Purchasing Organization), increasing competition among suppliers through VMI (Vendor Manager Inventory) and concentrating logistics deliveries with the centralization of supplies in a distribution center are all good options," he says. "Primary care through home care and monitoring of patients with chronic diseases also helps with cost savings. Chronic diseases represent approximately 60% of costs with patients."

How Device & Equipment Vendors Can Help

Vendors can step in to help with the software and tools required to implement these changes. "Integrated management tools work as an information platform that can track inefficiencies and potential savings opportunities through process optimization," says Grossi. "Currently, there is still a lack of understanding of how these tools work and the benefits they can deliver. Information and training are important for hospital administrators to meet their goals."

Afterword

While some of these trends may be a cause for concern amongst hospital administrators and medical professionals, they also highlight one key positive element: data.

Ten years ago, it would have been much more difficult to identify these healthcare trends in Latin America because of sparse, outdated or non-existent data. But beyond pointing to trends, data can also play a crucial role in mitigating the risks implied by some of these trends. As we point out, data sharing and transparency can help hospitals improve efficiencies and reduce costs significantly. And as we also observed in the whitepaper: "You can't change what you can't measure."

Our goal with this whitepaper and with our ongoing work at Global Health Intelligence (GHI) is to continue to provide meaningful data on equipment counts, medical procedures and other areas, possibly including patient attitudes towards healthcare institutions, as a means of helping hospitals not only cope with the 5 mega-trends in Latin American healthcare, but also exceed expectations in handling them so as to deliver the best possible care for the region's 600-million+ populace.

We hope that you found this whitepaper to be helpful, and we'd welcome your feedback:

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ghi.health
info@ghi.health

And if you're interested in more data about LatAm healthcare, feel free to visit the GHI Insights section of our website and subscribe to our free monthly newsletter, where we share insights about the trends our research uncovers.

Guillaume Corpart
CEO and Founder
gc@intelligence.health
+1 (305) 441-9300 x302

Mariana Romero Roy
Director of Business Development & Market Intelligence
mariana@intelligence.health
+1 (305) 441-9300 x308