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Ecuador Landscape Analysis 2022



**Transform
Health**

ECUADOR LANDSCAPE ANALYSIS

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When we talk about Universal Health Coverage, we mean that all people and communities receive the health services they need without having to go through financial hardship to pay for them, as proposed by the World Health Organization¹. This concept covers the entire spectrum of health services, from promotion to prevention, treatment, rehabilitation, and palliative care.

Universal Health was born from the 1978 Primary Health Care strategy²; and since then it has been covering some fundamental aspects, such as: living conditions, access to information and knowledge; equitable access to essential health care and comprehensive health services; and, access to all people without any type of discrimination or barrier that makes its use difficult. However, in Latin America there are limitations to achieve this universality of health, a region where a third of people do not seek health care when they have needed it due to multiple access barriers.³

Universal Health Coverage is also an essential element to achieve one of the goals of the Sustainable Development Goals (SDGs); specifically, within Goal 3, which establishes that "*a healthy life must be guaranteed, and well-being promoted for all at all ages*"⁴. Despite this, at least 90 million people are still impoverished in the world because of health expenses⁵.

New information and communication technologies constitute tools that facilitate and enable access to health care services, such as telemedicine and telehealth; but there are still barriers, of coverage, costs and knowledge, for these to be taken advantage of by the population in general.

This report analyzes the situation of Universal Health Coverage in Ecuador and its main components, as well as the state of use and adoption of new technologies in the health sector and its contribution to achieving universal coverage in the country.

¹World Health Organization. Universal Health Coverage. [online]. Updated: April 1, 2021. [Date consulted: September 25, 2022]. Available at: [https://www.who.int/es/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/es/news-room/fact-sheets/detail/universal-health-coverage-(uhc))

²Pan American Health Organization. Declaration of Alma Ata. [online]. Updated: 2012 [Date consulted: August 2022]. Available at: <https://www.paho.org/hq/dmdocuments/2012/Alma-Ata-1978Declaracion.pdf>

³Pan American Health Organization. UniversalHealth. [online]. Updated: 2020 [Date consulted: August 2022]. Available at: <https://www.paho.org/es/temas/salud-universal>

⁴2030 Agenda in Latin America and the Caribbean. [online]. Updated: 2020 [Date consulted: August 2022]. Available at: <https://agenda2030lac.org/es/ods/3-salud-y-bienestar>

⁵World Bank. Universal Health Coverage. [online]. Updated: 2020 [Date consulted: August 2022]. Available at: <https://www.bancomundial.org/es/topic/universalhealthcoverage>

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Situation analysis of the Ecuadorian health sector

Context and regulations

In the context of Ecuador and the regulations that enable Universal Health Coverage, the Constitution of the Republic in its Article 32 states that *"Health is a right guaranteed by the State, whose realization is linked to the exercise of other rights, including the right to water, food, education, physical culture, work, social security, healthy environments and others that support good living."*⁶

In addition, the Organic Health Code indicates in Article 4.- Right to Health.- *"The right to health consists of universal, permanent, timely and continuous access to health care in a comprehensive and integrated manner, according to the political disease established by the National Health Authority, for the promotion of health, prevention, recovery, rehabilitation and palliative and long-term care."*⁷

The *Plan for the Creation of Opportunities 2021-2025*, understood as the National Development Plan, includes within its Social Axis Objective 6 *"Guarantee the right to comprehensive, free and quality health"*, with the objective of developing public policies related to these topics.⁸

The health system in Ecuador is characterized by being divided into subsystems that are implemented in different ways, limiting the integration of systems and causing fragmentation and segmentation problems.

In 2022 Ecuador has been going through a deep problem in different areas of health, for example, in the country there persists a shortage of essential medicines, supplies, basic equipment, among others⁹, causing what could happen as a crisis in the health system Ecuadorian, according to doctors and researchers consulted during the development of this investigation.

On the other hand, the World Health Organization (WHO) recommends that there should be 23 doctors for every 10,000 inhabitants¹⁰. In Ecuador, according to data from the National Institute of Statistics and Censuses (INEC)¹¹, this recommendation is met; however, media reports reflect a different picture. The digital newspaper Primicias in its publication of May 2022, entitled *"The lack of medical specialists in hospitals"*, mentions that *"The panorama abroad of public hospitals*

⁶Constitution of the Republic of Ecuador. Article 32.-Health. Updated: 2008. [Date consulted: September 19, 2022]

⁷Organic Health Code. Article 4.- Rights to Health. Updated: 2020. [Date consulted: September 19, 2022]

⁸Opportunity Creation Plan 2021-2025. Social Axis. Health. Updated: 2021. . [Date of consultation: September 15, 2022]

⁹Latin American Council of Social Sciences. State of exception against the massive National Strike. [online]. Updated: June 2022. Available at: <https://www.clacso.org/condena-a-la-represion-y-estado-de-excepcion-frente-al-masivo-paro-nacional-en-marco-de-a-serious-social-environmental-economic-and-health-crisis-in-ecuador/>

¹⁰World Health Organization. Personal physician recommendations. [Date of consultation: September 13, 2022].

Available at: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=10947:2015-pahoho-highlights-need-train-more-nursing-personnel&Itemid=1926&lang=es#gsc.tab=0

¹¹Statistics and Census Institute. Resources and Health Activities. [online]. Updated: April 2022. [Date of consultation: September 15, 2022]. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Recursos_Actividades_de_Salud/RAS_2019/Principales_resultado_RAS_2019.pdf

contradicts these figures. Crowded patients in health homes waiting for medical attention or delivery of medicines are daily scenes outside the country's hospitals.¹²

In hospitals in Ecuador there is a saturation of specialist doctors in certain cantons, while in other areas there are none. In addition, the offer of medical specialties is very low. Specialties such as cardiology, otorhinolaryngology, gastroenterology, urology, ophthalmology, gynecological endocrinology and diabetology, are less common in the country, causing students, in search of these specialties, to migrate to other countries and not return to Ecuador, reducing the number of possible medial specialists¹³

Universal Health Coverage in Ecuador

According to the monitoring report of the World Health Organization, on Universal Health Coverage in 2021, Ecuador is qualified with 80 points out of 100 ¹⁴. Countries like Colombia, Chile and Peru, according to this index, are below Ecuador with scores between 60 and 79, placing Ecuador within this measurement as the country with the greatest advances in health coverage within the region.

In the last 20 years, Ecuador has advanced 24.11 points in the Universal Health Coverage Index; however, there are still great challenges not only to achieve universality, but also for the health system to meet optimal coverage conditions.

In this index, to establish the score for each dimension that determines the condition of Universal Health Coverage in the countries, guiding indicators are based to evaluate compliance with certain processes. The dimensions and indicators that make up this index are:

Reproductive, Maternal, Newborn and Child Health (RMNCH)

1. Family planning (FP)
2. Prenatal care, 4+ visits (ANC)
3. DTP3 Immunization (DTP3)
4. Search for suspected pneumonia

Infectious Diseases (ID)

1. Tuberculosis (TB) Treatment
2. HIV therapy (ART)
3. Insecticide-treated bed nets (ITNs)
4. Basic Sanitation (WASH)

¹²Newspaper Firsts. The lack of specialist doctors is felt in hospitals in Ecuador. [online]. Updated: May 2022. [Date of consultation: September 15, 2022]. Available at: <https://www.primicias.ec/noticias/sociedad/falta-medicos-especialistas-hospitales-ecuador/>

¹³Newspaper Firsts. The lack of specialist doctors is felt in hospitals in Ecuador. [online]. Updated: May 2022. [Date of consultation: September 15, 2022]. Available at: <https://www.primicias.ec/noticias/sociedad/falta-medicos-especialistas-hospitales-ecuador/>

¹⁴World Health Organization. Monitoring of Universal Health Coverage. Updated: June 27, 2022. [Date consulted: September 15, 2022]. Available at: <https://www.who.int/publications/i/item/9789240040618>

Noncommunicable diseases (NCDs)

1. Blood pressure (BP) not elevated
2. Mean fasting plasma glucose (FPG)
3. No tobacco use (Tobacco)

Service capacity and access (Capacité)

1. Hospital Bed Density (Hospital)
2. Healthcare Worker Density (HWF)
3. RSI Core Capability Index (IHR)

The World Health Organization indicates that the main objective of national health systems is to strengthen health systems based on Primary Health Care, supporting progress towards universal health coverage and universal access to health. ¹⁵Sofía Cañadas, a researcher on health issues, mentions that in Ecuador *"the health system is fragmented into 4 networks (MSP, IESS, ISSFA and ISSPOL), since there is no integration between them, they can present duplicated data"*¹⁶. In addition, it stands out that in health institutions it is not possible to articulate the information, therefore, there is no standardized database that reflects real statistics of the current situation, because of which the indices are incorrectly qualified.

For the researcher and academic Xavier Astudillo, another aspect that influences the international indicators to reflect inaccurate results is related to *"the sample used when collecting information"*¹⁷. To have data closer to reality, the researcher stresses the importance of disaggregating the figures and *"sectorizing the information to have more real data."*

In Ecuador, health services coexist in subsystems under different modalities of financing, affiliation, and provision. The health system itself is regulated by the Ministry of Public Health, which is the governing body in charge of guaranteeing the right to health. As the Ministry of Public Health is the one that regulates the services and who, at the same time, rates them, there could be a bias in relation to the diagnosis that the Index includes.

Luis Urquiza, a researcher at the National Polytechnic School, stresses that regardless of whether the data is real or not, the Ministry of Public Health *"only cares about the parameters that are going to be rated."*¹⁸, referring to the indicators that are considered when qualifying the universal coverage index. The researcher affirms that this may explain why the results of the indicators do not reflect the reality of the health systems. In addition, in his opinion, there is an interest in avoiding highlighting the emergency that the health system is going through in the country. *"The Ministry of Health is judge and party, there can be no such control,"* added Sofía Cañadas.

¹⁵Pan American Health Organization. Health Systems and Services. [online]. Updated: 2020. [Date consulted: September 15, 2022]. Available at: <https://www.paho.org/es/sistemas-servicios-salud#:~:text=El%20principal%20objetivo%20del%20Departamento,acceso%20universal%20a%20la%20salud.>

¹⁶Interview with Dr. Sofía Cañadas on August 23, 2022

¹⁷Interview with Dr. Xavier Astudillo (UTPL) on August 19, 2022

¹⁸Interview with Luis Urquiza (National Polytechnic) on August 19, 2022

“Considering that there are still geographical, economic and cultural barriers, we cannot speak of the existence of health coverage in Ecuador”,

argues Cristina Murgueitio, Executive Director of the Ecuadorian Association of Distributors and Importers of Medical Products. She also mentions that *“the information that the WHO has is only information from the Ministry of Public Health, not from the national system as such”* and that causes a result that is far from reality, *“the figures must be declared in emergency”*, emphasizing that the indicators currently tell us nothing: the real question is: how many people have actually used health services?

Another reality would seem to be lived within doctors, who, in June 2022, mobilized for 15 days to pressure the Ministry of Public Health to correct problems that have been evidenced in the health system such as the lack of medicines, supplies and devices. After the mobilization, the President of the Republic Guillermo Lasso declared the health system in emergency, when the Ministerial Agreement No. 00080 was issued, where it was established that each health subsystem should diagnose its current state and define strategies to solve the lack of medical supplies and medicines.

The current Minister of Health, José Ruales, during his inauguration on July 7, 2022, stressed the importance of working on 5 pillars: reduction of inequalities that cause inequities, work with social stakeholders, strengthening of the first level of care, implementation of digital processes, and comprehensive health systems.

On the other hand, in response to the declaration of emergency, in August 2022 the Ministry of Public Health (MSP) promoted 5 strategies for the supply of medicines and supplies:

1. Purchase of medicines by Electronic Catalog.
2. Purchase by emergency mechanism.
3. Close Medicine Plan.
4. Acquisition by Regular Purchase.
5. Acquisition of medicines through agreements with international organizations.

Despite the commitment issued by the current Minister of Health and after a second declaration of emergency in the sector, there are still barriers to progress in the health area. For example, there are still limitations in access to health, as in the case of cancer patients, who experience a painful situation when the shortage of medicines for catastrophic diseases stabilizes.

Danny Orlando, General Director of the Orpheus Medical System, mentions that the way forward to guarantee quality access to health, at least in the short term, is through *“strengthening the alliance between the public and private sectors”*. An example of this are external providers that *“are an advance in the health system, there is a higher quality of care and there is agility in the*

processes," he said ¹⁹. In addition, he stresses that "it is easier for the private sector to access certain products, because it does not depend entirely on the state."

Indicators of Universal Health Coverage in Ecuador

Demand for family planning satisfied with modern methods.

In Ecuador, until 2012, 80.43% of married women between the ages of 15 and 49 declared that their family planning was satisfied with modern methods²⁰.

Prenatal care during pregnancy and childbirth.

Ecuador had the second highest maternal mortality rate in Latin America with 37 per 100,000 live births in 2019, with main causes being delivery and postpartum complications, hypertension problems, and uncategorized obstetric problems. In the same year, neonatal mortality reached 6.0 per 1,000 live births, decreasing 0.1 percentage points compared to 2018 ²¹.

Immunization with diphtheria, tetanus, and pertussis (DTP3).

In Ecuador, only 85.2% of children are vaccinated. If the country met the global vaccination coverage standard, the population would have greater immunization and 2 to 3 million deaths would be avoided each year ²².

CSB Child Treatment for Suspected Pneumonia

In Ecuador, according to the study of the National Epidemiological Surveillance Directorate, up to 2020, 89,338 cases of pneumonia were registered, while in 2021, 15,132 cases were reported, which means that the cases dropped significantly in one year ²³.

Tuberculosis treatment coverage

In the country, cases of tuberculosis (TB) occur with greater recurrence in the population between 25 and 34 years of age, with more positive diagnoses in men (79%) than in women (21%).

¹⁹Interview with Danny Orlando (General Director Orpheus) on August 26, 2022

²⁰IndexMundi . Demand for family planning satisfied by modern methods. Updated: 2020. Available at: <https://www.indexmundi.com/es/datos/indicadores/SH.FPL.SATM.ZS/compare?country=ec>

²¹National Institute of Statistics and Censuses. General deaths in Ecuador. Updated: 2019. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Poblacion_y_Demografia/Defunciones_Generales_2019/Presentacion_EDG%20_2019.pdf

²²Newspaper Firsts. Coverage of vaccinations against measles, diphtheria and tetanus. [Online]. Update: 2019. Available at: <https://www.primicias.ec/noticias/sociedad/vacunas-ninos-oms-salud/>

²³National Directorate of Epidemiological Surveillance. Respiratory diseases: Pneumonia. Updated: 2020. [Date consulted: September 20, 2022]. Available in: <https://www.salud.gob.ec/wp-content/uploads/2021/03/Neumonia-SE-11.pdf>

Sensitive TB is the one with the highest prevalence in the country, 5,973 cases are registered, compared to resistant TB cases, 357 are reported, in the year 2021 ²⁴.

HIV antiretroviral treatment (ART) coverage

In 2017, the MSP reported 49,541 cases registered from 1984 to 2016 of the adequate ones, the largest number of cases are HIV. Until that year there were 17,574 deaths due to this disease ²⁵.

Use of insecticide-treated nets (ITNs) for the prevention of malaria

According to the figures shown by the WHO and PAHO, the highest records of malaria cases in Ecuador were recorded in 2001 (106,641 cases). From 2002 to 2014 the trend of malaria cases decreased in the country; however, from 2014 to 2020 it increased again ²⁶.

Population with access to at least basic sanitation services

In 2016 in Ecuador, 70.1% of people have access to safe water, and an additional 21.8% to basic access²⁷. According to figures from the Ecuadorian Institute of Statistics and Censuses (INEC), 26.6% of the country's population does not have access to a safe water source.

Prevalence of elevated blood pressure

In Ecuador, 1 in 5 Ecuadorians between the ages of 18 and 69 suffer from high blood pressure, this disease is the main factor for cardiovascular diseases, which are one of the main causes of death in the country. The STEPS survey highlights that 45.2% of those surveyed are unaware of their diagnosis, 12.6% are aware of their disease, but their treatment is not monitored, and 26% have adequate blood pressure levels²⁸.

Management of diabetes via fasting plasma glucose (FPG)

According to the ENSANUT survey (National Health and Nutrition Survey) in 2012, the prevalence of diabetes in the population aged 10 to 59 is 1.7%. That proportion goes up from the age of 30, and at 50, one in ten Ecuadorians already has diabetes²⁹.

²⁴Ministry of Public Health. National Directorate of Prevention Strategies. Updated: 2021 . [Date of consultation: September 18, 2022. Available at: <https://www.salud.gob.ec/diagnostico-y-tratamiento-oportunos-acciones-para-poner-fin-a-la-tuberculosis/>

²⁵Ministry of Public Health. GAM Ecuador report. Updated: 2017. [Online]. [Date of consultation: August 20, 2022]. Available at: https://www.unaids.org/sites/default/files/country/documents/ECU_2017_countryreport.pdf

²⁶Pan American Health Organization. Elimination of malaria by 2025. Updated: 2019. Available at:

<https://www.paho.org/es/noticias/30-9-2021-ecuador-ratifica-su-compromiso-politico-para-acelerar-eliminacion-malaria-for>

²⁷Ecuador in figures. SDG indicators of water, sanitation and hygiene in Ecuador. Updated: 2016. Available at:

https://www.ecuadorencifras.gob.ec/documentos/web-inec/Bibliotecas/Libros/Diagnostico_ASH_pobreza_INEC_BM.pdf

²⁸STEPS Survey. Chronic noncommunicable diseases. Updated:2019. Available in: <https://www.salud.gob.ec/wp-content/uploads/2020/10/RESUMEN-EJECUTIVO-ENCUESTA-PASOS-final.pdf>

²⁹Ensanut 2012 Survey. Updated: 2012. Available at:

https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/ENSANUT/MSP_ENSANUT-ECU_06-10-2014.pdf

Hospital bed density

Ecuador does not meet the WHO standard and barely reaches 1.5. The country has a total of 14,144 hospital beds available in the public sector and a total of 9,659 hospital beds available in the private sector³⁰.

Density of health workers comprising physicians, psychiatrists, and surgeons

From 2000 to 2018, the number of doctors and dentists has reported a growing trend in Ecuador, with a record that includes 23.44 doctors and 3.12 dentists for every ten thousand inhabitants. The average for other health areas is 1.35 midwives, 10.19 nursing assistants, 0.93 psychologists, and 14.54 nurses per ten thousand inhabitants.³¹

Basic Capacity Index with respect to the International Health Regulations (IHR)

In Ecuador, the basic capacity index in health security according to the International Health Regulations (RSI) is 77%. This indicator refers to the level of basic national preparation, for the management of acute public health events of potential or real importance, both nationally and internationally, as well as the related administrative procedures³².

Population with access to primary health care services

In Ecuador, 1 in 4 Ecuadorians does not have access to any health service and just under half of the population is covered by some type of social security³³.

Public spending on health as a percentage of the Gross Domestic Product (GDP)

Ecuador allocates 8.4% of GDP to finance health, 4.3% corresponding to the State and 4.1% to out-of-pocket spending of the population. In other words, what the state contributes is equivalent to 3.6% of GDP³⁴.

³⁰National Institute of Statistics and Census. Statistical registry of beds and hospital discharges. Updated: 2019. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Camas_Egresos_Hospitalarios/Cam_Egre_Hos_2018/Presentacion_ECEH_2018.pdf

³¹National Institute of Statistics and Census. Statistical record of health resources and activities. Updated: 2019. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Recursos_Actividades_de_Salud/RAS_2019/Metodolog%C3%ADa_RAS_2019.pdf

³²Pan American Health Organization. Updated: 2006. Available at: <https://www.paho.org/es/temas/international-sanitary-regulation>

³³Ecuador decides. Diagnosis of the health system. Updated: 2020. Available at: <https://elecciones2021.ecuador-decide.org/wp-content/uploads/2021/03/Diagno%CC%81stico-El-sistema-de-salud-en-Ecuador.pdf>

³⁴Newspaper Firsts. Ecuadorian households versus health spending. Updated: 2021. Available at: <https://www.primicias.ec/noticias/economia/hogares-gasto-salud-ecuador-oit/>

Biennial variation of the Gross Domestic Product (GDP)

In 2018, the country had public spending on health of 4.2% of the Gross Domestic Product (GDP), a lower figure than the ECLAC regional agreement, which indicates that countries should not allocate 6% of GDP. While, in 2020 in the country, 4% of the GDP was about USD 3,952 million, but the Government designed an initial budget of USD 3,067 million and, as of December, the sector executed only USD 2,589 million³⁵.

Percentage of the General State Budget assigned to health

In Ecuador, in 2020 USD 2,557 million were accrued to the health sector. In 2021, the codified budget of the Ministry of Public Health was USD 2,681 million³⁶. In the 2022 Proforma Budget, 9.3% of the budget corresponding to the Health Sector³⁷.

Out-of-pocket expenditure as a percentage of total health expenditure

The per capita expenditure allocated to health in Ecuador is USD 955 per year³⁸. Out-of-pocket spending as a percentage of total health spending reaches 40.50% in Ecuador, that is, Ecuadorian households assume at least that percentage of their total health spending³⁹.

Biannual variation of poverty and extreme poverty

Poverty and extreme poverty by income grew 7.4 and 6 percentage points between 2019 and 2020 respectively⁴⁰. The percentage of people living in conditions of poverty in Ecuador is 32.2% and 14.7% are in conditions of extreme poverty⁴¹. This means that 32.2% of the population lives on less than \$2.80 a day and 14.7% of the population lives on \$1.5 a day.

35Trade. Ecuador's per capita expenditure on Health. Updated: 2021. Available at:

<https://www.elcomercio.com/tendencias/sociedad/gasto-salud-ecuador-cepal-ops.html>

36International Labor Organization. The Ecuadorian health system and COVID-19. Updated : 2021. Available at :

https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-lima/documents/publication/wcms_799790.pdf _ _ _

37Pro forma budget 2022. Updated: 2021. Available in:

https://contenido.bce.fin.ec/documentos/Administracion/ProformaPresupuesto_112021.pdf

38Newspaper Firsts. Household financing of health spending. Updated: October 2021. Available at:

<https://www.primicias.ec/noticias/economia/hogares-gasto-salud-ecuador-oit/>

39Ecuador decides. The cost of Ecuadorian families in health. Updated: 2021. Available at: <https://elecciones2021.ecuador-decide.org/wp-content/uploads/2021/03/Factsheet-4.-El-gasto-de-las-familias-ecuatorianas-en-salud.pdf>

40Poverty in Ecuador grew in 2020. Updated: 2021. Available at:

https://www.swissinfo.ch/spa/ecuador-pobreza_la-pobreza-en-ecuador-creci%C3%B3-en-2020-m%C3%A1s-de-7-puntos/46414706

41ENEMDU. Poverty and Inequality. Updated:2021. Available in:

https://www.ecuadrencifras.gob.ec/documentos/web-inec/POBREZA/2021/Junio-2021/202106_PobrezayDesigualdad.pdf

Distribution of wealth according to Gini index

In 2021, the Gini coefficient in Ecuador fell by 0.48. Currently, one in four Ecuadorians lives below the poverty line, with a monthly income of less than 87.57 dollars, a rate still above the fine levels of 2017, when the lowest peak of poverty was obtained in Ecuador, with 21.7%.⁴²

Variation of employment in the country

During the pandemic, unemployment increased, which according to data from the National Institute of Statistics and Censuses (INEC) for 2021 was 5.1% and there was labor participation, especially among women who reported having adequate employment at 26.5%, compared to with 38.7% reported by men. By February 2021, 7,778,108 people were registered with employment, of which 2,739,526 are broken down into adequate employment and 1,916,935 in underemployment.⁴³

Population growth in the country

According to statistical projections from INEC, in July 2022 the population of Ecuador exceeded 18 million inhabitants⁴⁴ and additionally, for the period 2030-2035, it projects an interval of between 19.8 and 20.8 million inhabitants.

Education and illiteracy in the country

The average years of schooling for the country is 10.3 years, with a difference of up to four years between rural and urban areas. Schooling in rural areas is only 7.7 years, as opposed to 11.5 years in urban areas. This is because there are still large gaps in the quality of access to education⁴⁵. The illiteracy rate in Ecuador reached 6% in 2021, reaching 11.1% in rural areas and 3.6% in urban areas⁴⁶

Quality of water and sanitation in the country

90.7% of people nationwide have basic sanitation, that is, they have adequate hygienic service (sewerage, septic tank, cesspool, latrine with slab) and for exclusive use⁴⁷. In Ecuador, almost 70%

42Newspaper La hora, Poverty in Ecuador. Update: 2022. Available at: <https://www.lahora.com.ec/pais/ecuador-pobreza-inec-estadisticas-junio-2022/>

43National Institute of Statistics and Census. Update: 2021. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/EMPLEO/2021/Febrero-2021/202102_Mercado_Laboral.pdf

44Newspaper Firsts. Ecuador exceeds 18 million inhabitants. Update:2022. Available at: <https://www.primicias.ec/noticias/sociedad/ecuador-habitantes-millones-inec/>

45Newspaper Firsts. Scholarship. Update: 2019. Available at: <https://www.primicias.ec/noticias/sociedad/educacion-escuelas-estudiantes-inec-ecuador/>

46Newspaper Firsts. illiteracy. Updated: 2021. Available at: <https://www.primicias.ec/noticias/sociedad/analfabetas-ecuatorianos-mayores-leer-escribir/>

47Measurement of the indicators of Water, Sanitation and Hygiene (ASH), in Ecuador. Update:2019. Available in: <https://www.ecuadorencifras.gob.ec/documentos/web-inec/EMPLEO/2019/Indicadores%20ODS%20Agua%2C%20Saneamiento%20e%20Higiene-2019/3.%20Principales%20resultados%20indicadores%20ASH%202019.pdf>

of the population has access to clean water, but more than 30% still do not and are exposed to feces-laden drinking water.

Mental health

The COVID-19 pandemic greatly affected the mental health of Ecuadorians by causing problems such as crisis, anguish, despair, sleep disorders, anxiety, depression, severe stress, among others. In Ecuador, between 1990 and 2019, there was a 56% increase in the rates of death by suicide in the country, from 4.43 to 6.91. In 2018, 1,228 suicides were registered, of which 576 (47%) correspond to people under 30 years of age.⁴⁸

Suicide rate

In Ecuador, around 1,000 people die each year from self-inflicted injuries (suicide)⁴⁹. Compared with other countries in the region. The data suggest that suicide in Ecuador is below the average annual rate for the region (Americas: 7.3 per 100,000 inhabitants). However, it is estimated that, in Ecuador, there is an underreporting of mortality of 17.4%, for which the rates could be higher⁵⁰.

Tobacco, alcohol and other drug use

In Ecuador, according to the National Plan for Comprehensive Prevention and Control of the Socioeconomic Phenomenon of Drugs, in Students of the 9th year of Basic General Education (EGB), 1st and 3rd year of Baccaulaureate, the age of initiation of consumption of any illicit drug was 14.62 years on average (marijuana 14.88 years, cocaine base paste 14.86 years, cocaine is 14.72 years, heroin 14.39 years)⁵¹.

Sedentary lifestyle and lack of physical activity

Physical inactivity is recorded at 12.1% in the case of men and almost double, 23.3% in women. This prevalence was higher in the 45-69 age group, with 21.4% for both sexes, 16.2% for men, and 26.6% for women⁵². In adults of both sexes, 24.7% performed low-intensity physical activity, 25.6% moderate, and 49.7% vigorous. The total physical activity was 47% for work activity, 37.5% for transportation activity, and 15.5% for leisure time activity.

48Operational Guidelines for the Care of People with Suicide Intent and/or Attempts in Establishments of the Ministry of Public Health of Ecuador. Updated: 2019. Available at: <https://www.salud.gob.ec/wp-content/uploads/2021/09/Lineamiento-de-intencion-e-intentos-de-suicidio.pdf>

49Radio Pichincha. Update: 2022. Available at: <https://www.radiopichincha.com/258-suicidios-y-438-intentos-en-lo-que-va-de-2022-segun-ecu-911/>

50 Gonzalez-Andrade F, López-Pulles R, Gascón S, García-Campayo J. Epidemiological problems on suicide in Ecuador: an 8-year report. *J Public Health* 2011; 19: 161-169. <https://doi.org/10.1007/s10389-010-0372-4>

51Technical Secretariat for Comprehensive Drug Prevention 2017-2021. Available in: http://sisco.copolad.eu/web/uploads/documentos/PLAN_NACIONAL_DE_PREVENCION_INTEGRAL_Y_CONTROL_DEL_FENOMENO_SOCIO_ECONOMICO_DE_LAS_DROGAS_2017-2021.pdf

52STEPS Survey. Updated: 2018. Available at: <https://www.salud.gob.ec/wp-content/uploads/2020/10/RESUMEN-EJECUTIVO-ENCUESTA-STEPS-final.pdf>

Unhealthy diet

According to the study "Closing the nutrient gap" of the World Food Program (WFP) and developed in Ecuador, only 5 out of 10 households in the country will have economic access to a nutritious diet⁵³. On the Coast, Sierra and Amazon, more than 40% of the population did not had access to a diet based on proteins, legumes, fruits and vegetables in 2018. What is mostly consumed is a diet which only aims to combat the feeling of hunger without contributing any nutritional benefit⁵⁴.

Overweight and obesity

In Ecuador in 2016, 6 out of 10 people have presented problems of overweight and obesity, being more prevalent among people of 40 and 50 years of age. Women (65.5%) have the highest frequency compared to men (34.5%). This situation is linked to a 30-40% sedentary lifestyle and the intake of unhealthy foods. This behavior is repeated in various Latin American countries, becoming an alarm signal for the region⁵⁵.

Child chronic malnutrition

In Ecuador, Child Chronic Malnutrition (DCI) in 2014, in children under 2 years of age was 24.8%, a figure that increased for the year 2018, to 27.2% according to the ENSANUT 2018 survey. to DCI in children under 5 years of age, it was demonstrated according to the Living Conditions Survey (ECV) of the year 2014 at 23.9% and according to the ENSANUT 2018 the percentage was 23%, that is, in 2018 1 of 4 children under 5 years of age present Chronic Malnutrition in the country and this increases in rural areas, observing that 4 out of 10 children suffer from this type of malnutrition ⁵⁶.

Gender-based violence

In Ecuador, according to the national survey on family relations and gender violence against women, 65 out of 100 women have experienced at least one act of some type of violence throughout their lives, 56.9% have experienced psychological violence, 35.4% have experienced physical violence and 32.7% have suffered sexual violence, with Afro-descendant (71.8%) and indigenous (65.1%) women being the main victims of this ⁵⁷.

⁵³Closing gaps. Update: 2018. Available at: <https://es.wfp.org/publicaciones/cerrando-la-brecha-de-nutrientes-en-ecuador>

⁵⁴Newspaper Firsts. Only 50% of Ecuadorian families come with a nutritious diet. Update: 2019. Available at:

<https://www.primicias.ec/noticias/sociedad/ninos-desnutricion-dieta-alimentos-hambre/>

⁵⁵SPACES MAGAZINE. ISSN 0798 1015 vol. 40 (No. 36) Year 2019

⁵⁶ENSANUT survey. Survey of life conditions. Updated:2018. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/ENSANUT/ENSANUT_2018/Principales%20resultados%20ENSANUT_2018.pdf

⁵⁷NATIONAL SURVEY ON FAMILY RELATIONS AND GENDER VIOLENCE AGAINST WOMEN (ENVIGMU). Updated: 2019. Available at

https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Violencia_de_genero_2019/Boletin_Tecnico_ENVIGMU.pdf

Pregnancy in adolescent girls and women

In the country, in the year 2020, a total of 1,631 live births were registered, children of adolescents between the ages of 10 and 14, which corresponds to a rate of 2 live births for every 1,000 girls in that age range⁵⁸. In addition, a total of 43,260 live births were registered, children of adolescents between 15 and 19 years of age, which corresponds to a rate of 54.6 live births for every 1,000 adolescents in that age range.

Communicable Diseases: COVID-19

In Ecuador, from the start of the pandemic to September 2022, 999,837 confirmed cases of COVID-19 have been registered. Regarding the variants presented in the country, Alpha, Lambda, Delta and Omicron have appeared⁵⁹.

Communicable Diseases: HIV

For the year 2020, the Ministry of Public Health notified 3,823 new cases of HIV, with a lower number of cases compared to the year 2019; For the year 2021, 2,128 new cases of HIV are reported, which indicates that at the moment there are 44,631 people in total who know their HIV diagnosis⁶⁰.

Communicable Diseases: Tuberculosis

In Ecuador, in 2018, 6,094 cases of sensitive tuberculosis were reported with an incidence rate of 34.53 per 100,000 inhabitants. considering the cases estimated by the WHO for the year 2017, there is still a gap between the estimated and notified of 906 cases⁶¹.

Communicable diseases: Leprosy

Despite the COVID-19 pandemic, in Ecuador 53 cases of leprosy remained under treatment during 2021. The Ministry of Public Health seeks to provide timely treatment, of the cases mentioned, 12 are women and 41 are men⁶².

58Statistics and Census Institute. Live Births and Fetal Deaths. Updated: 2020. Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Poblacion_y_Demografia/Nacimientos_Defunciones/Nacidos_vivos_y_def_fetales_2020/Principales_resultados_ENV_EDF_2020.pdf

59Social Observatory of Ecuador. Monitoring of the coronavirus in Ecuador. Update:2021. Available at: <https://www.covid19ecuador.org/ecuador>

60Annual HIV/AIDS Bulletin 2020. Ministry of Public Health. Update: 2020. Available at: <https://www.salud.gob.ec/wp-content/uploads/2021/06/Boletin-anual-VIH-Ecuador-2020.pdf>

61Ministry of Public Health. Tuberculosis Bulletin 2018. Update: 2018. Available at: https://www.salud.gob.ec/wp-content/uploads/2019/03/informe_anual_TB_2018UV.pdf

62Ministry of Public Health. Update: 2021. Available at: <https://www.salud.gob.ec/msp-brinda-atencion-oportuna-pacientes-con-lepra/#:~:text=En%20Ecuador%2C%20durante%20el%20a%C3%B1o,women%20and%2041%20are%20men.>

Communicable Diseases: Malaria

After the maximum peak of malaria cases registered in the country with 106,641 cases in 2001, from 2002 to 2014 the trend of cases decreased, reaching 241 thanks to the country's adherence to international malaria control policies, which has involved a large investment in resources and personnel⁶³.

Prevalence of noncommunicable diseases (NCDs)

According to the results of the STEPS 2018 survey⁶⁴, the prevalence of the main ENTs are as follows: 19.8% of the population has high blood pressure, which increases the risk of cardiovascular diseases. Of these, half are not in treatment. 7.8% of the population has hyperglycemia, which increases the risk of developing diabetes mellitus. 7.1% of the population has diabetes mellitus, which increases the risk of cardiovascular diseases. 34.7% of the population has high cholesterol, which increases the risk of cardiovascular disease. 11.6% of the population between 40 and 69 years old has a cardiovascular risk.

Main barriers to achieve Universal Health Coverage in Ecuador by 2030

Although in the early stages of the health sector reform efforts were made to maintain Comprehensive Health Care Teams in the first level of care units, to improve access and coverage of health services; as well as training of doctors to reach the goal of 23.44 health professionals for every 10,000 inhabitants⁶⁵, currently there is a significant deficiency of nursing personnel, without any public policy to date to reverse the indicator of 2 doctors for each nurse.

However, because of the structural adjustments applied since 2019, a series of dismissals of health personnel was carried out that has persisted even in the context of the pandemic, without the precise number and impact being clear to date⁶⁶.

Likewise, in this context of structural definitions, various changes were made to the organizational structure of the health services of the Ministry of Public Health, which reaffirmed the merger of different health districts, which has apparently made the management processes more complex.

63Pan American Health Organization. Elimination of malaria in Ecuador. Update: 2021. Available at: <https://www.paho.org/es/noticias/30-9-2021-ecuador-ratifica-su-compromiso-politico-para-acelerar-eliminacion-malaria-para-64>

64STEPS 2018 Survey. Available at: <https://www.salud.gob.ec/wp-content/uploads/2020/10/RESUMEN-EJECUTIVO-ENCUESTA-PASOS-final.pdf>

65Plan V. A wounded public health. Update: 2020. Available at: <https://www.planv.com.ec/historias/sociedad/una-salud-publica-herida-muerte-y-con-menos-camas-ha-enfrentado-la-pandemia-el>

66INREDH. Work in Ecuador after six months of pandemic. Update: 2020. Available at: <https://inredh.org/el-trabajo-en-el-ecuador-tras-seis-meses-de-covid-19/#:~:text=Cabe%20mencionar%20que%20en%202019,%25%20among%20others%5B2%5D>.

The administrative structure of the State, organized by zones that incorporate several provinces, often without direct connection, breaks the logic of health management based on populations and defined territories. It also does not allow to handle epidemiological risks or to articulate networks with the various public and private health subsystems.

On the other hand, the difficulties faced by the Ecuadorian Social Security Institute (IESS) in providing preventive services to its policyholders should also be noted, given the limited offer of first-level care services.

In such a way, that the provision of services has been centralized in the response to the demands for acute health conditions, mainly in the hospital environment. The provision of preventive care and health promotion are limited and are not offered in every health subsystems. An eminently curative approach persists that is generally accompanied by an inefficient use of technologies and specialized care.

The first level of care has little problem-solving capacity and does not respond to the health profiles of each territory, in addition to limited capacities to identify the population with health risks than with timely care that limits damage to health.

The management models under which the services are organized in each of the subsystems do not allow to identify the levels of efficiency, effectiveness of the provision of services, they are not oriented to encourage actions of prevention and health promotion, nor improvement quality and safety in care.

Therefore, there are still problems of transparency in the management of resources, shortages of medical supplies, deficiencies in quality-of-service provision, lack of integration of services between levels of care that have had consequences, lack of timeliness of care, inequities in access and coverage of health benefits, low response capacity and high levels of inefficiency.

The Comprehensive Public Health Network, although it has made important advances focused mainly on the payment of benefits among the health providers that make up the network, has made very little progress in structuring a network of territorial health services that organizes access to the health units of a registered population, this being a fundamental barrier to overcome in order to guarantee access to health services.

Among the main advances, the classification of establishments by levels of care, the definition of the service portfolio, a basic table of medicines and medical devices, various regulations and the definition of the Single Rate of Benefits for the National Health System stand out; although the challenge of keeping the rates up to date persists, and the need to establish new efficient payment mechanisms within and between institutions. On the other hand, the greatest challenge is to constitute a territorialized network of health services with population assigned to its services.

Up to now, the territorial organization of health services does not allow defining a population and territory in charge that allows having a broad knowledge of the health needs of the population, for

which reason health objectives and goals are not set at this level, which are the basis of the provision of services based on Primary Health Care.

On the other hand, the management of clinical, administrative, and logistical support services maintain deficiencies related to their integration, which generally affects the lack of access, mainly to prevention, diagnosis, treatment, rehabilitation services and palliative care services.

There are limitations to the coordination of services throughout the entire continuum of care. This generally translates into a lack of opportunity in caring for the population, which on many occasions is resistant to long waiting lists, facing barriers to access essential services, as well as the medicines and health technologies they require.

The management of the services is not organized according to the integration of the service network; therefore, it does not have objectives that allow measuring the progress of the health results of the networks and the information systems are not integrated or allow interoperability with the rest of the providers, both public and private. Additionally, there is no evaluation of the quality of care provided, and there are no incentives to strengthen prevention and health promotion actions over eminently curative actions. Although progress has been made in the regulatory framework to ensure the quality of care in the country, there are important gaps to identify the needs and preferences of the population in this material that allow improving the quality and safety of services.

Strategies, policies, and relevant statements on Universal Health Coverage in Ecuador

Ecuador, as a member of the Pan American Health Organization, revealed the Strategy for universal access to health and universal health coverage (2014), which establishes 4 strategic lines:

- **Strategic line 1:** Expand equitable access to quality, comprehensive health services that are centered on people and communities.
- **Strategic line 2:** Strengthen stewardship and governance.
- **Strategic line 3:** Increase and improve financing, with equity and efficiency, and move towards the elimination of direct payment that becomes a barrier to access at the time of service provision.
- **Strategic line 4:** Strengthen intersectoral coordination to address the social determinants of health.

The Decennial Health Plan 2022-2031 is the instrument that was developed by the Ministry of Public Health of Ecuador to define the strategic lines that are sought to be implemented in the sector. This plan was presented in June 2022⁶⁷, and has been publicized by Minister José Ruales since October 2022⁶⁸.

⁶⁷Presentation of the Ten-Year Health Plan 2022-2031. Available at: <https://www.salud.gob.ec/ministra-garzon-presento-plan-decenal-de-salud-2022-2031-durante-reconocimiento-otorgado-por-la-espe/>

⁶⁸Socialization Ten-Year Health Plan https://twitter.com/Salud_Ec/status/1586036824043966464



Digital Health in Ecuador

Role of digital technologies to support Universal Health Coverage

The Ministry of Public Health identified digital transformation as a critical axis for improving the management of the sector, which puts on the table the need to accelerate the use of ICTs to maintain contact with the population, to have better management of clinical patient data, and to attend the need for adequate management of administrative records as a source for making timely evidence-based decisions⁶⁹.

Additionally, several agreements have been made more flexible (Ministerial Agreements 1190-2012, MSP 009-2013 and 0009-2017) that have allowed the use of new digital processes and tools, such as: teleconsultation, telediagnosis and telemonitoring in medical care processes for people with prioritized diseases and health conditions (hypertension, diabetes, pregnant mothers, children, mental health among others).

For this reason, the Decennial Health Plan includes a strategic framework for the Digital Transformation of Health (Digital Agenda of the Sector), which proposes three strategies with their respective priority objectives, the same ones that guide priority actions in this matter for the present plan.

The strategies proposed in this framework are:

1. Improve the timeliness and quality of information, promoting its use for analysis and decision-making.
2. Strengthen the digital ecosystem to contribute to the quality of health care.
3. Promote innovation and strengthen governance in digital health.

Digitization of processes in the health sector

In Ecuador there are computer systems (software) that are currently working on the digitalization process of health services. iSalud and Saluto are examples of these solutions that not only seek to offer health services in digital mode, but also to create a link between patients and doctors.

The health digitization process is just beginning in the country, and there are still barriers to collaborating with the public sector.

Javier Orellana, General Director of iSalud, comments that *"they have no relationship with the public health system because that approach is very complex"*. For Javier, the public sector is not the solution or the way to achieve a significant degree of digitization, *"when there is a change of government, a change of a minister, everything changes"* he adds.

⁶⁹Importance of digital transformation in the health sector. Available in: <https://www.salud.gob.ec/salud-publica-es-parte-de-la-transformacion-digital-del-ecuador/>

One of the barriers to digitizing health is that there is still a lack of knowledge on citizens about digital health services. Carlos Sandoval, General Manager of Saluto, notes that *"many times people have the tools, however, there is still little digital culture, it is not only the technical part, but digital culture is also important"*.

"Everything must be connected, from patients, doctors, pharmacies and laboratories" adds Sandoval. For there to be functionality in providing a quality service, it is essential to create this connection so that the system is much more efficient and effective.

Electronic health records

The study "Regulatory Framework for Digital Health in Latin America and the Caribbean" prepared by the Inter-American Development Bank in 2020⁷⁰, mentions that in Ecuador there have been advances in the development of regulations for the implementation of Electronic Health Records (EHR).

The methodology used to qualify the percentage advances in each country was based on the enacted legislation, regardless of its effective date. In the first instance, the regulations of each country were identified for each of the 5 categories of the conceptual framework of reference. In this sense, the norms related in each country with the specific legislation on:

- Electronic health record.
- Protection of patient data and secondary use of information.
- Legislation related to the actions of health professionals.
- Role of patients in relation to their EHR.
- EHR health and interoperability standards.

The study evaluates 5 categories, in each of which the country received the following tests regarding whether the regulatory framework encompasses the listed dimensions:

Category	% of Progress
1. EHR specifics	75%
2. Protection of patient data and secondary use of information	100%
3. Action by health professionals	100%
4. Role of patients in relation to their health data	75%
5. EHR health standards and interoperability	100%

Source: Table based on the study "Regulatory Framework for Digital Health in Latin America and the Caribbean" prepared by the Inter-American Development Bank

⁷⁰"Regulatory Framework for Digital Health in Latin America and the Caribbean". Inter-American Development Bank. Updated: 2020. Available at: <https://publications.iadb.org/es/marco-normativo-para-la-salud-digital-en-america-latina-y-el-caribe-el-caso-de-las-stories>

Medical facilities with Electronic Health Records

The Clinical History in Ecuador is a goal yet to be achieved. Until the 2017-2018 period, only 24.5% of health facilities in Ecuador had an electronic health record⁷¹.

For the health record to work in the country, each institution must guarantee the protection of personal data. Danny Orlando, General Director of Orpheus, mentions that *"the medical center must guarantee the confidentiality of the information, there must be operational and administrative security mechanisms"*. In addition, he adds that *"the owner of the information in the medical history is the patient, for the doctor it is only a tool."*

Currently, Ecuador is seeking to strengthen health information systems, with the implementation of electronic clinical documents and management of health interoperability standards. Through a project of the Ministry of Public Health, the use of interoperability standards will be strengthened, this would be achieved with training for officials of the Ministry and other related institutions.

The Ministry of Public Health has made progress in the development of Health Information Systems in the last 2 years, a period in which the pandemic accelerated the need to use tools such as the electronic health record (EHR)⁷².

Changes beyond the use of the Electronic Health Record are not yet visible in the country; It is expected that with the implementation of the Digital Transformation Agenda 2022-2025, digital transformation will be promoted in the sector.

The country still has a way to go to implement the full story. There are still shortcomings in governance and a lack of regulations for the correct digital transformation in the health system, in addition to reducing digital gaps and improving technological tools to improve the user experience. However, it should be noted that the electronic health record of the Ministry of Public Health is implemented in more than 1,500 operating units and with approximately 15 million registered cares.

Telemedicine

The study "Regulatory Framework for Telemedicine" prepared by the Inter-American Development Bank in 2022⁷³, mentions that in Ecuador there are still regulatory challenges for the use of telemedicine. The study evaluates 7 categories, in each of which the country received the following evaluations:

71Medical Edition. Digital transformation. Update:2019. Available at: <https://www.edicionmedica.ec/secciones/profesionales/24-5-de-establecimientos-en-ecuador-tienen-historia-clinica-electronica--93440>

72Pan American Health Organization. Clinical History in Ecuador. Update: 2021. Available at: <https://www3.paho.org/ish/index.php/es/todas-las-historias?id=115>

73"Regulatory Framework for Telemedicine". Inter-American Development Bank. Updated: 2022. Available at: <https://publications.iadb.org/es/marco-normativo-de-telemedicina-estado-actual-y-tareas-pendientes>

Category	% of Progress
1. Regulations on telemedicine	0%
2. Governance in telemedicine:	0%
3. Protection of personal data in telemedicine:	67%
4. Technological aspects of telemedicine	29%
5. Action of health institutions and teams in telemedicine	16%
6. Role of patients in telecare	9%
7. Principles and human rights transversal to telemedicine	0%

Source: Table based on the report "Regulatory Framework for Telemedicine" prepared by the Inter-American Development Bank

Maturity of Information Systems for Health

The Pan American Health Organization proposes an Information Systems for Health Maturity Model (IS4H-MM)⁷⁴ as a reference framework that guides information systems throughout the journey of health. This model proposes 5 levels of maturity (IS4H Initiated, Under Development, Defined, Integrated and Optimized), which is applied to 4 strategic areas:

- Data management and information technologies.
- Management and governance.
- Knowledge management and sharing.
- Innovation.

In 2019, the Ministry of Health carried out a preliminary self-assessment of the state of maturity of its Health Care Registry Platform (PRAS)⁷⁵, which is deployed at the first level of care (health centers) of the Comprehensive Health Care Model (MORE). At this level of care, 80% of the pathologies that are treated must be resolved.

Applying the IS4H model, the Ministry found the following preliminary results, which must be validated by the Pan American Health Organization (PAHO) from the PAHO/WHO Collaborating Center, Hospital Italiano de Buenos Aires (Collaborates with WHO/PAHO in implementation of e-health between countries):⁷⁶

⁷⁴Available at: <https://www3.paho.org/ish/images/toolkit/IS4H-MAL-ES.pdf>

⁷⁵Digital health in Ecuador: https://www.youtube.com/watch?v=dp-6qA6I9_g

⁷⁶Pan American Health Organization. Italian Hospital of Buenos Aires. <https://www.paho.org/es/documentos/hospital-italiano-buenos-aires-hiba>

Strategic area	Self-assessed level
Data management and information technologies. Level 3 of 5	It implies: <ul style="list-style-type: none"> ● data sources ● information products ● quality standards and interoperability ● data governance ● IT infrastructure
Management and Governance Level 2 of 5	It implies: <ul style="list-style-type: none"> ● leadership and coordination ● strategic and operational plans ● Institutional structures and functions ● human resources ● financial resources
Knowledge management and sharing Level 1 of 5	It implies: <ul style="list-style-type: none"> ● knowledge processes ● knowledge architecture ● strategic communications ● social participation ● academic and scientific community ● networks
Innovation Level 2 of 5	It implies: <ul style="list-style-type: none"> ● fundamental concepts ● tools ● health analysis for decision making ● digital health

Source: Self-assessment Ministry of Public Health

Availability of health sector data

The Global Data Barometer assesses the state of data availability and open data in different sectors, including health. Regarding the dimension of health data, Ecuador obtains the following results in 2020 (all out of a maximum score of 100):⁷⁷

Country	Health score	Vital statistics	Health system data in real time	COVID-19 vaccination data	Health system data	COVID-19 test data
Ecuador	32	21	Cannot verify.	6	52	100

⁷⁷Global Data Barometer. Updated: 2020

Digital illiteracy

Regarding digital illiteracy, the INEC in its 2020 multipurpose survey registered that digital illiteracy decreased in people between 15 and 49 years old, compared to 2019. 10.2% of Ecuadorians are considered digitally illiterate. From 2019 to 2020, the rural sector the digital gap went from 20.0% to 16.8% and in the urban area from 7.8% to 7.5%. On the other hand, technological equipment at homes increased from 23.3% to 25.3% due to the use of desktop computers ⁷⁸.

Internet browsing frequency

In Ecuador, 92.1% of people who use the Internet do so once a day; 6.7% at least once a week; and 1% at least once a month or a year⁷⁹. The most frequent use of the Internet is browsing social networks such as Facebook and Twitter. The growth in the use of social networks is 10% compared to 2021.⁸⁰

Households that have Internet and mobile phones in fixed urban and rural areas

In Ecuador, until June 2022 there was an 86.4% Internet penetration in the population, according to data from Internet World Statistics⁸¹. However, there is a considerable digital divide between rural and urban areas. The provinces with the most fixed Internet accounts are Pichincha and Guayas, on the other hand, the ones with the fewest registered are Galapagos and Zamora Chinchipe ⁸².

Area	2019	2020	Significant variation 2019-2020
National	45.5%	53.2%	Yes
Urban	56.1%	61.7%	Yes
Rural	21.6%	34.7%	Yes

Table of percentage of households that have internet, based on data from the 2019-2020 National Multipurpose Survey⁸³

⁷⁸The universe. Digital illiteracy in Ecuador. Update: 2021. Available at:

<https://www.eluniverso.com/opinion/cartas-al-director/sobre-el-alfabetismo-digital-en-ecuador-nota/>

⁷⁹National Multipurpose Household Survey. Available in:

https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/TIC/2020/202012_Boletin_Multiproposito_Tics.pdf

⁸⁰Data report. Digital Statistics Ecuador. Updated:2021

⁸¹Available at: <https://www.internetworldstats.com/stats15.htm>

⁸²Statistical Bulletin. ARCOTEL. Updated: 2020

⁸³Available at: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/TIC/2020/202012_Boletin_Multiproposito_Tics.pdf

Penetration of Internet services by area

In terms of areas, Internet penetration is concentrated in the provinces of Pichincha, Guayas, Azuay and Manabí, which have the largest number of fixed Internet connections. The province with the greatest coverage, according to the Ministry of Telecommunications and the Information Society (Mintel), is Galapagos with 87.5% fixed and mobile Internet connectivity at the parish level, while the Amazon has a coverage fixed service 52.9% and mobile 55.2%⁸⁴.

Cost of 1 GB of data

Ecuador is one of the most expensive countries in the region to buy mobile data. The average price per 1 gigabyte (GB) on mobile plans is USD 6.93.⁸⁵

Digital health facilities

In Ecuador, 37.70% of health establishments were considered digital until 2021⁸⁶. The percentage is established due to the qualification based on the five main categories for the implementation of Electronic Health Record systems.

Inclusion of the topic of digital health in training curricula for health workers

In Ecuador, the medical career is offered in different universities. In some of these, the subject of technology is not included in their study curricula. For example, in the case of the Universidad de las Américas (UDLA) regarding subjects with a digital focus, they only contain "Language and digital communication".

In the case of the Pontificia Universidad Católica del Ecuador (PUCE), they only have general material that covers information and communication technologies. In Guayaquil, the Espíritu Santo University (UEES), has within its curriculum "data analysis", evidencing that the curricula that

⁸⁴DPL news. Updated: 2021. Available at: <https://dplnews.com/el-145-de-las-parroquias-en-ecuador-no-esta-conectada-a-internet/>

⁸⁵Mobile data prices around the world. Signature Cable, UK. Update: 2019. [Date consulted: September 10, 2022]. Available at: <https://lanacion.com.ec/ecuador-uno-de-los-paises-mas-caros-en-datos-moviles/>

⁸⁶First International Workshop on Medical Informatics - Digital Health. Diagnosis of digital maturity and organization in Ecuador. Update: 2021. Available at: <https://www.vicepresidencia.gob.ec/wp-content/uploads/2021/12/Diagno%CC%81stico-de-madurez-digital-en-Ecuador-Rodrigo-Cargua.pdf>

correspond to the training of professionals in the health sector deserve to be updated with contents that are related to health digital ⁸⁷.

Policies, strategies or plans related to digital health

In Ecuador, in terms of digital health, the subject has been considered in the following norms and regulations:

- **Agreement 00089-2020 Technical Standard Electronic Single Health Record and the Electronic Single Health Record Manual.**

The agreement aims to establish the normative bases and process them in the proper use of the electronic health record, guaranteeing the interoperability through processing, interpretation, confidentiality, security, use of standards and clinical terminology, in addition to having catalogs of information from electronic health records.

- **Decennial Health Plan.**

The Decennial Health Plan is a technical and legal instrument whose main objective is to improve care and quality of life. Its strategies, objectives and actions are focused on the improvement of the National Health System

This Plan includes the following objectives and strategies in relation to digital health:

Objective 4. Timely Quality Care

4.1 Implementation of a comprehensive community, family, and intercultural health care model based on primary health care and comprehensive service networks to guarantee continuity, quality, and efficiency.

4.2 Management model framed in the digital agenda for the integration of the SNS health services network, which allows improving its efficiency, timeliness, and quality.

4.3 Adequate and timely access to medicines, health technologies and vaccines.

4.4 Digital agenda and information management.

Objective 5. Integrated and Efficient Health System

5.1 Strengthening of the stewardship and governance of the national health system.

5.2 Reduction of institutional and organizational barriers to services of the National Health System.

⁸⁷<https://www.udla.edu.ec/wp-content/uploads/2014/documentosmedicina/plancurricular/Malla%20Curricular/Malla.pdf>
<https://uees.edu.ec/wp-content/uploads/2022/06/MALLA-MEDICINA-copy.pdf>

5.3 Increase in health financing with equity, efficiency, and sustainability.

5.4 Information management, development, innovation, and health research.

5.5 Promotion of social participation and accountability of the actors of the National Health System.

Stakeholders involved in the implementation of the strategy

The entities that, according to the Decennial Health Plan, the main instrument for the development of the sector, must be linked to its implementation are the following:

Ministry of Economic and Social Inclusion

Ministry of Education

Ministry of Labor

Human Rights Secretariat

Ministry of Government

Ministry of Transport and Public Works

National Transit Agency

Ministry of Urban Development and Housing

Ministry of Environment, Water and Ecological Transition

National Risk and Emergency Management Service

Technical Secretariat Ecuador Grows Without Child Malnutrition

Secretariat of Management and Development of Peoples and Nationalities

Decentralized Autonomous Governments

Academy

Civil society organizations

Private sector

Ministry of Telecommunications and the Information Society

Institute of Social Security of the Armed Forces

Institute of Social Security of the Police

National Secretariat of Higher Education, Science, Technology and Innovation

National Assembly

Insurance Companies

Progress achieved in the implementation of the strategy

The Decennial Health Plan, including its strategies related to digital health, was presented in June 2022, so evaluations are still pending to show its progress and percentages of progress in compliance.

In an article in Diario El Comercio in September 2021, on the Decennial Health Plan, health researcher Carlos Terán refers to the fact that the objectives must go beyond paper and that there are underlying problems that must be taken into account, so that the objectives can be met. *“It is an excellent academic document, it has good will, but it is not envisioned how it is going to be achieved”*, commented Terán.⁸⁸

Involvement of marginalized groups, youth and women in the strategy and its monitoring

Although the strategy (Decennial Health Plan) was recently launched and its implementation is still pending progress, it does mention marginalized groups, youth and women, as follows:

Equity in Health.

1.1 Integration of intersectoral actions of social protection for groups of priority attention and population that faces multiple social vulnerabilities.

1.1.1 Establish a system of indicators and comprehensive information for the analysis of inequalities, inequities and determinants of health that allow the monitoring and evaluation of their effects on access to health services.

1.1.2 Design and implement an intersectoral strategy for social protection that makes it possible to address the determinants of health; as well as reduce inequalities and inequities, barriers, and gaps in access to health services for priority care groups and with more than one social vulnerability (intersectional approach).

1.2 Comprehensive early childhood development

1.2.1 Guarantee access to comprehensive intersectoral benefits that promote development and growth in early childhood with emphasis on peoples and

⁸⁸Diario El Comercio, The Ten-Year Plan needs to go from paper to territory. [online]. Updated: July 18, 2022. [Date consulted: September 24, 2022]. Available in: <https://www.elcomercio.com/tendencias/sociedad/plan-decenal-salud-territorio-ecuador.html>

nationalities (indigenous, Afro-Ecuadorians and Montubios) and in rural sectors.

- 1.2.2 Act on the barriers of access to comprehensive health benefits aimed at children under 2 years of age and pregnant women.
- 1.2.3 Develop intersectoral strategies to act against the determinants of health in early childhood, promote citizen participation and the articulation of work with the GAD, local government entities and the private sector to act against the determinants of health in early childhood.

Costs associated with the implementation of the strategy

The implementation of the health sector strategy (Decennial Health Plan), including its objectives and goals, relates to the budget allocations established in the Government Budget, which for 2022 totals USD 3,162'481,339.89.

Inclusion of health in national technology strategies

Regarding national technology strategies, in Ecuador the Digital Ecuador Program and the Digital Transformation Agenda stand out, both defined and supervised by the Ministry of Telecommunications and the Information Society.

The Ecuador Digital Program, mentions the implementation of digital platforms as a means of timely medical care, as well as the application of telemedicine through software that can be downloaded to mobile devices.

Additionally, in the Digital Transformation Agenda⁸⁹, the strengthening of digital health is included, and strategic lines are proposed to accelerate the digitalization of health services.

Existing or developing laws and regulations related to digital health, digital technologies or artificial intelligence

In addition to those mentioned above, which include objectives related to digital health and the use of new technologies in the health sector, no other regulations have been identified so far that incorporate these elements or extend them to topics such as artificial intelligence.

⁸⁹Digital Transformation Agenda of Ecuador 2022-2025. Available at: <https://www.arcotel.gob.ec/wp-content/uploads/2022/08/Agenda-transformacion-digital-2022-2025.pdf>

Digital health on the parliamentary agenda

During this investigation it was not identified that in any of the Legislative Commissions of the National Assembly there is a resolution that refers to overseeing any project or government initiative on digital health.

Health data governance

The Law on Protection of Personal Data, in Article 30 mentions about Data Related to health *"The institutions that make up the National Health System and health professionals can collect and process data related to the health of their patients who were or had been treated by those, in accordance with the provisions of this law. In the specialized legislation on the matter and other regulations issued by the Personal Data Protection Authority in coordination with the national health authority.*

On the other hand, health data must comply with minimum parameters regarding the issued regulations, as mentioned in Article 31 of the Personal Data Protection Law. *"Health-related data generated in public or private health establishments will be treated in compliance with the principles of confidentiality and professional secrecy... The health-related data that is processed, whenever possible, must be previously anonymized or pseudonymized, preventing the possibility of identifying the holders of the same. All treatment of anonymized health data must be previously authorized by the Personal Data Protection Authority".*

Investment in the health sector

In the Government Budget for the year 2022, the health sector has assigned USD 3,162,481,339.89. This amount is broken down as follows:

Institution	Assigned budget
Agency for Quality Assurance of Health Services and Prepaid Medicine (Access)	USD 4,611,237.00
National Agency for Regulation, Control and Sanitary Surveillance (Arcsa)	USD 14,524,773.00
Ministry of Public Health	USD 3,132,581,687.89
National Health Council (Conasa)	\$356,371.12
National Institute for Donation and Transplantation of Tissue Organs and Cells (Indot)	USD 1,202,944.39

Major international donors to the health sector

According to the Ministry of Foreign Affairs of Ecuador⁹⁰, the main international donors that are registered in the country and support health related projects in 2022, are the following:

International and Global Health Collaborations: This cooperative is an organization from Canada and offers scholarships on Health issues.

MASHAV Scholarships: Originally from Israel, it offers scholarships in health systems administration, nursing administration, health promotion and public health, and Clinical Workshops.

Non-reimbursable Financial Assistance for Community Human Security Projects (APC): the cooperator is an organization from Japan, provides support in Health areas: Construction and medical equipment for health facilities Mobile medical units Basic infrastructure: Drinking water system, sewerage, electric power.

Inter-American Development Bank

World Health Organization

Pan American Health Organization

Inter-American Agency for Cooperation and Development (AICD)

International Development Association (IDA)

Latin American Association of Financial Institutions for Development (ALIDE)

Caribbean Development Bank

Central American Bank for Economic Integration

World Bank (WB)

Economic Commission for Latin America and the Caribbean (ECLAC)

United Nations Conference on Trade and Development (UNCTAD)

ECHO, European Union Humanitarian Aid Office

EUROPEAID, European Union Cooperation Office

Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean

Organization of American States

Ibero-American Social Security Organization (OISS)

UNICEF Regional Office for Latin America and the Caribbean

ILO Regional Office for Latin America and the Caribbean

UN-WOMEN, UN Entity for Gender Equality and the Empowerment of Women

⁹⁰Ministry of Foreign Affairs. Cooperation Funds. [online]. [Date of consultation: September 21, 2022]. Available at: http://app.cancilleria.gob.ec/matriz_fondos/frontEnd/matriz.php

International Youth Organization for Latin America (OIJ)

Organization of Ibero-American States for Education, Science and Culture. (OEI)

United Nations Organization (UN)

Food and Agriculture Organization of the United Nations (FAO)

International Labor Organization (ILO)

Organization for Economic Cooperation and Development (OECD)

United Nations Development Program (UNDP)

Percentage of health covered by the private sector

According to the article published (2018) in the Social Observatory of Ecuador⁹¹, the health sector is mainly supported by the public sector. The private sector provides 26% of professionals in medicine, 16% in nursing and 32 % of assistants.

The percentages of private health establishments accessed by the population in Ecuador in 2018 are the following:

Private establishments	Area	Urban	Rural
Hospital / Private Clinic	18.7%	21%	13.5%
Junta de Beneficiencia de Guayaquil	0.4%	0.6%	0.1%
Foundations / NGOs	0.6%	0.7%	0.4%
Pharmacies	0.4%	0.5%	0.4%

Source: Social Observatory of Ecuador - INEC / Health resources 2018

⁹¹Available at: <https://cebes.org.br/el-acceso-geografico-desigual-a-la-salud-en-ecuador/22472/>

Recommendations for decision makers



Conclusions and recommendations for decision makers

Based on this research, the following recommendations are identified for decision makers at different state levels:

1. Develop a specific agenda for digital transformation in the health sector, in the context of universal health coverage.

As previously mentioned, the Digital Transformation Agenda 2022-2025 refers, in general, to the implementation of electronic health records and telemedicine; and the Decennial Health Plan, includes among its strategies those of improving the opportunity and quality of health information, strengthening the digital ecosystem to contribute to the quality of care, and promoting innovation and strengthening governance in digital health; however, these instruments do not refer to how their implementation will contribute to achieving Universal Health Coverage in Ecuador.

It is important to recognize the fundamental role that information and communication technologies, as well as data, have to strengthen health systems to achieve Universal Health Coverage by 2030. Hence, the competent entities, under the solid leadership of the Ministry of Public Health, could take the necessary actions and develop the appropriate policies and regulatory frameworks to accelerate the use of digital technologies to achieve Universal Health Coverage. These efforts should not be carried out in isolation, so it would be opportune to co-create a digital transformation agenda with focus on achieving Universal Health Coverage, with the participation of representatives of public and private entities, academia and civil society, to build a proposal with co-responsibility of the different sectors.

2. Strengthen the governance and availability of data in the health sector

The digital transformation in the health sector is essential to guarantee quality health services. The availability of open health data is essential to be able to clearly analyze the reality of the sector and propose solutions. A regulatory and applicable framework for data governance in the health sector would allow health data management to be carried out responsibly and with impact, safeguarding the protection and security of personal data. In this sense, the public sector must articulate all the corresponding strategies in terms of digital tools considering a solid scheme of governance and protection of health data, in the context of the new Law on Protection of Personal Data.

Digital health must be declared a priority for the sector to promote the development of the health system and the improvement of the country's indicators. The data related to health must be added and published in open formats from the Ministry of Public Health in order to have a repository of permanently updated data and indicators, involving the various entities that make up the national health system.

3. Promote improvements in the quality of primary health care

When primary health care works well, people can access quality and reliable health services. In Ecuador, as identified in this diagnosis, unequal gaps in access to health persist, so the Ministry of Public Health should deepen its efforts to strengthen the first level of care and thus guarantee the provision of quality services. One way to do it is to commit resources, both local and international, to carry out actions that increase the digitization and transformation of health systems as a strategy to achieve Universal Health Coverage.

The spread of Electronic Medical Records, telemedicine and telehealth, as well as the increase in Internet connectivity coverage, would empower people to access health services, reduce access gaps, and even reduce the burden face-to-face care in the health system. These American actions are a joint effort between the government, the private sector, civil society organizations, and international cooperation agencies to combine efforts to achieve this goal in the remainder of this decade.



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