

## ENTREPRENEURSHIP AND INNOVATION IN HEALTH: AN ANALYSIS OF OPPORTUNITIES

### EMPREENDEDORISMO E INOVAÇÃO NA SAÚDE: UMA ANÁLISE DAS OPORTUNIDADES

**Alessandro Aveni**

Orcid: <http://orcid.org/0000-0001-6266-6818>

Lattes: <http://lattes.cnpq.br/0679425851663633>

University of Brasilia, UnB, DF, Brazil

Email: [alessandro@unb.br](mailto:alessandro@unb.br)

#### ABSTRACT

*The paper discusses health economics considering actual opportunities and the discussion about the current systems due to the Covid-19 pandemic. The analysis is exploratory based on a bibliographic search and a didactic approach to provide as a result the list of opportunities in the market. The work shows the importance of the health sector for national GDPs, the elements that characterize the health economy and the cognitive models used to define demand and supply of health goods. The result shows opportunities in different innovative areas such as health care services; diagnosis and therapeutics; financing and payment; well-being, platforms and support. The analysis focuses on health demand, a focus that differs from the classic economic approach that is based on the model of analysis of supply, a model still used mainly by the government in its management of the public health system.*

**KEYWORDS:** HEALTH ECONOMICS. ENTREPRENEURSHIP. OPPORTUNITIES

#### RESUMO

A pesquisa parte do tema da economia da saúde pensando as oportunidades presentes e devidas a discussão sobre os sistemas atuais em decorrência da pandemia de Covid-19. A análise é exploratória com base em uma pesquisa bibliográfica e uma abordagem didática para chegar ao resultado de fornecer uma lista de oportunidades no mercado. O trabalho mostra a importância do setor saúde para os PIBs nacionais, os elementos que caracterizam a economia da saúde e os modelos cognitivos usados para definir demanda e oferta do bem saúde. O resultado mostra oportunidades em diferentes áreas inovadoras como serviços de assistência à saúde; diagnóstico e terapêutico; financiamento e pagamento; bem-estar e plataformas e suporte. A análise tem foco na demanda, foco que se diferencia da abordagem econômica clássica que tem como base o modelo de análise da oferta, modelo ainda utilizado, sobretudo pelo poder público na sua gestão do sistema de saúde público

**PALAVRAS-CHAVE:** ECONOMIA DA SAÚDE. EMPREENDEDORISMO. OPORTUNIDADES

## INTRODUCTION

Studying the economics of health implies understanding the production of goods and services, components, inputs, sales and public services, that is, supply and demand. Considering the various markets: pharmaceutical, medical care, services of the national health system, etc., it is an important part of the national GDP in terms of values and occupation.

From 2019, with the beginning of the pandemic, we need to reflect more on what the future of the health economy can be and its opportunities for entrepreneurship, which, in our view, presents one of the most promising sectors besides the computer market.

How to innovate and undertake from 2021 in this market? The purpose of the article is to show the opportunities that are available today. The methodology of the work is exploratory and uses a bibliographic research and a didactic approach. It is intended to explore, starting from the health economics, the areas where new trends and innovations can be detected, endogenous or due to the pandemic crisis, using reports and scenarios from international consultants.

The work is justified to guide future entrepreneurs and researchers who are interested in patenting or producing applied research. The final suggestions are the result of the analysis and will be placed in a table as a summary to answer the question of what are the basic opportunities at this moment.

The work is divided into a brief literature reference, an analysis of the current health market, a discussion of trends and opportunities and a conclusion and references to close.

## Health Economics a description through the literature

According to Kenneth Arrow (1963) there are conceptual distinctions between health and other goals that include government intervention, uncertainty, asymmetric information, barriers to entry, externalities and the presence of third parties in health care. An agent is the public power that provides health services. Another agent is the doctor, who guides the patient's purchase decisions in the market, for example: ordering a laboratory test, prescribing a medicine, performing a surgery, etc.

So a formal definition of health economics might be this: "the study of the allocation of resources to and within health economics to maximize scarce resources" and, in general, health economics can be researched on the following main topics:

- What is good health and the factors that influence health;
- The value of health;

- The demand for health;
- The offer for health;
- Evaluation of health services and health systems;
- Health projects or planning, budgeting and monitoring mechanisms.

In the study of health economics, economists use characteristic approaches to their analysis based on statistical studies of diseases and the supply of goods and services. An early model of the production and supply of health was that of Michael Grossman from 1972, which considers each individual as both a producer and a consumer of health. In the Brazilian microeconomics manuals of health economics we find this logic of Grossman (BRASIL 2021)

Health is considered in the model a capital good. This good is treated as a stock or a capital good that decreases over time. As with all capital goods over time, maintenance or "investments" must be carried out so that the good can remain in good condition. (GROSSMAN 1972)

The model thus defines that health is both a consumer good that generates direct satisfaction and utility, and an investment good, which generates satisfaction to consumers indirectly, that is, with fewer diseases it is possible to obtain higher wages.

However, investments in health are expensive because it is necessary to choose between time and resources devoted to health. This is good has a hidden opportunity cost and direct costs like exercise at a local gym, medical checkups or interventions like dental care, annual checkups etc. they are alternatives for using resources (time, money) against other goals.

The model is used to determine the optimal level of health that an individual will demand. Among the variables used are the prices of health care and other goods, employment and wages, and technological changes. (FOLLAND 2013)

With this model, it is said that the demand for medical assistance is a demand derived from the supply for health. Health care is demanded because consumers want to achieve a greater stock of capital health good. The demand for health presents a differentiation from other goods because individuals consume health but allocate resources to invest in health.

### **Criticism of the classical economic model**

From another point of view, Aveni (2020b) points out that a model that considers health as a capital good is not complete, as it presupposes that health is simply comparable to a good. The problem is in the definition of what is "good" health and its value.

On 25 September 2015, the United Nations General Assembly adopted a new development agenda, 'Transforming our World: The 2030 Agenda for Sustainable Development' which builds on the 1990 Millennium Development Goals (MDGs).

As was conceivable, health occupies a central place as almost all the other 16 SDGs are directly or indirectly related to health. In particular SDG 3 aims to 'Ensure healthy lives and promote well-being for all ages'. The objective is broken down into 13 goals including reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases (NCD), mental health and road traffic injuries.

A Universal Health Coverage (UAC) system is a necessary and fundamental solution to SDG 3 in both rich and poor countries. The development of an AUC recognizes the important role of state legislative and executive bodies in reforming health financing systems to achieve universal coverage. That's why it's important in all countries because everywhere there are differences in income and access to the system. Therefore, to be universal, it must be possible for everyone to access basic services.

As suggestions for reforming health financing systems, the 2008 UN World Health Report on Primary Health Care, followed by the 2010 World Health Report on Health Financing for UHC suggest adopting the risk pooling method with the approach prepayment for financial health contributions as a means of: increasing population coverage to ensure adequate and equitable distribution of good quality health systems and to ensure sustainable financing of health programs or activities.

Thus, according to Aveni (2020a, 2020b) there are several problems of economic and social analysis, but, above all, health is a natural state of the human being that must be preserved and cannot be considered simply a good. It is a good/right in the sense that it cannot be ceded (it is part of the category of public goods) and must have priority in the choices of "use of resources" for the well-known law of "survival".

Thus, always according to Aveni (2020b), the simplifications of the economic model distort the importance of health as a public good. The model puts the objective of the model to understand only which services and prices should guide the economic system on the supply side to reach an optimal solution or "equilibrium" of the markets.

The problem, on the contrary, is that for health there is no balance and there is a phase of life in which the human being experiences more health and others in which he is more fragile and needs to be more careful with his health. It is about evaluating the cycle of "good health" for each human being.

At the end of life, there is no capital value of health that can be preserved, evaluated and given away. Health completely loses value despite the investments and in a certain period of time the maintenance or investments in health, besides being expensive, does not preserve health. For example, in terminal illnesses or at the end of life the cause of old age. Any investment would have no marginal utility which is contrary to the rules of classical economics.

Thus, it should be considered that human beings must think of health as their good/right whose value is the maximum value they have and that they must think of health expenditures as a model of preventive expenditures. Like a scheduled maintenance. Every priority of personal expenses must be oriented mainly to health. A better model for doing this is a model of risk analysis and mitigation of adverse events, such as the current biohazard due to Covid-19. A model that must start from the “consumer” and its demand. It is thus perceived that the problem of medical care only exists when there is no health or the state of health is investigated. When the person is healthy, he should only be concerned with the probability of (risk) of getting sick.

Thus, economic models of health should be defined in terms of risks, probabilities and in terms of preventive assessments to maintain the optimal level of health depending on the age and location where the person lives. In our view, an analysis of choosing which resources among those available are the optimal solution for spending or which resources to allocate to medical care is only partial.

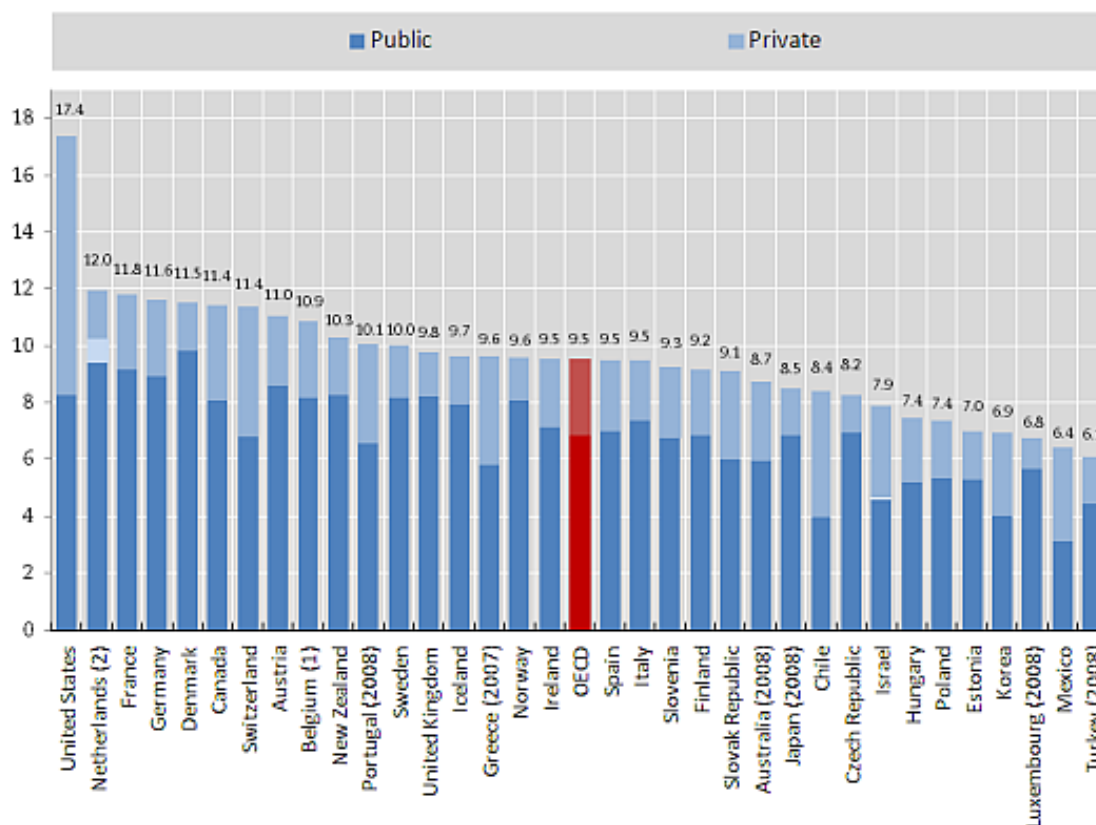
On the other hand, guidance for personal choices also depends on education. The State should take care of health education before a system for assistance. The human right to life and health takes precedence over other economic choices, being a fundamental human right that literally guarantees the lives of its citizens.

In the literature review, a new view of health economics thus focuses on consumer demand and requirements. Thus, an economy is emerging that deals with: health care services ; diagnostic and therapeutic; financing and payment; wellness and platforms and support (PWC 2021).

### **Importance of health economics**

The healthcare market is one of the largest markets in the world offering products and services from various chains and industrial sectors, such as the production chain of pharmaceutical goods, machinery and equipment, hospitals, services and laboratories.

The entire health market prioritizes the supply of private and public goods and services, and the latter is the largest supply sector in terms of employment and GDP generated in many countries and nations. The private offer focuses on high-end goods and services with a wide profit margin, which leads to the public offer so that everyone can have a service that, with a private offer, would be limited to those who can pay.



Source OECD (2018): <https://www.oecd.org/els/health-systems/healthspendingcontinuestooutpaceeconomicgrowthinmostoecdcountries.htm>

The healthcare market in the US accounts for 17% of GDP. The graph below shows the comparison of expenditures between OECD countries, divided between public and private. The average of total expenditures is 9.5% of GDP for the OECD. The following figure shows private (light blue) and public (dark blue) spending by OECD countries in 2009. US spending is considered to exceed 17% of GDP spending. The OECD average is 9.2% of GDP spending. (OECD 2018, 2019)

In 1960, food accounted for about 25% of expenditures, housing for about 15% and medical care for only 5%. This situation reflects the importance of labor and capital in the health economy. The other side of the expense reflects the jobs created in the US healthcare economy in 2009, 15.5 million people, 11.1% of all employed civilians worked in various healthcare facilities. These numbers continued to grow despite the loss of more than 5 million jobs in the US economy between 2007 and 2009.

Among health expenditures, the hospital care sector and hospitals are the most important and fastest growing, employing 40.5% of health professionals. Other major employers include medical offices and clinics (10%), nursing care facilities (12.1%) and dental offices and clinics (5.2%) (OECD 2018, 2019, WHO 2019)

Graph 1 – Spending in % GDP OECD.

The size of the health economy is reflected by other indicators. For example, in 2009 it was found that US consumers spent 17.9% of their budgets on healthcare versus 13.8% on food and 18.8% on housing. When we add in drug spending, we find that just over \$1 out of \$5 of consumer spending goes towards healthcare, in addition to drugs and sundries. These numbers represent a major shift in spending patterns (OECD 2019)

Health economics is such an important area that the US in 2009, despite spending on health that was twice the average for OECD countries, with the OBAMA or *Patient Reform system Protection and Affordable care Act (PPACA)*, had about 50 million Americans without health protection and without a public system.

The study of health economics can be understood through public expenditure indicators in three related ways: (1) the size of the contribution of the health sector to the economy in general; (2) national policy concerns resulting from the importance many people attach to the economic problems they face in seeking and maintaining their health; and (3) the many health problems related to economic development (FOLLAND 2013)

As has already been reported, one of the problems of a health system, that is , for the production and provision of public services with a health system, there must be financing of the relative costs. There are five main methods of financing health systems (WHO 2019):

- General taxation of the Union, State and Municipality;
- National health insurance;
- Voluntary or private health insurance;
- direct payments;
- Donations to charities.

This is valid for production costs, ie supply. The demand analysis is formed considering the expenses of users and customers of health goods and services. Private spending provides an indicator of purchases of goods and services or final consumption of health goods and services (current health expenditures). It includes spending of all types of financing arrangements (eg, government-based programs, social insurance or direct spending) on medical services and goods, population health and prevention programs, and health system administration.

Thus, nowadays the financing of health expenditure combines public service and compulsory financing schemes with private insurance of a mandatory nature (they occur, for example, in Switzerland and the

Netherlands). However, there are different schemes in all countries. Voluntary private insurance in the United States is included in employer-based private insurance and is currently required by the Affordable Care Act (WHO 2019).

### **Discussion about the market and its opportunities**

As seen in the previous section, the health sector is a large and growing part of all GDPs of all economies in the world. It is a sector in which it is worth investing and undertaking. The importance of health savings in personal expenses is responsible for a large part of the domestic product.

Before entering the market, the entrepreneur must understand the competition and how the market works, that is, he must know the opportunities and threats of the environment. Regarding threats, the current health market is not economically competitive in the economic sense of free competition and number of companies. The medical profession and health services that should be public services are services offered on a contingent basis, it is only possible to practice the profession through examinations and public authorizations. This implies difficulty in reducing the price with services of equal value, but at a lower cost.

In informal market situations, there may be illegal health services that provide services at a lower cost, but without guarantees to the patient. This informal market can grow with a lack of competition and proper regulation. This failure in supply and the increase in unmet demand impacts income groups that are unable to pay the tariffs imposed by the system (WHO 2019). There are problems with the efficiency, effectiveness and equity of markets.

Another element of market analysis is to evaluate the agents and actors present. The key actors in the healthcare sector are hospitals, long-term care, doctors, professionals and the pharmaceutical industry.

Another element of analysis is assessing the risk analysis. In the end, health economics must look at the market for products that cause damage to health, epidemiology and its relations with the economy (HIV/AIDS in Africa, influences, etc.).

Among the challenges of managing public services rich, which can generate opportunities, it is necessary to remember that an element that the public and the private must still evaluate and incorporate in their business is the impact on the environment, as well as circular economy solutions. observing the cost reduction requirements of environmental recovery, hospital waste management and reduction of carbon gas emissions, among others.

Always from the point of view of environmental analysis in relation to the right, the health economy must integrate its analysis and way of acting in accordance with human rights. It can help in the discussion of patient choices in health economics, in decision theory, with game theory models, in the use of institutional or *public economics. choice*, and in the administration of demands answered with an offer of value.



The analysis of health goods or services, as public goods (non-rival in consumption) and on negative externalities of some goods (alcohol) does not cover the definition of the health service, as the provision of services only meets part of the health requirements (AVENI 2020a).

Regarding demand and supply analysis, we must transform the supply-centric economy into a customer-centric economy and for society (PWC 2021). For, the analysis of demand for welfare and social equity cannot equal the demand for goods and services in a consumer market.

Health economics must be seen from the point of view of the discipline of the economics area, but also to assess social variables and the national ecosystem. Health economics should also be studied from a management point of view (FOLLAND 2013).

In management studies it is necessary to evaluate the role of the manager and the organization to assess whether in organizations there is this function that is similar to the general director of an industry. Management and administration are the basis for undertaking in the sector and guidelines are needed to use management tools.

It is also necessary to understand the political strategies of concentration and decentralization of services, financing of expenditures and social insurance that observe the local situation and future trends. The proposed changes take place in a scenario where innovation is quite accelerated and transforms our lives, as it is possible to perceive with the Covid 19 pandemic (AVENI 2020a).

In healthcare, the economic cycle of supply and the financial cycle that leads to profit are delayed when the company works with public proposals, which happens in most cases, as public logic does not reflect business efficiency. This causes financial backlog, demand overloads, bureaucracy and, potentially, the ongoing danger of public system collapse.

Private service companies offer increasing management and personnel costs, so all private services are expensive and not always effective. They are certainly not cost efficient, as competition in the case of healthcare increases the initial costs of entering the market (education, specialization, tools, marketing, etc.) and this is reversed in higher prices for patients. In other words, the increase in costs translates into an increase in prices. On the other hand, it is not possible to reduce costs by reducing patient care as in a normal market for goods and services.

However, with new technologies it is possible to reduce costs and propose alternative models for the provision of health services (AVENI 2020a). As an example, the use of telemedicine can solve cost and care problems as will be explained in a topic of this discipline. Other solutions are to improve efficiency and collaboration between hospitals, clinics and establishments in terms of managing patient data and information whenever these cost savings translate into cost savings. The same can happen with the community and home care system.

Our perception is that a demand-oriented economy must first assess human rights and then supply in terms of savings or scarce resources. Public policies must offer basic, cheap and sufficient services so that the population is not held hostage by an economy based on private interests. That is, it should solve the problem of scarcity of services in the market and let companies compete for the market bands that can or want to pay for extra services.

The need for natural monopolies such as the health system is a problem, as it limits the market, but it cannot be eliminated. The evidence is the functioning of the health system in the event of pandemics and accidents. A capitalist market would be death for those who do not have access to assistance, an immoral situation that does not consider human rights.

What remains outside basic health care and can be privatized is a market that is too broad for companies and professionals and does not limit the freedom to undertake or create businesses. But basic and universal health can save lives as well as being ethical.

Finally, in order to achieve universal health in the future, it is necessary to review the policies of education and authorization of medical professionals in terms of prices for consultations, offering good quality hospitals and clinics at affordable prices. One of the possibilities is to create a system of agreements, insurance and popular service that meets the demands of the population. This happened with drugs in pharmacies and with the possibility of creating teams for popular clinics in various parts of the world. But, this is only part of the question (WHO 2019).

Using information technology, it is possible to serve the population well and provide low-cost services, however it is necessary to develop more processes and models to adapt the system according to future requirements due to the increase in population, in addition to solving specific and local epidemiological problems.

### **Discussion results**

As a final guideline for opportunities, it can be said that the macro analysis of the environment and markets, presented here, leads to defining some opportunities for the entrepreneur who wants to enter the market.

The results will be presented briefly below.

#### **1 - Understanding of "good health"**

A first opportunity can be seen in "outside the box" thinking and creativity in relation to an innovative approach to health. This is to assess whether to maintain the vision of health as a capital asset and therefore enter into competition in the current market or to think of health as a good/right and risk management. In our view, the second hypothesis, in addition to looking more at the customer's needs, has a different perception of the object of the business,

the good. If the client realizes that health is not something to take care of when it is lacking but because it must be continuously monitored, there will be a critical change as well, for example in the food system. Consumers will demand healthier foods. The different view of good allows creating products such as preventive or financial assistance that are not currently available on the market. That would be a radical innovation.

## 2 - Investment in education and health as a system of life or well-being

Here, innovation is not radical because we already have educational and didactic systems on the subject of health. Here the opportunity is less radical, more marginal and focused on educational content. The type of “consumer” depends. One should think about courses for children, teenagers, adults and seniors. Each must be oriented to prevention and management in a different way. In our view, it should not be a study subject typical of a specialization, for example by doctors, but necessary knowledge that is above physical education, the latter being a part of the health discipline. Increasing age should include examples and practical internships (eg first aid) and be included as in-company training for all employees. Among the topics should be considered a base of medicine but also of psychology and everything that can serve to understand how to achieve personal well-being.

## 3 - Supply and demand market opportunities.

Here we have narrowed down all opportunities into four categories that include supply and demand (PWC 2021)

- health care services;
- diagnostic and therapeutic;
- financing and payment;
- wellness and platforms and support

### a) health care services;

Here, one can consider current services that will not disappear, such as hospitals, doctors, nurses, drugstores, whether public or private or from the third sector. A better focus and investments should be geared towards:

- universal health systems (including the ranges currently exceeded)
- home care systems (because it is less expensive for public assistance)
- preventive and diagnostic systems

Regarding innovation, following the classification of the OSLO manual, the focus more than on product/service assistance should be thought of improving processes, marketing and organizational solutions. For example, simplifying and making the assistance process more efficient. Change marketing by changing the idea of pushing the product (pharmaceutical sector) to waiting for customers to pull. Changing organizations into multidisciplinary teams where doctors are not necessarily in a dominant position and where the focus is not on selling products and services but on consulting.

### b) diagnostic and therapeutic;

Here with the digital revolution there is a huge range of opportunities. The technology and tools available are much greater than in years past and continue to grow exponentially. The relationship with the “consumer” is also made through means of communication such as telephone and video calls. The collection and service for diagnoses nowadays is done at home or at the work place, avoiding queues and congestion. Therapies and tools for implantation and organ replacement are including 3D production systems and innovative materials. Thus, in addition to the innovative results, there are opportunities for research and development of materials and very advanced machines. The entire value chain here is rapidly innovating and developing techniques and technologies. One should think about the rapid production times of vaccines for Covid-19. Digital systems have faster and safer diagnostics and information management. This also allows you to plan battery packs of exams and results more efficiently and at lower costs.

c) financing and payment;

Here the opportunities are even greater because in many countries where the public health system has a universal focus there is a natural monopoly intended by the state. As the costs and results of the system are found to have adverse financial effects, a change becomes necessary in all countries. In particular, with the aging of the population in terms of cash, the contributions of workers in force to the universal system are no longer able to pay the current expenses for a population of retirees with increasing costs of services and number of retirees. The financial problem must be solved, but not just by changing the rules for retirement. The life and health cycle must be understood as something to be better planned and supported by insurance systems. Insurance and guarantee systems for retirement must be used in an innovative way with products differentiated by age class. The reserves that are formed in the families or the insurances for the current retirement can be improved with less expensive solutions (increasing the number of insured) and differentiated in relation to the requirements and the agreements with offers of better or private services.

d) wellness and platforms and support

This area presents a challenge to creativity and innovation. Including services for well-being enters into a philosophy of medicine called a lifestyle. Lifestyle medicine is a medical approach that aims to pursue a lifestyle with healthy habits. The basis of the philosophy is prevention and not health care and the use of the health system. This approach falls outside the monopoly of public health care. Ahead of health risks, this is the method to reduce adverse events or health risks, avoid new diseases and poor quality of life. Risks are assessed based on illness and death statistics. For example, physical inactivity and its effects, or the effects of different eating habits. To support a lifestyle, doctors can obviously provide guidance, but those who accompany the “consumer” are mainly members of a multidisciplinary team that includes:

psychologists, nurses, physical trainers, nutritionists, pharmacists, dentists, financial managers, other consultants and professionals for improve and maintain the lifestyle.

## Conclusion

The work addressed the problem of understanding which opportunities in the health economy for entrepreneurs today. The analysis was not limited to the situation after the pandemic, as it is clear that the pandemic only accelerated in the proposal of digital solutions, but problems with the health system remain and we still do not know the final costs of two years of pandemic in the public coffers.

The pandemic, however, is an ideal time to reflect on the current system given the deficiencies shown in all governments in the use of public health systems and in the responses. There was no comment on the lack of planning and management that manifests itself in all governments in the world even today after two years of the pandemic. The problem of the innovative process and the need for patents in the sector were also not addressed. This limitation can be covered with a subsequent study with this focus. The topic is also relevant for its ethical aspects, which were also not discussed in the current work.

However, despite this, many opportunities were found. Depending on how health is understood (capital good or good/right) entrepreneurs can think about competition in the market in which they have a competitive advantage or trying to create something different and innovative (a destructive innovation) in a market by thinking outside the “box”

As examples for this, the theme of the view of health as a life cycle and risk gestures and lifestyle medicine was addressed. An entrepreneurial vision outside the box allows avoiding bloody competitions, referring to the Blue Ocean strategy, but, above all, anchoring itself to an international vision of sustainable goals based on human rights proposed by the UN commented above.

## REFERENCES

Arrow, K. (1963), 941–973, «Uncertainty and the welfare economics of medical care», **American Economic Review** , 53 (5)

Aveni A. (2020a) Health Systems and Health Economics – Impacts of COVID-19 Health systems and health Economy - Impacts Caused by COVID-19 . **Prospecting Notebooks** – Salvador, v. 13, no. 2, Special Edition, p. 477-493, April, 2020

Aveni A. (2020b) Post-Modern health economy and demand paradox in economics models. Evidence after Covid-19. **JRG Journal of Academic Studies** - Year III. 3 no. 7 (2020 );, volume III, n.7 (Jul./Dec.) - ISSN: 2595-1661

BRAZIL (2012) **Ministry of Health. Executive Secretary. Department of Health Economics, Investments and Development.** Microeconomics / Ministry of Health, Executive Secretariat, Department of Health Economics, Investments and Development. – Brasília : Ministry of Health, 2012

Folland , (2013) Sherman. **The economics of health and health care** /Sherman Folland , Allen C. Goodman, Miron Stano. — 7th ed .

Grossman, Michael (1972), «On the Concept of Health Capital and the Demand for Health», **Journal of Political Economy** ( in English ), 80(2): 223–255.

OECD (2019), **Health at a Glance 2019: OECD Indicators** , OECD Publishing, Paris, <https://doi.org/10.1787/4dd50c09-en> .

OECD/EU (2018), **Health at a Glance: Europe 2018: State of Health in the EU Cycle**, OECD Publishing, Paris. [https://doi.org/10.1787/health\\_glance\\_eur-2018-en](https://doi.org/10.1787/health_glance_eur-2018-en)

PricewaterhouseCoopers (2021) PWC. Accelerating the health economy of tomorrow **Magazine PWC electronics** at : <https://www.pwc.com/gx/en/industries/healthcare/publications/assets/pwc-new-health-economy.pdf> Accessed May 5 , 2021.

WHO (2019) **World health statistics 2019: monitoring health for the SDGs, sustainable development goals** . Publisher: World Health Organization.