Title: The Role of Telemedicine on Ecuador During COVID-19 Crisis: A Perspective from a Volunteer Physician

Author names: Nicolalde, Bryan MD

Degrees: Medical Doctor

Affiliations: Colegio de Ciencias de la Salud, Universidad San Francisco de Quito. Diego de Robles s/n y Pampite. Quito, Ecuador.

About the author: Bryan Nicolalde is a Medical Doctor graduated on 2019 from Universidad San Francisco de Quito at Ecuador (6 years total program). He graduated as best of 2019 medical promotion with a final GPA of 3,93/4, and with the achievement of Summa Cum Laude. ORCID: https://orcid.org/0000-0002-7043-5515

Acknowledgment: I acknowledge all health care professionals, particularly my medical doctor colleagues who are fighting with COVID-19 in rural areas of Ecuador.

Financing: This study did not receive financial support

Conflict of interest statement by authors: No

Compliance with ethical standards: Does not apply

Authors Contribution Statement: Conceptualization, Writing – Original Draft Preparation & Writing – Review & Editing: BN

Manuscript word count: 784 words

Abstract word count: 99 words

Number of Figures and Tables: 0

Discussion Points:
1. How applicable is telemedicine in Ecuador?
2. Which is the role of telemedicine on COVID-19 crisis in Ecuador?
3. Which complications could appear with the use of telemedicine in Ecuador?

Publisher’s Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our readers and authors we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.
THE EXPERIENCE.

Ecuador is one of the Latin American countries with the most cases of COVID-19 by surface area. According to the New York Times, the number of cases could be 15 times higher than the statistics presented by government.¹ The large number of cases that may exist can lead to the oversaturation of the health services. In a middle-income country where availability of emergency rooms is scarce, it can be overwhelming since mild cases could occupy the space and time of health care professionals. For this reason, the Ecuadorian Ministry of Public Health enabled a call-center service and invited volunteer doctors to join the fight against this pandemic.² In my case, I did not think twice to help in this COVID-19 crisis.

The world health organization defines telemedicine as: “the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries”.³ Within these parameters and with current technology, telemedicine can be practiced from different platforms such as video calls, standard calls, text messages, emails and online platforms. However, the diagnostic accuracy may vary according to the method used, since receiving a text message will not present the same data as conversing with the patient on the phone or having the facility of seeing it on video.⁴⁵ In Ecuador, according to the latest survey by the national telecommunications institute, 70.6% of people have a smartphone, 32.7% of people have internet, 50.1% of people have computers at home and 90.7% have a standard phone.⁶ The Ecuadorian health ministry has proposed the delivery of telemedicine solely by the use of conventional calls. This may correspond due to the greater coverage and because the digital illiteracy that exists in rural areas. However, it can significantly decrease the quality of the evaluation when compared to a video call. The objective of telemedicine during this crisis in Ecuador is mainly to perform medical triage and to be able to desaturate the medical systems, for this a telemedicine algorithm has been proposed where 4 possible scenarios are found: patients who are stable, patients who are stable and have any comorbidity, patients who are critics and, patients who ask about other diseases.

Since I started with this volunteering, I have faced several difficulties that I have transform into opportunities.⁷ Being able to assess a patient’s condition solely for the subjective without a physical examination is challenging, especially as I am recently graduated doctor. Many patients call referring fever, dyspnea, cough, runny nose, confusion, chest pain, and being able to translate these symptoms to a scale of severity or relate them to COVID-19 is complicated, since many of these symptoms may have alternative explanations. For example, chest pain and dyspnea may be secondary to an anxiety rather than pneumonia. Some tools that I have used to assess the severity is listening if the patient can complete sentences without having respiratory distress, teaching relatives to identify the respiratory rate or asking relatives if there is some degree of deterioration of consciousness. These tools can convert subjective details into objective measures that help us improve our telephone triage.

Another challenge during this volunteering is to coordinate medical care with hospitals when it is necessary. For example, sometimes when I have identified a critical patient, I have tried to coordinate with 911 the arrival of an ambulance and the transfer to a hospital, however due to the oversaturation of the health systems, ambulances
or hospitals are not available to attend the emergency in the most optimal way, which can have serious implications. Also, telemedicine has a psychological roll during this pandemic. Many people call because they have seen their relatives die in their homes and are afraid. The role I have had on those occasions has been to provide psychological support. Additionally, many patients have also chosen to self-medicate, which can be much worse than the disease itself. Some patients have used dangerous pharmacological combinations at toxic doses of hydroxychloroquine plus azithromycin, which without the proper monitoring or a suitable indication can have a fatal outcome. In this case, the education that the doctor can provide plays an important role.

This crisis has allowed telemedicine to be widely used in Ecuador, however due to the lack of coverage and digital education it has not been possible to carry out it in an optimal way. The difficulties that can be faced are secondary to establishing the severity of a patient only with subjective measures and to achieving effective coordination of telemedicine with public health systems. The role played by the doctor during this crisis is fundamental from the educational, preventive and psychological point of view.
References


