

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

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19 **Discussion Points:**

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

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29

30 THE EXPERIENCE.

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

39

40 The world health organization defines telemedicine as : *“the delivery of health care services, where distance is*
41 *a critical factor, by all health care professionals using information and communication technologies for the*
42 *exchange of valid information for diagnosis, treatment and prevention of disease and injuries”*.³ Within these
43 parameters and with current technology, telemedicine can be practiced from different platforms such as video
44 calls, standard calls, text messages, emails and online platforms. However, the diagnostic accuracy may vary
45 according to the method used, since receiving a text message will not present the same data as conversing with
46 the patient on the phone or having the facility of seeing it on video.⁴⁻⁵ In Ecuador, according to the latest survey
47 by the national telecommunications institute, 70.6% of people have an smartphone, 32.7% of people have
48 internet, 50.1% of people have computers at home and 90.7% have a standard phone.⁶ The Ecuadorian health
49 ministry has proposed the delivery of telemedicine solely by the use of conventional calls. This may correspond
50 due to the greater coverage and because the digital illiteracy that exists in rural areas. However, it can
51 significantly decrease the quality of the evaluation when compared to a video call. The objective of telemedicine
52 during this crisis in Ecuador is mainly to perform medical triage and to be able to desaturate the medical systems,
53 for this a telemedicine algorithm has been proposed where 4 possible scenarios are found: patients who are
54 stable, patients who are stable and have any comorbidity, patients who are critics and, patients who ask about
55 other diseases.

56

57 Since I started with this volunteering, I have faced several difficulties that I have transform into opportunities.⁷
58 Being able to assess a patient's condition solely for the subjective without a physical examination is challenging,
59 especially as I am recently graduated doctor. Many patients call referring fever, dyspnea, cough, runny nose,
60 confusion, chest pain, and being able to translate these symptoms to a scale of severity or relate them to COVID-
61 19 is complicated, since many of these symptoms may have alternative explanations. For example, chest pain
62 and dyspnea may be secondary to an anxiety rather than pneumonia. Some tools that I have used to assess
63 the severity is listening if the patient can complete sentences without having respiratory distress, teaching
64 relatives to identify the respiratory rate or asking relatives if there is some degree of deterioration of
65 consciousness. These tools can convert subjective details into objective measures that help us improve our
66 telephone triage.

67

68 Another challenge during this volunteering is to coordinate medical care with hospitals when it is necessary. For
69 example, sometimes when I have identified a critical patient, I have tried to coordinate with 911 the arrival of an
70 ambulance and the transfer to a hospital, however due to the oversaturation of the health systems, ambulances

71 or hospitals are not available to attend the emergency in the most optimal way, which can have serious
72 implications. Also, telemedicine has a psychological roll during this pandemic. Many people call because they
73 have seen their relatives die in their homes and are afraid. The role I have had on those occasions has been to
74 provide psychological support. Additionally, many patients have also chosen to self-medicate, which can be
75 much worse than the disease itself. Some patients have used dangerous pharmacological combinations at toxic
76 doses of hydroxychloroquine plus azithromycin, which without the proper monitoring or a suitable indication can
77 have a fatal outcome. In this case, the education that the doctor can provide plays an important role.

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

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