

1 **Title: Clinical Skills Abilities Development During COVID-19 Pandemic in Mexico City**

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29 **Discussion Points:**

- 30
- 31 1. Mexican medical student experience through COVID-19
 - 32 2. Can clinical skills be developed online?
 - 33 3. The development of clinical skills for medical students during COVID19
 - 34 4. New methods for developing clinical skills in medical students

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1 **THE EXPERIENCE.**

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3 It was February 29, 2020 when the first 4 cases of COVID-19 were reported in Mexico.¹ It did not take long for
4 this country of approximately 130 million people² to enter a critical stage of this pandemic. By May Mexico was
5 already in the top 10 countries in number of deaths due to COVID-19.³ Despite the ongoing efforts of the Mexican
6 government and citizens, it has become hard to reduce the rapid spreading of this virus. As a result, students
7 of all grades were forced to study at home, including medical students. In Mexico, the development of doctors
8 takes place in the classroom for the majority of the first two years, taking subjects such as anatomy, physiology,
9 biochemistry, to name a few. Nevertheless, the next years are considered critical for the future healthcare worker
10 to develop clinical skills, not only including the realization of several procedures, but also communication, history
11 and physical exam competencies. This step is crucial for the early development of skills to help foster a
12 satisfactory doctor-patient relationship.⁴ Before the pandemic Mexican students went to hospitals to observe
13 and learn how to interact and win the confidence of the patient. When COVID-19 reached Mexico, medical
14 schools decided to stop sending young college students to the hospital, but continued online learning, ultimately
15 ending the opportunity for patient interaction.

16
17 As a 4th year medical student in Mexico City, this sudden change was a particular challenge for me as I was
18 starting to develop clinical skills that had to be practiced in our simulation laboratories provided by the school.
19 COVID-19 brought us a new barrier, the development of empathy through a computer, not seeing the persona
20 face to face, doing a correct semiology by observing, palpating, percussion, and auscultation was lost. Our
21 doctors have never lived this and teaching how to put an IV online, seemed impossible.

22
23 There is no doubt that thanks to technology the learning of medicine has changed compared to 50 years ago.
24 New tendencies of practicing with robots and simulation have become an amazing tool to avoid the use of
25 animals for example or human bodies to learn the anatomy or different procedures. For example, Tecnológico
26 de Monterrey started in 2018 to implement a center of clinical simulation, this space allows the student to interact
27 with medical equipment. Doctor Rios, director of this center, explained that these places allow participants to
28 complete several procedures without putting patients in danger.⁵ Despite all this advance, physical examination
29 has not yet been able to be done through simulation as each patient is different, this is even more difficult in
30 times of pandemic. Doctors could argue that it may not be necessary to examine the patient due to the existence
31 of modern technology that could give us a precise diagnosis. To this argument, we could say that human trust
32 has to be won by the doctor, not only to give the best treatment available but also to be able to respect the
33 human aspect of medicine and attend a person, not a disease.⁶ In Mexico according to the National Commission
34 for Medical Arbitration [Comisión Nacional de Arbitraje Médico (CONAMED)] in 2015 11,529 complaints to
35 doctors were submitted of this 2516 were due to the doctor-patient relationship.⁷ As mentioned before, the skills
36 to acquire a professional relationship have to be developed through the active observation of doctors in the
37 hospital and also by practicing.

38
39 A teacher of mine told us once "Technological imaging or any other technology should only be used to confirm
40 your diagnosis that you already have in mind thanks to a good semiology and physical examination." This way
41 of thinking, especially in a country where resources are limited is one of the main tools used by clinicians to give

1 a correct diagnosis, do not spare resources, and give the most adequate treatment. ⁸⁻⁹ It is of great concern for
2 my generation that these skills have not been developed How can we gain the trust of people? Clinical skills
3 are part of the medical formation and so new solutions have emerged through to the pandemic.

4
5 In my experience, we developed an online medical consultation simulation. Where the clinical educator had to
6 act as a standardized patient, and we took the history. In my opinion, this was a great opportunity to develop a
7 skill to recognize symptoms and practice history taking, nevertheless signs may be missed. Our generation has
8 learned to adapt and use technology in our favor to learn. COVID-19 is a new opportunity for medical schools
9 and students to develop new ways to practice clinical skills, including doctor-patient interaction through different
10 platforms. A new window has been open to travel simulation to different platforms that could use virtual reality
11 in order for the student not to miss the opportunity to learn and develop different competencies.¹⁰ The need of
12 different technologies depends in the year of medical school the student is in. In 2014 a survey was done to
13 medical students in order to know their point of view in the learning through technological devices.¹¹ The majority
14 perceived useful different tools for learning, nevertheless 3rd year students agreed that clinical practice was
15 being lost. In my perspective after learning the theory in the first year's practice becomes essential in order to
16 start understanding concepts and put them in an everyday life context. The use of smartphones has become
17 one of the most important tools for learning in several countries, technology bring us the possibility to have a
18 flexible learning, and it is not the exception for the medical field. The development of new tools by the support
19 of other areas such as computer and engineering have to be done in order for medical students to develop the
20 ability of trust, empathy, listening, observation, and others, all to give the best medical attention to our future
21 patients.

Accepted,

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