

1 **Title: Medical Students during COVID-19 Pandemic: Lessons Learned from Response Teams in**  
2 **Greece**

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29 **Discussion Points:**

- 30 1. Novel Coronavirus pandemic poses an unprecedented challenge for medical education, forcing  
31 educators to facilitate training via remote learning platforms.
- 32 2. Medical students are committed to contributing to crisis management, prioritizing safety.
- 33 3. At our institution, eight students were voluntarily deployed to offer their services in the call center of  
34 the Laboratory of Microbiology.
- 35 4. Such experiences during health crises comprise a valuable lesson for students, but also a significant  
36 uplift for the overburdened healthcare system.

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## 1 **THE EXPERIENCE.**

2 Novel Coronavirus SARS-CoV-2 emerged from Wuhan, China before rapidly spreading globally, affecting  
3 millions of people worldwide. On March 11, 2020, the World Health Organization (WHO) characterized the  
4 infection caused by SARS-CoV-2 as a pandemic.<sup>1</sup> This health crisis has posed an unprecedented challenge  
5 for medical education. As social distancing measures were universally implemented to curtail virus  
6 transmission, medical training during these times was inevitably disrupted, especially in clinical settings. The  
7 clinical exposure of medical students was hindered, and clinical attachments were abandoned in many  
8 medical schools around the globe.<sup>2-5</sup>

### 10 **Transition to a new era**

11 In general terms, Greece was mildly affected by the virus, but the Hellenic National Healthcare System  
12 confronted a significant shortage in Personal Protective Equipment (PPE) and medical staff. As a result,  
13 Hellenic medical institutions were forced to cancel in-person classes and clinical medical education, according  
14 to the guidelines of the Ministry of Education.<sup>6</sup> Medical educators at our institution immediately consolidated  
15 distance learning environments by converting in a few weeks the majority of face-to-face theoretical sessions  
16 to online sessions. As also happened in other countries, written exams have been converted into orals, which  
17 have been administered via web platforms.<sup>7,8</sup> Although current evolving web-based ventures can host and  
18 possibly substitute the majority of didactic lectures, results were mixed; not all educators and students had  
19 previous experiences on remote learning platforms, thus they could not always adapt successfully to the new  
20 circumstances. Technical issues, such as poor internet connection, lack of appropriate equipment, and  
21 complicated e-learning environments, but also lack of motivation and learners' boredom to participate in long,  
22 consecutive webinars were barriers to online learning. Apart from this, students' clinical exposure remains an  
23 indispensable part of their training, and online learning seems not sufficient to compensate for, or simulate,  
24 clinical exposure.<sup>9</sup>

### 26 **Students' willingness to participate**

27 Pandemic outbreak put many medical students under psychological pressure due to uncertainty for the future  
28 and withdrawal from their daily routine.<sup>10</sup> Those coming from other cities or countries had to self-isolate  
29 themselves for 14 days before they travel back home. Despite global instability, the medical students'  
30 commitment to contribute to a helpful response was remarkable, even at the initial stages of this health crisis.  
31 At our institution, a medical students' organization called for the massive engagement of senior-year students  
32 and newly-graduated doctors; their deep conviction has been that these individuals have already developed a  
33 solid background knowledge, making them more useful than any other group of volunteers who could be  
34 drafted to support the overworked healthcare professionals.<sup>11</sup> This desire for student response was echoed in  
35 many other Medical Schools of the country.<sup>12</sup>

### 37 **What did we do?**

38 At our institution, the Laboratory of Microbiology, we were assigned with the demanding task of analyzing  
39 hundreds of COVID-19 samples coming from patients around Northern Greece, as we were equipped with the  
40 long-term experience from seasonal flu testing. The workload was exponentially augmented, but the  
41 recruitment of new personnel was not possible; work staff only consisted of two Associate Professors (Maria

1 Exindari, Georgia Gioula) and three Molecular Biologists. Thus, laboratory medical staff was soon led to  
2 frustration due to overworking. To meet the increasing needs, the laboratory's director, Professor Anna Papa,  
3 came up with the idea of creating a student response team.  
4

5 Consequently, soon after the cancellation of lectures and clinical placements, eight students were deployed to  
6 voluntarily offer their services. To ensure student safety, it was decided that they would not participate in any  
7 process of sample testing, instead, they worked in the laboratory's call center. After a short period of training  
8 and practice under supervision, students were able to carry their duties alone. Their responsibilities included  
9 running the laboratory's hotlines, distributing vital information regarding test results to clinical doctors, and  
10 solving some practical issues regarding the delivery of samples. Furthermore, students were familiar with all of  
11 the guidelines from the National Public Health Organization and were ready to answer questions on how to  
12 take swabs, how to fill out the medical release form for COVID-19 testing, and how to manage suspected or  
13 confirmed cases. Their contribution had a two-month duration and was necessary as a substantial relief for  
14 the overworked staff. Furthermore, it is undeniable that students received a unique real-life learning  
15 experience in crisis management; they had the opportunity to observe NHS functioning and shortages; they  
16 grew well-informed of the most up-to-date pandemic protocols; and they developed their professional identity  
17 by cultivating useful communication and collaboration skills (sense of duty, altruism, adaptability, persistence,  
18 and competency).  
19

20 Our experience of student involvement was not the only one in the country. At "Sotiria," Athens General  
21 Hospital, the Third Department of Internal Medicine invited students to actively participate in the battle against  
22 coronavirus.<sup>12</sup> Students responded with excitement, received intensive training on PPE usage and hygiene  
23 protocols, and afterwards voluntarily engaged in the response to COVID-19 cases by carrying out supervised  
24 tasks for frontline providers. Also, they were responsible for providing comprehensive care to chronic patients  
25 who tested negative for coronavirus; they contributed by taking down medical histories and by executing  
26 common daily procedures; they also offered patient education, literature briefings, and scientific information  
27 distribution via social media.  
28

### 29 **Conclusions**

30 In summary, medical students seem to be ready to accept the moral responsibility and volunteer in pandemic  
31 management. As our experience indicates, students can be deployed in several different roles under proper  
32 supervision as long as safety is properly prioritized. Under these circumstances, the presence of medical  
33 students in the first line joined by experienced professors offers a valuable lesson for them, but also a  
34 significant contribution to the overburdened healthcare system.  
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