

Regarding the current epidemiological situation, the strict measures taken to combat the spreading of COVID-19 (reduction and prohibition of social contacts) and the severe earthquake that hit most of the buildings of the University of Zagreb School of Medicine (School), we want to draw your attention to the very difficult working conditions in our institution during this unpredictably long period.

1. Activities to establish minimal working conditions

Earthquake damage on buildings at Šalata, which include teaching areas, medical library, classrooms, laboratories for performing scientific and expert projects and activities, is such that the use of buildings will be unsafe for a long period of time. So far, we have managed to save most of the valuable equipment, chemicals, work materials, and protect important documentation. All this has been moved to the only preserved building, the Croatian Institute for Brain Research (HIIM). It will be possible to briefly access the damaged buildings in order to take necessary equipment but only after the buildings get examined by structural engineers and preliminary remedial work is complete, that is the larger pieces of plaster that could endanger those entering the premises are removed.

The temporary establishment and operational reorganization of all essential School administrative services is currently in progress at the HIIM building. You can read about the extent of the damage in the announcements on our website (see the preliminary reports posted on the web). With time, we will get a more precise overview since a team of structural engineers headed by Professor Domagoj Damjanović, PhD, the dean of the University of Zagreb Faculty of Civil Engineering, is currently examining the buildings in great detail.

Considering the fact that the reconstruction of the remaining buildings will obviously last for months (and only after the anti-epidemic measures end), it is obvious that the HIIM building has become the heart of the School's vital activities in the forthcoming period. Therefore, it is crucial to prevent possible contamination of the building with COVID-19 – please note that the HIIM building has an all-encompassing ventilation and air conditioning system, meaning that any contamination with the virus could hinder or completely impede the further use of this only remaining functional building on Šalata in the long term. Therefore, I strongly insist on the recommendations and work measures signed by the Director of HIIM and the Dean which are also published on the website. The number of persons entering HIIM must be reduced to an absolute minimum.

The northern part of the Pathology Department building leaning onto the HIIM building is relatively structurally sound. Currently, the roof on that part is being repaired, any loose plaster is being removed and supports will be installed so that that part of the building can be safely used. Namely, the continuation of work on pathohistological diagnostics, which must go on for the functioning of the University Hospital Center Zagreb (UHC Zagreb) and other health institutions, has already been implemented at this location. The MRI device located in the basement of this part of the building is currently not functional. The magnetic field has been preserved, but the device has moved from its position by a few centimeters, so it is necessary to reposition it with the help of the device repairmen (several days needed) in order for the device to be put into operation and continue to operate for the needs of the UHC Zagreb (Professor Milan Radoš, MD, PhD coordinates these activities). The electronic microscope is located on the second floor of the heavily damaged western part of the Pathology Institute building. For the time being, it is planned to strengthen this part of the building with supports,

but the device has to be relocated (activities around this are ongoing, coordinated by Professor Sven Seiwerth, MD, PhD).

The Šalata 2 building (formerly the UHC Zagreb Central Administration building) suffered very minor structural damage and a detailed evaluation is under way. If this is confirmed, the building can be used after basic remedial work on plaster and installations. The contracted building company that maintains our buildings has been assigned with a task to renovate the premises in that building and check all the installations. When everything is arranged, all School administrative services could be moved to that building once the anti-epidemic measures have ended.

According to the findings of the structural engineers from the Faculty of Civil Engineering, the Institute of Pharmacology has been well preserved and all rooms, after remedial work on plaster and door lintels, could be used after the cessation of the epidemic. Therefore, one lecture room, a training room and a seminar hall would be available for use there. The Institute of Forensic Medicine is also in a relatively good condition and, after basic restoration, our coroner's office, as well as forensic autopsy and toxicology services can function. The users will only be admitted to the building after passing through a triage container located in the parking lot next to the Šalata 11 building. There are issues in the handling and removal of the processed remains and bodies of deceased persons (activities coordinated by Professor Kubat, MD, PhD).

The Andrija Štampar School of Public Health building is also in relatively good condition, so that after the installation of supports on staircases and certain parts, as well as the removal of damaged plaster and door lintels, it could be functional once the anti-epidemic measures have ended. It consists of several lecture and seminar halls for potential use.

Other buildings at Šalata are in a much worse condition. The detailed report will be published on the website upon the completion of a detailed analysis of the structural engineers which should be completed on 27 March 2020. As of 27 March 2020, one team of the three urgently hired building companies is renovating Šalata 2 and preparing it for the use of the School services. The second team is restoring the roof of the old Deanery and covering it with a tin cover as a temporary solution. The third team is trying to find the damage to the water supply installations at the Anatomy Institute (there was a significant water leak from the system). The fourth team is installing the structural supports at the Pathology Institute (to prevent the collapse of the part of the building housing the electronic microscopes). Fifth team is completing the covering of the roof of the Pathology Institute building. In a few days, it is expected that all urgent and vital remedial works will be completed.

A rough assessment of the damages was reported to all relevant addresses. For objects not recommended for use, i.e. which are for the most part damaged, we provide a provisional assessment of the damages:

No.	Building	Area (m ²)	Average value (HRK)
1	Šalata 3	8108.65	105,412,450.00
2	Šalata 3b	4695.57	61,042,410.00
3	Šalata 4	8760.92	113,891,960.00
4	Šalata 6	4247.43	55,216,590.00
5	Šalata 7	823.61	10,706,930.00
6	Šalata 10	4540.66	59,028,580.00
7	Šalata 11	7343.76	95,468,880.00
			500,767,800.00
8	Rockefeller 4	6340.09	24,726,351.00
		TOTAL	525,494,151.00

According to the information about the condition of the clinical institutions after the earthquakes the following can be highlighted. The Gynecology Department building (Petrova) is significantly damaged in the western part (lecture hall, neonatology) and it is unsafe to enter this area. The other parts as well as the different annexes to the building are relatively structurally sound. The Emergency Department operates in the old building and urgent interventions are being performed. The main building of the Jordanovac Clinical Hospital is severely damaged and there will be no possibility of continuing professional or educational-research activities there. The patients were moved to the Green building. The structural engineers examined the main building of UHC Zagreb (Rebro location) and rated it as a building in relatively good condition and its work will eventually be normalized. Some parts and departments were urgently moved to the White and Green buildings. It altogether resulted in multiple transfers of patients (in their direct interest) within clinical departments, the reduction of capacities - closure of individual departments due to contamination (neurology, cardiology). Prior to the earthquake, the capacity of the Internal Medicine Department has already been reduced since it has admitted the patients from the Clinical Hospital Dubrava (dialysis, hematology, rheumatology/immunology) and has been receiving urgent patients. The Orthopedics Department is closed and not functional. At the Šalata polyclinic, several healthcare staff still care for 6 patients with different infections until an adequate accommodation is found. Other patients were transferred to the Internal Medicine Department at Rebro. Fortunately, the Department of Dermatovenereology was emptied in accordance with the pre-earthquake anti-epidemic measures. This building has been badly damaged but expensive equipment in it has been preserved.

The clinical hospitals Dubrava and Merkur have no significant damage. The UHC Sestre milosrdnice has damage. The angiography room at the Cardiology Department is out of function, so the patients are being moved to our Internal Medicine Department - Cardiology Unit at the Clinical Hospital Sveti Duh. There have been significant organizational changes within the Clinical Hospital for Infectious Diseases due to the epidemic and the Hospitals's key role. According to the received structural engineering reports, there is no significant damage to its buildings. Reorganization of work in all of our clinical teaching facilities was needed due to both the earthquake consequences and the outbreak of coronavirus. Detailed information keeps arriving on a daily basis.

2. Professional activities

Since most of the employees of the School are also a part of the healthcare system of the Republic of Croatia, many of our teachers and associates are in the “first and second line” of the defense against the pandemic and it is expected that the number of infected among them will increase over time due to their exposure. As far as we know, five of our teachers and associates have been infected with COVID-19 and exhibit milder symptoms. A large number of our staff is in self-isolation. We will try to collect all the data as soon as possible, but they change on a daily basis. Most professional activities are significantly reduced in accordance with the anti-epidemic measures. It is not known how many workers have their homes damaged by the earthquake while having to perform their professional job.

Of course, there had to be a significant reorganization of work (14-day shifts, avoidance of contact between shifts - attempts are made to create the best possible schedule of shifts, reception of suspected infected cases, prescription procedure, redistribution of personnel, redistribution of patients). Routine tests to date are no longer routine, and communication with patients is mostly done via phone or e-mail. Reorganization of the work of departments and emergency unit is complete and was adjusted to the situation in the healthcare system (individual clinical departments and healthcare institutions) in Zagreb. Several adjustments to professional activities were also mentioned in the previous sections.

3. Teaching activities

In accordance with the measures of the Civil Protection Directorate, our teaching is conducted at a distance and our LMS system functions very well. Free extension of access to the Clinical Key program (medical textbooks) has been requested and obtained from Elsevier (Lea Škorić, PhD, Professor Mirza Žižak, MD, PhD). Students are able to register and access it not only from the School premises but from home as well using @mef.hr or @student.mef.hr addresses. Elsevier provides a large number of books that are used for the courses at the School. Students were given free access to all their textbooks. Furthermore, they are also allowed to make their own presentations from the textbooks (this is also enabled for teachers). That way they can freely use pictures, tables, etc., and they can use the digital textbooks as their own (i.e. they can underline, highlight, etc.).

Data on intensive use of the LMS system by both students and teachers are very encouraging (this analysis was done by Professor Mirza Žižak, MD, PhD):

The attendance of the courses in the Croatian language, MEF-LMS:

		1 st year	2 nd year	3 rd year	4 th year	5 th year	6 th year	TOTAL
Attendances	Study year	50,806	73,641	22,190	18,417	14,169	21,715	200,965
	Elective courses							3,612
	Student office							17,543
	Total							222,120

The best attendance (> 10.000 visits and activities) have:

Histology	50,232
Anatomy	43,555
Physiology	22,865
Pharmacology	12,263

The large attendance is mainly a consequence of a certain activity or the existence of quality teaching materials in the course:

1. test solving for self-assessment of knowledge,
2. video lectures,
3. submission of assignments,
4. webinars,
5. quality teaching materials,
6. discussion in forums.

The attendance of the courses in the English language, MSE-LMS:

		TOTAL
Visits	Study years	23,678
	Elective courses	22
	Student office	956
	Total	24,656

ANALYSIS OF THE UPLOADED COURSE TEACHING MATERIALS

The uploading of new teaching materials was monitored in the period from 16 to 26 March 2020. During that period, the following educational materials were monitored:

1. .ppt presentations (converted to PDF),
2. thematic video lectures of teachers,
3. uploading of selected videos from YouTube channels,
4. structuring of tests,
5. uploading of PDF documents (e.g. scientific and expert articles),
6. use of the forum,
7. uploading of other teaching materials such as internet links, video, instructions, etc.

Analysis of MEF-LMS:

	In the period up to 16 March 2020	Current number on 26 March 2020	Difference
.ppt presentations	1688	2074	385
YouTube videos	155	173	18
Video lectures	174	182	8
Tests	33	39	6
PDF documents	29	36	7
Forum use	58	64	6
Other materials	325	386	63
Total number of materials	2462	2956	494
Notifications			43

As seen from the data, over the past 10 days (during which the earthquake happened), almost 500 new teaching materials have been uploaded, the most of which are .ppt presentations (385), the number of thematic video lectures (authored by our teachers) has been increased from 174 to 182, 6 tests have been set for self-assessment of knowledge, and 18 YouTube videos explaining certain topics through animation have been linked.

Unfortunately, the communication section has been poor (the students have complained about it and it can also be seen from the analysis). In the 10 days since we switched to online teaching, only 43 notifications have been sent to students at the level of all subjects, which points to extremely poor communication between departments and students especially considering that almost half of these notifications come from only one department (Anatomy).

Analysis of MSE-LMS:

	In the period up to 16 March 2020	Current number on 26 March 2020	Difference
.ppt presentations	1456	1564	108
YouTube videos	145	168	23
Video lectures	58	58	0
Tests	11	12	1
PDF documents	0	0	0
Forum use	65	69	4
Other materials	182	185	3
Total number of materials	1917	2056	139
Notifications			41

As seen from the table, over the past 10 days (during which the earthquake happened), 139 new teaching materials have been uploaded, the most of which are .ppt presentations (108), 1 test has been set for self-assessment of knowledge and 23 YouTube videos explaining certain topics through animation have been linked.

Unfortunately, at the MSE, the communication has been even poorer. In the 10 days since we switched to online teaching, only 41 notifications have been sent to students at the level of all subjects, which points to extremely poor communication between departments and students, especially considering that 38 out of 41 notifications come from only two departments (Medical Informatics and Anatomy).

4. Scientific activities

Since a large number of teachers and researchers at the School are a part of the healthcare system and are significantly engaged in combating the epidemiological situation, it is clear that at least during the next six months we will not be able to perform any significant work on our scientific research projects and the teaching will be conducted in difficult circumstances even after the cessation of the anti-epidemic measures. During this period, it is particularly difficult to carry out our School activities due to the large involvement and active participation of the School staff and associates in the treatment, control and prevention of the spreading of COVID-19, their increased contact and exposure to COVID-19 while working in hospitals and polyclinic, as well as related self-isolation and risks to their own health.

Our prediction is that after the cessation of the epidemiological situation and the restoration of damage caused by earthquakes, we will primarily have to establish the basic operations of the School and teaching activities and, only then, the scientific activities - therefore it is estimated that the current situation will affect the work of the institution probably throughout the entire current year.

We will soon send reports of the assessment of scientific and research activities to all the relevant institutions (Ministry of Science, University of Zagreb, HRZZ, SAFU, etc.) responsible for monitoring and assisting in performing scientific and educational activities in order to make adequate decisions in a time of crisis in accordance with the current situation both in the country and with the current problems of our and other affected institutions.

5. Students

Since 10 March 2020, and more intensively since 12 March 2020, we are tracking our students who have replied to the request of the School, to Professor Vesna Jureša, MD, PhD or other authorized staff of the School. 72 students who stayed abroad came forward on 12 and 13 March and were given instructions on self-isolation and how to contact the authorized epidemiologists and their doctors. Students who were in student dormitories were particularly cared for in coordination with the epidemiologists. One student was tested and found negative for COVID-19.

Students of the Medical Studies in English were well processed by our student office (headed by Mrs. Jasna Gamulin). There were (or still are) 41 students in self-isolation. As far as we know, they are well. Mrs. Gamulin and Professor Jureša coordinated whatever professional actions were necessary regarding the student inquiries on how to conduct themselves.

Our Multidisciplinary Counseling Service at Šalata assisted our foreign students with acute diseases until 13 March 2020. During the last four years, the University of Zagreb International Relations Office has informed the students coming for exchanges (Erasmus) and studies about the access to this counseling service at Šalata via their website. The service is usually open daily in one shift, with exact schedules, names of doctors, and contacts. On 16 March 2020, the University published on their web pages the new schedule of the service with available doctors reachable daily on their mobile phones. Foreign students who have contacted the service so far have asked for consult in cases of chronic diseases and assistance with prescription in connection with acute symptoms and have been instructed to consult the relevant authorities in this emergency situation.

So far, more than 180 volunteer students have offered to help in any way they can in the current situation. The School's Management will coordinate the potential participation of these students in the activities of the call centers of the epidemiological service, tertiary institutions (e.g. the Arena Center) so they are engaged in these most difficult scenarios with adequate education and protection. We will also coordinate the making of certain parts of the School buildings functional to a certain degree with which we expect the help of students. For the time being, the greatest help would be that every student, just like every employee, conscientiously and responsibly performs his/her work (students study), strictly adheres to the anti-epidemic measures prescribed by the national Civil Protection Directorate, takes care of personal hygiene, and thus of the health of him/herself and others.

I would especially like to thank all the healthcare professionals who perform their job in health institutions and selflessly help patients, especially those suffering from the coronavirus, and those professionals who have participated in the rescue after the devastating earthquake in Zagreb.

I would like to thank all the employees of the doorman services and IT service and all other School employees who worked immediately after the earthquake and all these days in order to prevent further damage and to alleviate the initial consequences of the earthquake.

I thank all the individuals and institutions who have given us support in these difficult moments for all of us.

Zagreb, 27 March 2020

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