

## Letter to the Editor

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# Results of the first survey of the EFLM Task Force Preparation of Labs for Emergencies (TF-PLE)

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To the Editor,

According to the World Health Organization (WHO), the European region is in a “polycrisis” and “permacrisis” that goes far beyond pandemic, climate change, and war [1]. The ongoing coronavirus disease 2019 (COVID-19) pandemic, with hundreds of millions of confirmed cases and over 3 million recorded deaths in Europe so far, is another crisis that has put health at the top of the scientific agenda [2]. Then, there is the current monkeypox emergency that is causing additional international concern [3]. And, finally, there is the devastating war in Ukraine, which unfortunately shows no signs of de-escalation and is exacerbated by horrific attacks on healthcare facilities and providers [4]. Other potentially devastating scenarios include climatic emergencies (tornadoes, thunderstorms, hail), earthquakes and tsunamis, fires, floods, chemical/biological/radiological emergencies, plane crashes, terrorism and bioterrorism,

civil unrest, and so on. Specifically, with respect to infectious diseases, the response capabilities of clinical laboratories are necessary to ensure the timeliness, completeness, and accuracy of case reporting during outbreaks and enhance feedback and transparency.

The past has taught us that laboratory medicine is largely unprepared for most of these challenges [5–7]. For this reason, the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM) has decided to establish a Task Force called “Preparation of Labs for Emergencies”, specifically designed to improve preparedness and put into practice appropriate solutions for laboratory diagnostics in areas impacted by various anthropogenic and non-anthropogenic emergencies. Specifically, the terms of reference encompass actions such as (i) surveying the state of the art in EFLM countries to understand the state of laboratory preparedness for emergencies across Europe and potentially identify (or establish) a benchmark, (ii) identifying priority areas (i.e., types of emergencies) to become specific targets for laboratory medicine in emergencies, and (iii) providing guidance on appropriate strategies to prepare laboratory medicine facilities for emergencies. As a very first step, therefore, the Task Force designed a special survey to gather a wide range of information on the preparedness of European laboratories for emergencies, the results of which are reported and discussed here.

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The survey, which includes a series of questions about the nature, organization, and preparedness for emergencies, was created using Google forms (the layout is still available here: [https://docs.google.com/forms/d/e/](https://docs.google.com/forms/d/e/1FAIpQLScqjgn0w13MrbuXMMg3D66RcdRdwx9hxy3GxoPNEoN2opGMA/viewform)

1FAIpQLScqjgn0w13MrbuXMMg3D66RcdRdwx9hxy3GxoPNEoN2opGMA/viewform). The survey was officially mailed to over 12,000 potential EFLM contacts with an official newsletter to collect responses between May 8 and June 8,

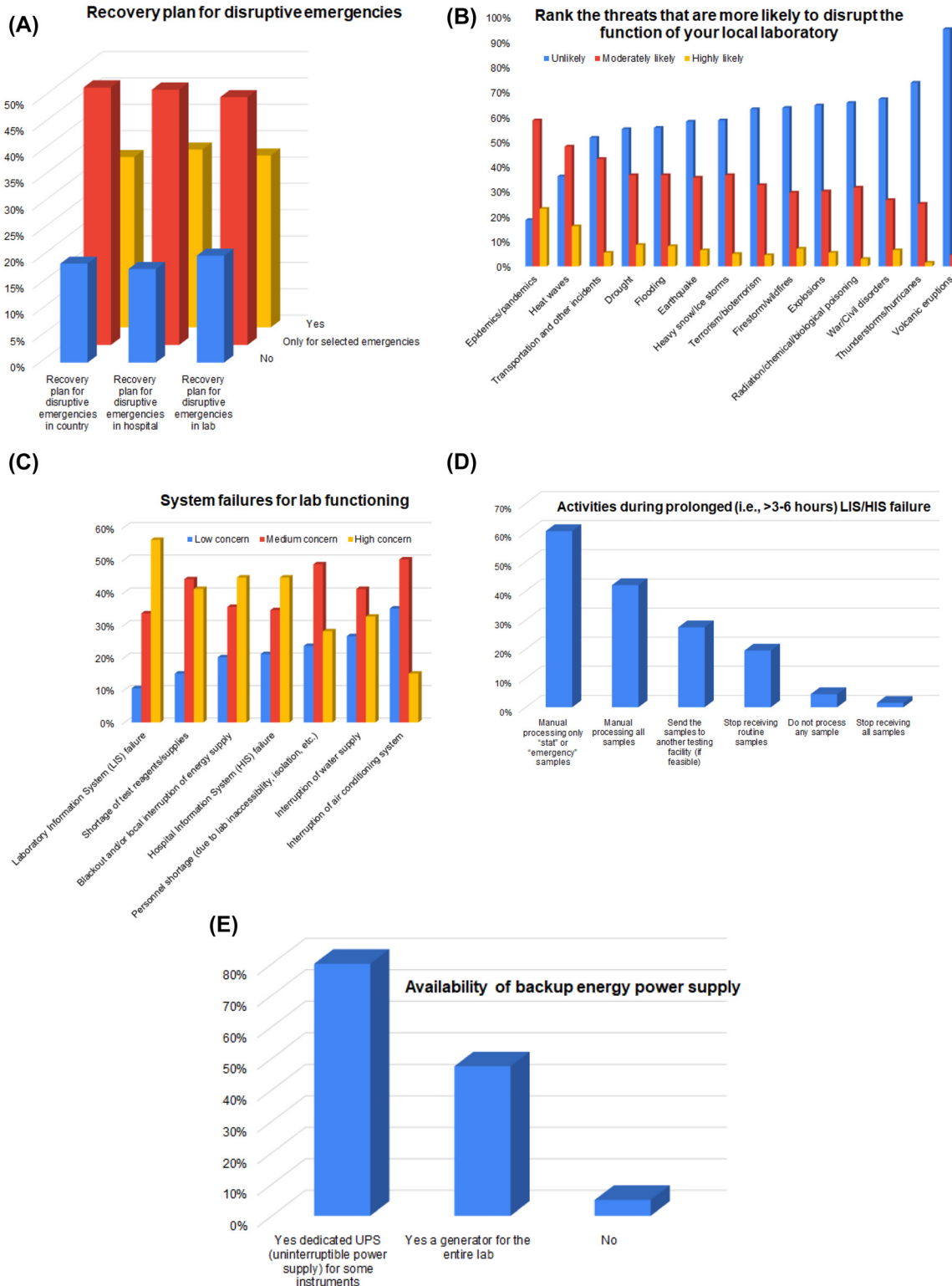


Figure 1: Responses to the first survey of the EFLM Task Force Preparation of Labs for Emergencies (TF-PLE).

2023. Responses were downloaded into an Excel spreadsheet and analyzed graphically.

During the one-month period, 235 responses were collected, 200 of which were from European countries and represented the basis for the following analyses. Most responses came from Italy (20.0%), followed by Serbia (9.0%), Turkey (6.5%), Spain (5%), Croatia, Romania, Lithuania (all 4.0%), while each other single country contributed <3%. Most respondents were from public laboratories (78%) and worked in general laboratories (74.5%) that also perform urgent/stat tests (88.5%). Most of these laboratories performed <1 million tests per year (42.0%), followed by laboratories performing between 1 and 4 million tests per year (32.0%), while 15.5% of all respondents worked in large laboratories performing more than 8 million tests per year.

Responses regarding the availability of a recovery plan at the national, hospital, or laboratory level are shown in Figure 1A. After subtracting “I don’t know” responses, the majority of respondents indicated that a recovery plan exists for selected emergencies across all the three healthcare settings (47–49%), while approximately 20% of respondents indicated that no recovery plan exists.

We then ranked the responses to the question “Rank the threats that are more likely to disrupt the function of your local laboratory based on organization and geographical location” adding the “moderately likely” and “likely” options. It was found that epidemics/pandemics and heat waves topped the list with over 50% “likely” responses, followed by “transportation and other incidents,” “drought,” “floods,” “earthquakes,” and “heavy snow/ice storms” (between 40 and 50% of “likely” responses). Terrorism/bioterrorism, firestorms/wildfires, explosions, radiation/chemical/biological poisoning, war/civil disorders and thunderstorms/hurricanes were cited as less likely causes of disruption to laboratory operations in Europe (20–30% of likely responses), while volcanic eruptions were rated as only about 5% likely to disrupt laboratory operations (Figure 1B).

For the question “Rank the system failures that scare you more for the functioning of your lab”, we also grouped those who responded “Medium concern” and “High concern”. This showed that the most worrisome problems were “Laboratory Information System (LIS) failure”, “Shortage of test reagents/supplies” and “Blackout and/or local interruption of energy supply” (≥80% of worrisome responses), followed by “Hospital Information System (HIS) failure”, “Personnel shortage (due to lab inaccessibility, isolation, etc.)” and “Interruption of water supply” (between 70 and 80% of worrisome responses), whilst “Interruption of air conditioning system” was a concern for 65% of all respondents (Figure 1C).

Responses to the question “What would you do during prolonged (i.e., >3–6 h) LIS/HIS failure” are summarized in Figure 1D. Most laboratories (over 60%) responded that they would only test “stat” or “emergency” samples, while a significant number of respondents (i.e., about 40%) also indicated that they would continue to perform all tests on all samples manually. The percentage of respondents who would “Stop receiving routine samples”, who would “Stop receiving all samples” and who would “Not process any sample” were 20, 2 and 5%, respectively.

In response to the question “Do you have backup energy power supply in your laboratory/hospital (more than one can be selected)?” only 5% of respondents indicated that they do not have any form of emergency power supply, the majority answered that they have a dedicated UPS (uninterrupted power supply) for some equipment (80%), but almost half of respondents indicated that they have a generator for the entire laboratory (48%) (Figure 1E).

Finally, only 6.4% of respondents indicated that they were not interested in receiving advice from the EFLM on this topic. Of those who were interested instead, the majority made no distinction as to the form of guidance, while the majority of those who indicated a preference mentioned recommendations most frequently (49%), followed by official guidelines (35%) and general indications (16%).

Although obviously not representative of all European countries, the collected data provides an overview of the current situation with respect to laboratory readiness for emergencies. Thus, the results of this first survey of the EFLM Task Force-Preparation of Labs for Emergencies will provide an essential foundation for the development of official recommendations for managing disruptive emergencies in European medical laboratories.

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