

## Improving the Role of Medical Scientific Societies during Health Crises

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### Abstract

The COVID-19 crisis is ongoing and there is no clear prospect for overcoming it. This crisis has revealed many problems and deficiencies in different sectors, particularly the health system and more importantly in communication, decision-making, and executive systems not only at the national, but also at the international level. For better confrontation future crises, identifying these pitfalls and resolving them is very important; in this regard, scientific societies play a very fundamental role. Firstly, they should perform deep reforms in their structure for better efficacy, coordination, and impact. It is to be hoped that scientific societies have learned enough from this pandemic to be ready for the next one. There is a need to develop a suitable model for more effective and coordinated approaches in the future, amid to reduce the casualties and more appropriate responses to health crises in a shorter period of time and with greater efficiency. In this manuscript we proposed a model for scientific societies to improve their impacts during health crises. This includes establishing prevent capabilities, in crisis actions, and recommendations to be taken after the current crisis and before the next one.

**Keywords:** Health crisis; Health policy; Society; Community; Scientist

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### Introduction


COVID-19 has spread around the world in just a few months, infecting more than 30 million people and caused more than 900,000 deaths [1]. From the start of the outbreak, different countries have used various strategies to fight the disease with differing results. At the same time, medical specialists and scientists around the world attempt to understand it and provide appropriate recommendations for prevention and management of COVID-19. To date, many guidelines and a huge number of scientific articles have been published by specialists and researchers in different fields about the COVID19 showing different and sometimes contradictory results [2]. Despite all the efforts made and various strategies used by governments and policy makers around the world, the pandemic continues and there is no effective drug or treatment available yet. The uncharacterized nature of the virus and high rate of transmission play an important role in the failure of controlling the disease. Also, inefficiency of conventional methods and procedure in the fields of research, communication and decision-making also have tremendous impact upon the management of the problem [3]. The COVID-19 pandemic has clearly revealed these inefficiencies and incompetency in our policies and procedures [4]. One area that needs to be evaluated and revised is how specialists and researchers in different fields communicate with colleagues nationally and internationally, as well as their contribution

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in prevention and management policies. In situations such as the COVID-19 pandemic, connections and coordination of scientific societies play an extremely important role in solving problems and improving prevention and treatment strategies. Health crises such as COVID-19 will recur in the future, so it is worthwhile to develop a suitable model for more effective and

coordinated approaches to reduce the casualties, and to more appropriately respond to health crises in a shorter period of time and with greater efficiency. This paper proposes a model of communication and action for scientific societies before, during, and after a health crisis.

### Establishing pre-event capabilities

Although each health crisis has several unique aspects, there are also some similarities among different crises. When these can be identified they are very valuable and helpful, not only to manage the current crisis, but also to be prepared for the next one. Pre-event capabilities are fundamental to get actionable data when it is most needed, and to choose the best strategies, especially when time and resources are limited. Previous crises have taught us a lot; some of the major capabilities which should be developed before the next crisis are as follows:

#### Making an up-to-date list of all members and their capabilities

Each society has many members with different abilities and expertise, but most of time the information is neither comprehensive enough nor up-to-date. Rather than demographic data, each society should collect data about position, capabilities, expertise and research interests of its members and keep these records up-to-date. Such databases would be very helpful in case of a crisis, as the key persons with required knowledge and expertise can be easily identified and can take responsibility shortly after the onset of the crisis. The more extensive the information collected, the more likely is to find the best person and consequently the better outcome in tackling the crisis.

#### Having an efficient communication network

After establishing the members' database (and even more important than that), the next step is connecting members through a platform to share the ideas and make committees or teams based on their interest, expertise and research interests. Considering popularity, accessibility and ease of use, social media applications such as Telegram, WhatsApp or Instagram can be used. In spite of many advantages for those applications, some societies in different countries may prefer to use in house or local platforms, based on their vision and preferences. More important than merely having a communication network is the ability to keep the network active and purposeful, particularly when the number of members is high. In such situations, useless conversation, discussions and arguments may arise, finally leading to functional inefficiency of the network. Therefore, it is very important to keep the network free of deviation and for all members to respect the agreed roles and share and discuss the relevant scientific matters. The efficacy and capabilities of such a network can be tested through simulating crises and hypothetical exercises or by working on a more limited and endemic problems such as influenza.

#### Making sustained communication channels with decision makers and executives at different levels

Even the best plans of action or the most valuable

recommendations must have an executive guarantee and be able to be implemented. During a health crisis, the sheer volume of mainly contradictory and evolving information as well as the broad spectrum of variables to be considered causes confusion and uncertainty among officials and decision makers. In this situation, reliable information and recommendations provided by various scientific societies could be very helpful, but needs to reach executives through pre-established channels in a proper time frame. In this regard, there should be an established connection between societies and decision makers in the government or any responsible agencies which are relevant to the crisis. This communication will be best facilitated, if scientists have a permanent position advising the government or sit in the circle of policy makers.

#### Trusted public relations

Most of learned societies have a journal that publishes relevant articles, editorials and commentaries. Some of them also use other types of media to inform about events, and seminars. Scientific journals have limited audiences but publish on a regular basis only. Alternatively, during a health crisis, there are huge amount of wrong data, rumors, and biased news, which circulate mostly through social media and shape the public opinion in a negative way that worsens the situation. In this situation, and to use the power of social media for promoting changes [5,6], scientific societies can perform a useful role by providing reliable information and advices useful for the community and inhibiting manipulation of public opinion. Achieving this requires a communication route to the community, which is easy to access and understand, trusted and covers a broad range of audiences. This cannot be created overnight; so, scientific societies should invest more on their public relations and try to present their activities, increase their audiences and also get their trust by always providing useful and valid information.

**In crisis actions:** Although health crises have some similarities and we can perform some primary actions based on pre-existing knowledge and experiences, there will still be many unique and unknown aspects which should be answered in order to prepare a proper action plan and strategy for fighting the crisis. Past experience with other crises such as Ebola, demonstrates that there is large time lag from the start of the crisis until availability of actionable data hence reducing the efficacy of plans and policies profoundly [7]. There are some strategies that can reduce the time gap and provide the results of research and analyses in the form of actionable data and in an accepted time frame. Some of the most important include:

#### Making a master question list

During a crisis, time is very precious and limited and it is necessary to act rapidly and effectively. Each health crisis has a lot of unknown aspects which need to be ultimately identified but some of them are more important and have a major impact on public health and should be addressed more urgently. As the first step, the most critical questions should identify and efforts focused on solving them. In this regard, each society should make a *master question list* including the relevant fundamental questions which can be addressed by the society in an accepted

time frame. This type of question list should include questions which have practical value and can help decision makers and clinical specialists, as well as the general population [8]. In addition, knowing these questions highlights the society's research priorities for its members and prevents duplication of efforts or competing unnecessarily with others. It is also very important that different societies clearly share their question list and research priorities to avoid duplication or competing research plans.

### Organizing human resources and formation of committees to answer questions

After making the *master question list* it should be defined by whom and how these questions should be answered in a defined time frame. Some questions can be answered based on the existing knowledge, but others need more consideration and research. An ideal strategy is to form committees consisting of experts to collect data and provide the best possible answers to the questions. In case of questions which need more research, the committee can prepare the proposal and assign the task of data collection, sample taking and analysis to other members in the country or geographic region. Under the committee guidance and leadership, it will be possible to collect enough samples from different parts of the country and send them to a well-equipped center for analysis and report the results with confidence in a short time frame. This strategy also prevents parallel research projects with small sample size or low standards, which may cause conflicting and misleading results.

### Collecting, evaluating, and publishing valid information

Shortly after the onset of a widespread health crisis, a huge amount of data from different sources is released. Many of these are heresay, fake news, and misleading information. The same is true for some scientific research and reports, as there is a great tendency for publishing preliminary results, which usually arise from a single, not well-designed experiment, with small sample size, no replicates and experimental controls or even without careful analysis or peer-review process. These types of fast but not valid communications in the COVID-19 pandemic were abundant, particularly pertaining to the efficacy of various drugs. In the crisis situation, the expedition of obtaining results is at the expense of data quality and validity, while both the availability and reliability of data are very important. Clearly, there should be a balance between them. In this regard, scientific societies should take responsibility for refining primary data and making an executive summary helpful for the public and policy makers. Considering the huge amount of data that are released after a crisis, to achieve this task, at first, expert members of a society should make teams with the assistance of graduate and undergraduate students for fast scanning and selection of the relevant data; then a committee of society's members should organize them into actionable data, technical notes or a nontechnical executive summary useful for decision makers, specialists, and the public.

### Prioritizations of knowledge gaps and development of a research plan for necessary studies

Although there are some similarities between past and present crises, each crisis has its own unique aspects which need proportional research to understand [9]. Format and design of research studies during the time of crisis are different from normal as they should be rapid, valid, patient outcome-oriented and based on limited data [10]. Performing such decisive research requires training, expertise, budget, technical facilities and extensive interdisciplinary communication to preform projects with enough sample size in an accepted time frame. In addition, ethical issues, legal obligations, and peer-reviewing of these types of projects and their outcomes require specific policies and strategies [11].

### After the current crisis and before the next one:

Crises come and go and along with all the damages, losses and problems, and leave behind a huge amount of valuable data and show the pitfalls in our existing systems. Learning from the past prepares us for the future. As such, it is very important that after each crisis, scientific societies perform a comprehensive assessment of their efficacy during crises and plan for better outcomes in the future. Some of the most important items for assessment include:

- Evaluation of the behavior of the societies during the crisis and identifying weaknesses and strengths
- As mentioned above, each society should evaluate its effectiveness during crisis. In this regard, some the questions, which should be answered, are as follows:
- How much it contributes in producing relevant, valid and actionable data for helping policy makers and public?
- How do the research programs performed by a society improve the policy and response in the crisis?
- How effective was the ability of the society in communication with other societies and executives in term of fighting the crisis?

### Revising plans, procedures, and policies:

After evaluation of a society's actions and identifying the pitfalls, there should be a comprehensive plan for resolving problems and improving the efficacy for fighting the next crisis. The plan should focus mainly on improvement of educational curriculum and identifying research priorities as well as investment and development of infrastructures and technical facilities, which are necessary for fast response to the forthcoming crises. It is also important that these infrastructures and facilities embed in the society's framework to act against future crises.

### Improving the interdisciplinary communication at the national and international level:

Most of the crises, even health crises, beyond their primary field, affect much wider areas, including the economy, security, communication; therefore, proper dealings with a crisis needs

a broad level of cooperation and coordination between key players, including physicians, researchers, engineers, policy makers, executives as well as general population. As this type of large scale harmony between heterogeneous groups has not been well trained for or practiced, it is very important to design a proper model for this type of communication to guarantee the fast flow of actionable data and effective measures during crises.

## Conclusion

In summary we have discussed establishing pre-event capabilities including making an up-to-date list of all members and their capabilities, having an efficient communication network, making sustained communication channels with decision makers and executives at different levels and trusted public relations. In crisis actions should include making a master question list, organizing human resources and formation of committees to answer questions, collecting, evaluating, and publishing valid information and prioritizations of knowledge gaps and development of a research plan for necessary studies After the current crisis and

before the next one: there should be evaluation of the behavior of the societies during the crisis and identifying weaknesses and strengths, revising plans, procedures, and policies and finally improving the interdisciplinary communication at the national and international level.

## Key messages

- During the COVID-19 pandemic, many strategies used by governments and policy makers around the world were unsuccessful
- The failure in controlling this crisis is partly due to inefficiency of conventional methods and procedure in the fields of research, communication and decision-making.
- In this manuscript, we propose a model for scientific societies to improve their impacts during health crises such as COVID-19

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