

## SHORT COMMUNICATION ΒΡΑΧΕΙΑ ΔΗΜΟΣΙΕΥΣΗ

# Laboratory diagnosis in the acute post crisis situation Reflections on the Haiti earthquake crisis

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*Εργαστηριακή διάγνωση σε περιπτώσεις  
μετά από οξεία κρίση: Αντίδραση μετά  
από την κρίση στην Αϊτή*

*Περίληψη στο τέλος του άρθρου*

**Key words:** Crisis, Diagnosis, Laboratory

### “DISASTER”; WHY IS MEDICINE SO IMPORTANT?

A disaster is a totally unwanted event. In the case that a disaster occurs, the specific management of medical services is of utmost concern. The basic features of a disaster include (a) a wide affected area, (b) a large number of affected population, (c) a specific natural or non natural cause, (d) severe damage to living and non living things, and (e) sudden occurrence. In the present decade, a number of major disasters have occurred around the world, giving rise to a crisis situation, with the most recent episode being the Haiti earthquake.

As already described, a disaster is a serious event that leads to the morbidity and mortality of numbers of people in disaster area. It is certain that the emergence of a number of health disorders can be expected in the post crisis period. In the first stage, the physical damage, trauma and injury, appear to be the major problems, after which several additional problems, including infection, disability and psychological problems develop. These are

all multifaceted conditions which constitute a challenge to the medical teams for their management. This brief article discusses the essentials of laboratory diagnosis in the acute post crisis situation.

### LABORATORY INVESTIGATION IN POST CRISIS: WHAT ARE ITS PROBLEMS?

A common finding after the disaster is the wide destruction of infrastructure in the disaster area. In a major disaster, the local medical facilities may be destroyed. In the recent Tsunami disaster, Kost et al reported a situation in Thailand where “the tsunami impacted 48 PCUs plus island and province hospitals, which lacked adequate diagnostic instruments. Sudden overload of critical victims and transportation failures caused excessive mortality”.<sup>1</sup> It can be seen that when a setting with limited pre-existing laboratory resources is affected by a disaster, a sudden shortage in laboratory facilities can be expected, associated with a more serious outcome.

Along with the destruction of the infrastructure, in the disaster situation there is an increase in the need for laboratory analysis for coping with the emergence of a wide variety of medical problems arising in the post crisis period. Although the local plans for emergency preparedness might cover a plan for emergency laboratory investigation, the sudden and large scale of destruction might totally destroy that plan.<sup>2</sup> Hence, assistance from external agencies is usually required.

### WHAT IS THE WAY TO PERFORM LABORATORY INVESTIGATION IN THE POST CRISIS SITUATION?

As already described, in the disaster situation, the partial or total destruction of the standard medical laboratory can be expected, and this will lead to serious limitations in medical laboratory resources. The rescue and aid teams from external sites must be prepared to provide their own laboratory tools for coping with this problem. In the setting of the field hospital, the laboratory technicians are important members of the team of required medical personnel.<sup>3</sup> From the technical aspect, the point of care testing (POCT) based tool can be a good solution for this period. Kost et al have noted that there is a need for assessment, planning and the design of specific POCT tools for coping with disaster

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Submitted 25.1.2010

Accepted 1.2.2010

situations.<sup>4</sup> Focusing on the recent Katrina hurricane and flooding disaster in the USA, it was reported that “Katrina demonstrated POCT value in disaster responses”.<sup>7</sup> Kost et al also suggested the necessity of POCT for use by the rescue teams.<sup>7</sup> However, an important problem to be considered is the possible impairment in the diagnostic power of the POCT tool due to environmental change in the crisis area.<sup>5</sup> Louie et al noted the need for upgrading of the production process to cope with this problem.<sup>5</sup>

## THE STORY OF POST CRISIS LABORATORY INVESTIGATION SHORTAGE IN HAITI

In early January 2010, a strong earthquake hit Haiti and giving rise to one of the biggest disasters in human history. A sudden shortage of medical facilities appeared in the post crisis situation. There is no doubt that almost all the medical laboratories in Haiti were destroyed. The limited resources for medical laboratory evaluation already constituted the basic problem in laboratory medicine in Haiti, and the current disaster critically worsened the overall situation.

As in previous disasters due to earthquakes, the emergence of infectious diseases in the post crisis stage can be expected, and the peak of infection will be reached in a very short time. The implementation of specific laboratory investigation tools for coping with the emerging infectious disease is suggested. Another important laboratory which

will need to be established is the medical laboratory for assisting patient identification. Such a facility is needed for the management of unidentified corpses in any disaster.<sup>6</sup>

Finally, based on the fact that Haiti is a poor country and has limited resources, the call for long term help for the reconstruction of medical laboratory facilities, as well as other medical services is required.

## ΠΕΡΙΛΗΨΗ

### Εργαστηριακή διάγνωση σε περιπτώσεις μετά από οξεία κρίση: Αντίδραση μετά από την κρίση στην Αϊτή

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Αρχεία Ελληνικής Ιατρικής 2010, 27(4):684-685

Οι μεγάλες καταστροφές αποτελούν ένα αιφνίδιο καταστροφικό γεγονός. Σε περίπτωση εμφάνισής τους, σημαντικό ενδιαφέρον παρουσιάζει η διενέργεια διαφόρων ιατρικών χειρισμών. Κατά την τρέχουσα δεκαετία εμφανίστηκαν αρκετές τέτοιες μεγάλες θεομηνίες σε όλο τον κόσμο, με πρόσφατο το γεγονός της κρίσης του μεγάλου σεισμού στην Αϊτή. Στο παρόν άρθρο γίνεται βραχεία συζήτηση της διαγνωστικής συμβολής του εργαστηρίου στη μετά την κρίση περίοδο.

**Λέξεις ευρητηρίου:** Διάγνωση, Εργαστήριο, Κρίση

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