

Strategic National Pharmaceutical Stockpile: A Concept for Optimization of Medical Resources During Disasters

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Introduction

Disasters have existed since the existence of mankind. Our ancient forefathers used to worship the natural forces for appeasing them and thus preventing violent natural disasters that have always been the greatest destroyer of lives and property. The modern era have added man-made disasters to the long list of natural disasters, threatening mankind with death and devastation. The history of disaster management is lost in antiquity. For centuries, disasters went unexamined and were treated as unique expression of the supernatural. But the modern world has looked for scientific explanations of disasters and disaster medicine has become a specialty by itself. Disasters will always be unpredictable but what will be predictable are large number of casualties, chaos, and confusion. These predictable factors obviate the need for scientific disaster preparedness to manage and mitigate the effects of a disaster.

India remains one of the most disaster prone countries in the world with large number of major disasters occurring in our country. The loss to the national exchequer is colossal. Over the last 3 decades, the country had to respond to a variety of natural and manmade disasters with increasing frequency. The devastations that occurred due to Bhopal gas tragedy, Morvi dam burst, earth quakes at Koyana, Uttarkashi, and Gujarat, recurring

cycles of floods in Gangetic planes especially in the Northeast, and cyclones of Orissa and Andhra Pradesh have been unprecedented.^(1,2) The recent Tsunami disaster has magnified the quantum of damage and devastation that a national calamity can cause. Though the country has responded with great resolve and has been able to rebuild and rehabilitate a large population, the loss of life and property has set the country back in a significant way. Though all the agencies involved in the relief and rehabilitation during the disasters have performed with remarkable efficiency, one glaring deficiency that has been repeatedly noticed is the lack of preparedness in terms of provision of necessary emergency medical supplies during critical first 12–24 h of a large scale disaster. This had lead to avoidable mortality and loss of lives and limb of significant number of people. This was not because of lack of resources, but only due to the fact that there was a lack of coordination and preparedness that lead to loss of valuable time in providing the essential medical resources.⁽³⁾ What has been noticed in all the recent national disasters is that there has been deficiency only in the initial response in terms of providing emergency medical care. The concept of “Golden Hour” practiced in military medicine to save lives and limbs is equally applicable in disaster situations and a prompt and effective initial medical care will significantly reduce the mortality.⁽⁴⁾ With experience of disaster medical management and a study of its deficiencies, there is need for a serious thought about creating national resource of emergency medical supplies that can be lifted within hours of a national calamity in any part of the country. A national disaster in a country like ours will always involve a very large population and will require a rapid access to large quantities of pharmaceutical and medical supplies. Such a large quantity may not be readily available unless a special facility is created to stockpile the critical stores.

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In a country, as large as ours, one cannot predict or anticipate when and where a disaster will strike, and very few States and local government have the resources to create such a facility. Therefore, the concept of creating such a national resource that can be used by all at times of national calamities needs serious deliberation.

This concept of having a “National Pharmaceutical Stockpile” is already in practice in USA with an aim of providing a supply of large quantities of medical material to States and communities during an emergency within hours of government decision to deploy the national stockpile. The Homeland Security Act, 2002, of USA authorized the Department of Homeland Security and Health and Human Services to create “Strategic National Stockpile,” a national repository of antibiotics, chemical antidotes, antitoxins, vaccines, life-support medication, IV administrations, airway maintenance supplies, and other emergency medical and surgical items. The facility also has a huge data bank of other stockpiles and supply agencies, including pharmaceutical industry with details of type and quantity of medical stores available, so that any emergency or additional requirement can be procured or replenished within shortest possible time.^(5,6)

The aim of this paper is to generate a conceptual approach towards establishing a “National Pharmaceutical Stockpile” in India for ensuring readily available essential disaster inventory to face any future crisis with courage and fortitude.

Acceptance of necessity of the concept

India is a vast country with diverse terrain and susceptibility toward disasters. The initial response to a disaster always remains to be disorganized efforts, which usually leads to a quick invitation to the Armed Forces and other national agencies to step in and manage the disaster. Past experience has shown that the immediate rescue effort following a disaster was always jeopardized by non availability of essential supplies, medical supplies being one of them. Thus, vital time is lost before any meaningful damage control exercise can be launched, leading to much loss of life and property. In the modern era of scientific management, disaster management cannot remain within the confines of such inefficiency any more. A well-planned futuristic approach and creation of readily available disaster inventory will become an essential component of the National Disaster Management effort.

The stockpile – real or virtual

The stockpile, needed to be created, may be a real repository of life-saving medical supplies stored in predetermined ware-houses at strategic locations in the country or a virtual inventory, maintained by a

national databank. The responsibility of maintenance of the stockpile thus shifts to the major pharmaceutical companies.^(7,8) The real stockpile, if created, will have the following strengths and weaknesses:

Strengths

1. Ready availability of life-saving medical supplies, available at extremely short notice.
2. Availability at different strategic locations spread over the country.
3. Availability of the inventory in one single pre-determined location, thus avoiding the need of collection, transportation and compilation of stores received from various sources.

Weaknesses

1. The inventory carrying cost of creation, maintenance, and turnover of the stockpile.
2. Necessity of security and quality control of the stockpile.

Planning of virtual stockpile will also have certain strength and weakness, which are as mentioned below:

Strengths

1. Low cost of creation and maintenance of stockpile.
2. Shifting the entire responsibility of the stockpile to major pharmaceutical companies.

Weaknesses

1. Extreme dependence on pharmaceutical companies during the hour of crisis without any contingency planning.
2. Difficulty in organizing the creation of the stockpile after collecting the supplies from various sources spread all over the country.

Viable solution

A viable solution, taking advantage of the strengths of the concept outlined above may be:⁽⁹⁾

1. Creation of “National Disaster Inventory” of essential medical supplies to cater for the immediate need of 24 hours supply.
2. The stockpile will be maintained at different strategic locations in government owned warehouses, the component of the stockpile being dictated by a “Vulnerability Analysis for Disasters” for that area.
3. Locations for stockpiling will be decided by “Critical Incident” mapping of India thus identifying areas more susceptible for suffering from a disaster.
4. Further re-enforcement of the medical logistics supply effort will be made out of a “National Virtual Stockpile,” supported by a regularly updated databank of major pharmaceutical companies and their list of disaster inventory.

Imperatives for the national stockpile

Certain imperatives will be naturally called in while conceptualizing the national stockpile, which may be described as follows:^(8,10)

Command and control

An Incident Command Structure to mandate the activation, generation, utilization, and cessation of activity of the national stockpile. Ideally, this Command Structure should be based in the Crisis Management Group based in the Ministry of Home Affairs.⁽¹¹⁾

Infrastructure development

Infrastructure development may become a part of the “National Disaster Management Plan” that is being drafted at present. However, the effort will have to be decentralized, with the State government made responsible for the entire local effort.

Initial creation of the stockpile

Initial creation of the inventory will be made out of funds released from the “National Calamity Contingency Fund.” Further replenishment will also be done by a recurring expenditure account from the same fund.

Maintenance of the stockpile

Responsibility of the stockpile will be given to the respective State governments, including turnover of the stockpile and quality control checks. Similar action will be expected at Defence Forces storehouses, the efforts being made within existing resources only.⁽¹²⁾

Annual inventory check

Central teams will be nominated for carrying out annual inventory check of the entire stockpile.

Creation of national databank for virtual stockpile

A central databank will be maintained by the Crisis Management Group for the virtual inventory being maintained by major pharmaceutical companies. “Disaster Alert” procedure for the virtual stockpile will remain the same as the real stockpile.

Training and security of the stockpile

Training of maintenance staff and provision of security of the stockpile will be the responsibility of the respective State governments.⁽¹²⁾

Conclusion

Creation of the “National Pharmaceutical stockpile” will be an essential component of a futuristic and scientific disaster preparedness of India. Though the concept would require detailed and meticulous microplanning as well as public-private partnership agreement, its establishment will be a landmark in the gradually developing management culture of strategic thinking in disaster preparedness.

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