Health Sector Transformation in Saudi Arabia: The Integration of Drones to Augment Disaster and Prehospital Care Delivery

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Dear Editor,

Drones have the potential to revolutionize the fields of both disaster medicine and prehospital care delivery. They have become an increasingly valuable tool, especially in countries that are prone to disasters and hazards. Drones can provide crucial support in search and rescue operations, delivery of medical supplies, and remote monitoring of disaster-affected areas by providing a bird's eye view that is often difficult to obtain otherwise.

In search and rescue operations, drones have proven to be extremely effective. They can identify and locate missing or trapped individuals in areas that may be inaccessible to search and rescue teams. This technology allows emergency responders to search for survivors in hazardous areas, such as those affected by an earthquake or flash flood, without putting rescue teams in danger.[1,2] Drones are equipped with cameras and other sensors that can provide real-time footage of disaster-affected areas, allowing rescue teams to make more informed decisions.

In addition to search and rescue operations, drones have been instrumental in the delivery of medical supplies to disaster-affected areas. Drones can transport essential medical supplies, such as vaccines, blood products, and medications, to areas that may be difficult to reach by conventional means.[3] This is especially valuable in Saudi Arabia, where remote and isolated communities may be cut off from the rest of the country during a disaster.[4] The use of drones in the delivery of medical supplies can ensure that life-saving treatments are available when and where they are needed most.[5]

One example of this system in Saudi Arabia is Medidrone, which is designed to provide fast and efficient emergency services to patients in remote and hard-to-reach areas. The system consists of a drone, a mobile application, and a Web-based portal. The drone is equipped with a medical kit and a communication system that allows the health-care provider to communicate with the patient and collect real-time data. The mobile application is used by the health-care provider to control the drone and monitor the patient's condition. The Web-based portal is used by the hospital staff to manage the system and track the status of the drone and the patients.[6]

Drones can also be used for remote monitoring of disaster-affected areas. They can capture detailed images and data of disaster-affected areas, which can be used to assess the extent of damage and the needs of affected communities. This information can be used to inform disaster response efforts and help authorities make informed decisions about resource allocation.[7,8]

Despite the many benefits of drones in disaster medicine support, there are also challenges that must be overcome. One of the primary challenges is the need for trained operators who can effectively operate and maintain drones. The cost of acquiring and maintaining drones and the associated infrastructure required for their operation is also a challenge that must be addressed.[9] Additionally, the use of drones to augment the delivery of prehospital emergency care, disaster medicine support, and broader applications throughout the health-care system are currently not addressed in the national health-care policy framework or as part of the strategic health sector transformation plan.

Efforts should be made to ensure that the use of drones is effectively integrated into the overall Health Sector Transformation Program which aims to restructure the health sector in Saudi Arabia by 2030.[10]

The world's most ambitious project, NEOM located in northwestern Saudi Arabia, plans to build a digital smart city that has an integrated health ecosystem based on advanced technology. A joint venture with Volocopter plans to design and develop a 3-dimensional public health transportation system. This partnership could be leveraged to incubate drone technology experimentation and research that could eventually lead to widespread implementation throughout the health-care system.[11]

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The possibilities for drone use in disaster medicine support are endless. With continued innovation and investment in drone technology, Saudi Arabia has the potential to lead the development of drone use in disaster medicine and prehospital care delivery. Additional research is needed to determine how drone technology can be used to improve health outcomes, reduce costs, and improve efficiency of prehospital care delivery in remote and rural parts of the country.

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