

Taking WHO as the reference, questions from PAHO corresponding to the WHO questionnaire were grouped. Questions not similar on either questionnaire were not considered for analysis. Responses on the WHO questionnaire were categorized into 3 levels: due for review, under progress, and completed. Scores were assigned for the 3 categories of responses as follows: “due for review” as 1, “under progress” as 2, and “completed” as 3. Responses on the PAHO questionnaire were categorized into 3 levels: low, average, and high. Likewise, scores were assigned for the 3 categories of responses on an ordinal level with “low” as 1, “average” as 2, and “high” as 3.

The results revealed no differences between the outcome of components of either questionnaires except for the command and control section ( $P = 0.002$ ). This could be because the command and control component of the PAHO questionnaire had questions pertaining to a separate space, equipment, back-up systems for the Emergency Operations Center, whereas the WHO questionnaire had questions specific to the Hospital Incident Command organizational structure. However, this was not an absolute analysis because we were comparing only 2 similar questions and not the same ones.

Both checklists had questions on safe hospital evacuation. The WHO checklist had a continuous monitoring system to identify potential vulnerable areas such as entry/exits and food/water access points prior to any disaster. However, it was noticed during the interview that the respondents confused the related question with crowd control after the disaster, which required repeated explanation.

Descriptive statistics were used for analysis of the WHO questionnaire, whereas the PAHO questionnaire had its own safety scoring index with a safety calculator.<sup>4</sup> The WHO questionnaire

was user-friendly because it was easy to analyze. The PAHO questionnaire had its own safety scoring index with a scoring calculator that was not readily available.

We hope our comparison can help hospitals to select a proper evaluation tool, especially considering that the resources of hospitals in Nepal are limited.

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Published online: March 30, 2016.

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doi:10.1017/dmp.2016.19

## Futuristic First Responders

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The ultimate sacrifice of 104 firefighters at the August 12, 2015, Tianjin explosions and the 10th anniversary of Hurricane Katrina call for the development of rescue robots as first responders.<sup>1,2</sup> Robots can be designed to combat fires, contain chemicals, rescue citizens, and perform other dangerous tasks. During disasters, the appropriate use of rescue robots could save lives.

The Defense Advanced Research Projects Agency (DARPA) Robotics Challenge (DRC) is an international competition that encourages the development of robots for performing

rescue tasks in disaster zones. Some key elements of rescue robots that need further improvement are the ability to act autonomously, the mode and reliability of remote operation, the limitations of power cords, the ability to get in and out of vehicles, and dexterity that does not compromise robustness, strength, mobility, and balance.<sup>3</sup>

Because disaster relief tasks require operating equipment and maneuvering in buildings designed for humans, most rescue robots have human-like outlook and functionalities. *Atlas* is a DARPA-funded project to develop humanoid robots to serve

in combat fields and operate in tough terrain with minimal guidance from remote human operators.<sup>4</sup> SAFFiR,<sup>5</sup> a humanoid robot that functions as a firefighter, can operate fire-suppressing equipment, see through smoke, and navigate passageways, ladders, and hatches of a ship even when the ocean is rough. The remote control and communication capability of rescue robots ensure the safety of human operators and open the possibility of crowdsourcing—an effort employed in the search for Malaysia Airlines Flight 370.

Existing robot technology is promising for disaster relief. Collaboration between researchers and the industry could bridge the gap between the theoretical and practical side of rescue robot technology, leading to designs optimized for manufacturing and cost-effectiveness. Robotic responders with the required qualities to operate in disaster environments will provide invaluable assistance to rescue efforts.

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Published online: March 28, 2016.

doi:10.1017/dmp.2016.91

## Enough With Polio: It's Measles' Turn Now in Pakistan

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**V**iruses still present a chief threat to mankind. Polio is a virus-borne disease that remains a major challenge in Pakistan. However, it is a misfortune that all of the resources of the extensive program on immunization in Pakistan are specified toward eradication of polio only. This specification neglects or gives little priority to other vaccine-preventable diseases that are equally disastrous in the event of an outbreak, especially measles, which claimed many lives in Pakistan in 2012 and 2013. Measles weakens the immune system, particularly in youngsters, making them susceptible to pneumonia and encephalitis, which can lead to death.<sup>1</sup>

Measles is to date a leading cause of death among young children in Pakistan and around the globe. Despite the implementation of global and national guidelines in 2011,

### Acknowledgment

ICHF receives salary support from the Centers for Disease Control and Prevention (15IPA1509134). This letter is not related to ICHF's CDC-supported research.

### Disclaimer

The CDC had no role in the writing, submission, or publication of this letter. This letter does not represent the official positions of the CDC or the US Government.

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Pakistan was among the 5 nations where about 1 million children were not vaccinated with the first dose of measles<sup>2</sup> vaccine owing to low measles vaccination coverage. This resulted in a measles outbreak with 4380 cases confirmed which claimed 64 precious lives.<sup>3</sup> In Pakistan from January 2012 to May 2013, only 8.0% of children received the recommended initial and booster doses of the measles vaccine. The majority of unvaccinated youngsters assessed by humanitarian partners later on developed post-measles complications, with confirmed cases of measles (n = 25,859) and deaths (n = 570). The incidence of measles cases and deaths reported was much higher in 2013 than in previous years.<sup>4</sup>

The 2014 statistics for measles in Pakistan revealed that vaccination coverage was 63.0%, suspected measles cases numbered 2555, whereas cases confirmed by laboratory tests