Disaster prepared: How federal funding in the USA supports health system and public health readiness

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ABSTRACT

Federal funding for health and medical preparedness in the USA has created an important foundation for preparing the health and medical systems to respond to a wide range of hazards. A declining trend in funding for these preparedness activities threatens to undo the progress that has been made over the last decade and reduce the state of readiness to respond to the health and medical impacts of disasters.

Keywords: health security, public health preparedness, healthcare preparedness, bioterrorism, funding

INTRODUCTION

At the time of writing, the US Congress has passed and the president has signed H.R. 83. This bill funds most government agencies until 30th September, 2015 and also includes US$5.4bn of the president's US$6.18bn request for emergency supplemental funding to combat Ebola.[1] This funding is focused on stopping the spread of this disease in West Africa, developing a broader and deeper toolkit of rapid diag-

nostics and pharmaceutical interventions, and bolstering the ability of healthcare facilities and local health departments to respond to cases of Ebola domestically.[2]

This kind of surge funding has its precedent. Concerned with the pandemic potential of the H5N1 strain of influenza transmitting among avian species, and infecting some humans in Asia, a supplemental appropriation was attached to the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror and Tsunami Relief, 2005. This appropriation included investments for stopping outbreaks of novel strains of influenza overseas and supported the development and production of vaccines and other pharmaceutical countermeasures for a total investment of about US$83m.[3] A much greater funding supplement was provided in federal fiscal year (FY) 2009 in response to the H1N1 novel influenza. This strain spread rapidly throughout the USA. Although it ultimately did not become the severe pandemic that was feared, its emergency necessitated a direct focus of national health and medical preparedness capabilities. This appropriation was for over US$7.6bn with no less than US$350m dedicated for upgrading state and local response capacity.[4]

Surge funding is a necessary aspect of disaster response. But to have an impact, surge funding must build upon well-developed pre-existing capabilities and capacities of health and medical response systems and to improve overall readiness for future disaster needs. These systems are developed through long-term investments in their growth and sustainment. A resilient health and medical workforce is competent in disaster response, has substantive relationships with response partners and has the best science available to support its response. These conditions are only created in the long term and rely on stable baseline investments.

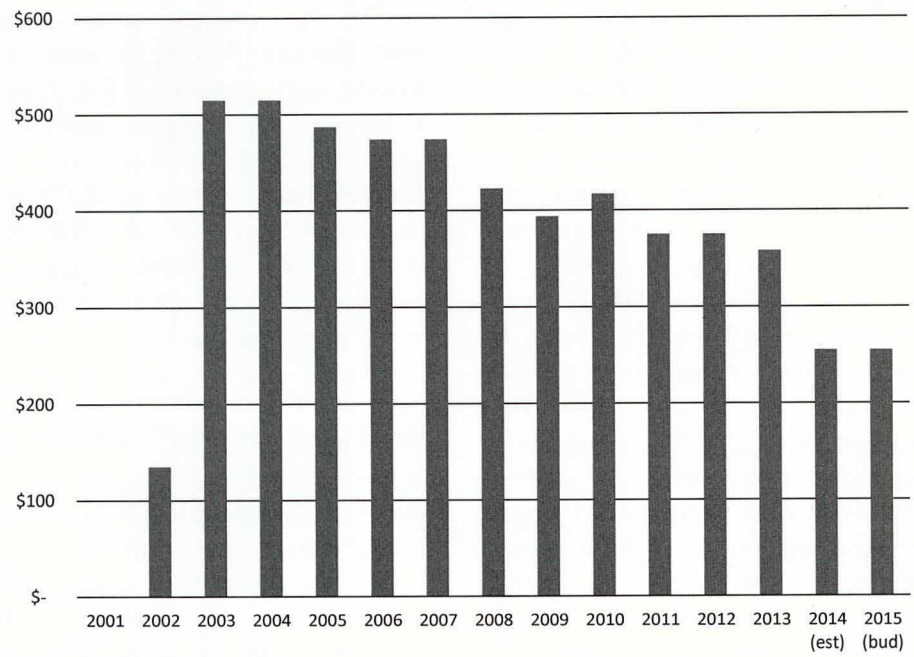
This paper seeks to articulate the current baseline funding streams for local health and medical preparedness in an attempt to better understand the funding vehicles and trends it involves. Understanding this provides a more robust understanding of the value that this funding allows for the development of recommendations for enhancing local health and medical preparedness.

BASELINE PREPAREDNESS FUNDING

In order for the USA to be prepared for infectious diseases like Ebola, natural disasters like Superstorm Sandy or acts of terrorism like the anthrax attacks of 2001, an adequate and well-trained health and medical workforce is needed. The dividends of investment in local health and medical preparedness are demonstrated in recent responses. Some examples include a school nurse who first identified H1N1 in New York City[5] and the New York City hospital staff who, in conjunction with local responders, evacuated their hospitals during Superstorm Sandy.[6] It is also demonstrated in the 26 staff it took to care for the US missionary with Ebola, Kent Brantley, and along with a talented cadre of local and state epidemiologists that have the arduous task of following up with every possible contact to Ebola and any other infectious disease.[7]

The primary funding streams for local health and medical preparedness post 9/11 have come from the Public Health Emergency Preparedness (PHEP) cooperative agreements and the Hospital Preparedness Program (HPP). Both grants are funded through the US Department of Health and Human Services, with the PHEP funds distributed by the US Centers for Disease Control and Prevention (CDC) and the HPP administered by the Assistant Secretary for Preparedness and Response.

Figure 1 HPP programme funding (US$m)



Based on data from Boddie, C., Sell, T. K. and Watson, M. (2014) 'Federal funding for health security in FY2015', Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, Vol. 12, No. 4, pp. 163–177 and Franco, C. and Sell, T. K. (2011) 'Federal Agency biodefense funding, FY2011-FY2012', Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, Vol. 9, No. 2, pp. 117–137.

These programmes enhance disaster response while also protecting front-line health and medical workforce in several important ways. First, they allow hiring planners and specialists in disaster response to develop plans and preparedness programmes within health and medical organisations, as well as to liaise with their counterparts at other organisations with whom they will be responding. Next, these funding streams support the purchase of equipment to protect health workers and others from the hazards they may face. This can include personal protective equipment, as well as detection equipment to measure the levels of hazards like radiation in the environment. Finally, this funding makes possible the much-needed training to prepare staff on the kinds of disasters they may face. This goes beyond simple awareness and includes detailed training on complex procedures and equipment. High-fidelity drills and exercises are also funded to reinforce these lessons in an operations-based environment, expose weaknesses in plans and training programmes and promote links between agencies and the private sector necessary for an effective response to a disaster.

Overall funding for HPP has been reduced by more than 50 per cent since its peak in 2003. Funding for HPP has been reduced by nearly 30 per cent just in the past year. PHEP funding has also seen a significant decline, with funding being reduced by more than 30 per cent of its 2003 level (see Figures 1 and 2).[8,9] The 2015 federal budget stabilises funding for both the HPP and PHEP, with HPP near its 2014 funding level and with a slight

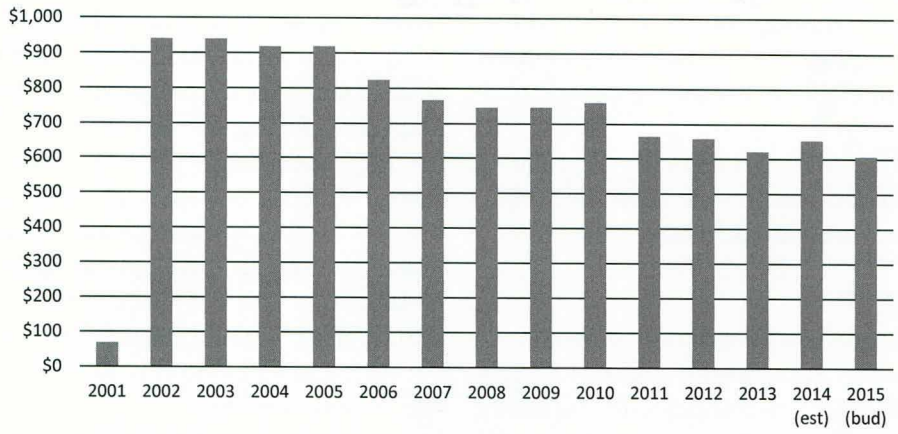


Figure 2 PHEP programme funding (in millions)

Based on data from Boddie, C., Sell, T. K. and Watson, M. (2014) 'Federal funding for health security in FY2015', Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, Vol. 12, No. 4, pp. 163–177 and Franco, C. and Sell, T. K. (2011) 'Federal Agency biodefense funding, FY2011-FY2012', Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, Vol. 9, No. 2, pp. 117–137.

increase for the PHEP programme.[1] It does not restore them to their previous levels and this remains far below their 2003 funding levels. This is consistent with decreases in other sources of preparedness funding from the Department of Homeland Security, as well as reductions in traditional funding for broad-based public health and medical funding. This includes over US$1bn in broader cuts to federal CDC funding from 2005 to 2013, of which approximately 75 per cent is distributed as grants to state and local health departments.[10]

THE IMPACT OF REDUCED FUNDS

Reduction in preparedness funding, coupled with a recession and significant cuts to baseline health and medical funding, has left the national disaster response infrastructure in a dangerous state. As hospitals and health departments across the country struggle with cuts to funding, they are faced with impossible choices between providing essential services or scaling back disaster readiness.

According to the National Association of County and City Health Officials (NACCHO), over 48,300 local health department jobs were lost due to attrition and layoffs since 2008.[11] As a result of reduced funding, many advances in national health and medical preparedness are being rolled back as jobs are lost and programmes are cut. The Trust for America's Health annual 'Ready or Not?' report cites numerous programmes that are threatened with reduction or elimination.[12] A few of the many issues highlighted are as follows:

- reduced capacity and capability for mass vaccine and antibiotic distribution;
- loss of top-level laboratory capabilities, necessary for timely detection and characterisation of outbreaks;
- loss of crucial epidemiologists to detect and investigate suspicious disease outbreaks;
- cuts to resources for environmental health programmes needed to mount a comprehensive response to nuclear, radiological and chemical threats; and

- delayed planning for the impact of climate change on disaster preparedness for vulnerable states and urban areas.

NACCHO further identifies the following additional important areas of public health preparedness at risk:[13]

- **Preparation:**
  - —Provide specialised training and exercises of local health and emergency response personnel to quickly receive, store, stage, distribute and dispense strategic national stockpile assets.
  - —dentify and protect populations that may be at higher risk for adverse health outcomes.
- **Protection:**
  - —Maintain laboratory systems with a capacity for 24/7 receipt of potentially hazardous specimens and the capability to screen and test for a broad range of public health threats.
  - —Provide immunisations for expected public health incidents such as the H1N1 flu virus.
- **Effective response:**
  - —Identify necessity for a medical surge; prepare healthcare providers to treat victims.
  - —Mobilise volunteer public health professionals.
- **Recovery:**
  - —Issue interim guidance to the public on risk and protective actions.
  - —Prepare for evacuation, repatriation and receipt of evacuees from sites of incidents.

A recent study by the North Carolina Preparedness and Emergency Response Center surveyed local health department capacities across eight emergency preparedness domains from 2010 to 2012. Over these three years, there was a statistically significant decline across all groups in capacities for surveillance and investigation and legal preparedness. Additionally, significant declines occurred in areas of plans and protocols, communication and incident command. Although a direct causal relationship was beyond the scope of this study, it is noted that these declines occurred in an environment of continually decreasing funding.

Further, this trend is not new. In 2011, the National Center for Disaster Preparedness at Columbia University's Earth Institute argued that continued cutbacks would undermine training to the public health workforce to meet their core mission in a disaster and prevent further progress towards achieving the goals in the Presidential Policy Directive on National Preparedness (PPD-8) and the National Health Security Strategy.[14]

The loss of critical capabilities and capacities at the local level not only erodes the baseline preparedness of local health and medical response systems, it also limits the impacts that future surge funding for emergency events can have on response activities. Hanfling describes this erosion as: 'loss of capacity building where it counts the most: getting the healthcare community involved and invested in preparedness'.[15] It also puts the health and medical workforce at risk by denying them the resources necessary to protect themselves while they are protecting others.

CONCLUSIONS AND RECOMMENDATIONS

To help ensure the ability of local health and medical response systems to be prepared and protected from Ebola and future events that threaten the public's health, it is critical that steady and comprehensive

baseline funding paradigms exist to support national response capabilities and capacities and maximise the effectiveness of future supplemental funding.

Responding to actual events generally requires surging specific capabilities to meet the needs of the threat. The example of the Ebola supplemental funding recognises that the current crisis must be addressed on several fronts, including stopping the spread of this disease in West Africa, developing a broader and deeper toolkit of pharmaceutical interventions and bolstering the ability of healthcare facilities and local health departments to respond to cases of Ebola domestically. These are highly specific to this crisis and temporary in nature and should continue to occur as they are needed.

Baseline funding supports activities with a broader applicability to serve as the foundation for surge and response activities. Fundamental to this is having a trained and practised workforce that is integrated with response partners. Additionally, the local health and medical workforce must be able to adapt their capabilities as the threats to the country evolve over time while being provided with the resources to conduct their work with minimal risk to themselves. These capabilities are developed over time and require ongoing maintenance and improvement to sustain and enhance operational readiness. Reducing baseline funding for programmes like PHEP and HPP reverses the gains made to health and medical preparedness systems since 9/11. Restoring authorisation and appropriation levels for these programmes will reverse the erosion in these capabilities and promote growth and development of these systems.

The measurement of preparedness at a national level remains challenging and the case for investment in these programmes can be difficult to make in times of fiscal austerity. Without local preparedness, there can be no national preparedness. Front-line health and medical responders have spent more than a decade preparing to respond to the needs of their communities when they are needed the most. The nation should continue to underwrite their efforts and ensure that local experience matches the national potential for preparing, responding and recovering from the health and medical impacts of disasters.

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