Opportunities for the Future of Healthcare and Public Health Preparedness, Response, and Recovery

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Healthcare system that can care for infected and injured during epidemics and catastrophes

- Great deal has been done: ASPR’s Hospital Preparedness Program; the NDMS, CDC’s Public Health Emergency Preparedness Program; MRCs; private health care system programs; NGOs with this mission; Coalitions, et al
- Now we have: many trained professionals; new technologies and equipment; organized volunteers; exercises; et al
- Many communities now have capacity to provide health in disaster aftermath, or perhaps serve as national resources
- However: any health care system would be hard pressed to care for anything beyond a handful of highly contagious patients during a lethal epidemic, or to care for very large numbers of patients following major disasters
Ability to make new medical therapies and vaccines rapidly for the diseases and threats we could face

- US has most impressive national approach for R&D for MCMs for biological threats, antimicrobial resistance, pan flu, and emerging diseases, CBRN challenges
- Talents and science of NIH, ASPR/BARDA, FDA, CDC, and DoD, universities, biopharma companies
- US and the world has depended in large part on the US system to develop MCMs for anthrax 2001, for H5N1 bird flu, for 2009 H1N1, for Ebola, Zika, and others
- Development of CEPI very welcome development!
- **However**, development process still takes too long to make a difference during most important period of new outbreak.
  - 6 months after the discovery of a new flu pandemic for this system to produce an effective vaccine - flu is best case. For entirely novel threats, it can take a decade or longer – if at all - to develop new medicines and vaccines.
  - Recent President’s Council of Advisors on Science and Technology report called for the US government to develop the national capacity to make a new vaccine or medicine for **any new biological threat within 6 months**
Public health system that gives early detection of biological threats, controls epidemics, responds to disasters

• The US and world counts on CDC during new epidemics – e.g. SARs, 2009H1N1, Ebola, Zika

• The country also relies on state and local public health for epidemics and natural disasters
  – Top-level scientific analysis and expertise on infectious diseases;
  – Surveillance programs and warning of new outbreaks;
  – Laboratory testing and laboratory safety;
  – Communicating risks to the public; Medicine stockpiles;
  – Community response programs, and a lot more.

• National Health Security Preparedness Index: average state ranking of 6.7 / 10 – more work needed in most states

• Funding for preparedness has fallen; many states have lost % of workforce

• Establish a Public Health Emergency response fund, like FEMA Disaster Relief Fund

• Good news: high numbers of young people pursuing careers in public health & major foundations are supporting public health like never before
International health security strategy that protects the country and works to prevent bio, chem, and nuclear weapons development or use

- Need to work internationally to help contain outbreaks overseas - not only is it the right thing to do because we have expertise to do it, it’s how to prevent spread of epidemics to the US
- IHRs have been key
  - Now a norm that countries be prepared to manage outbreaks of international importance
  - But most countries, even though committed to the IHR, are still not prepared
- Global Health Security Agenda enlists talent and resources of countries to help build epidemic response in countries that can’t do it on their own as yet
  - Many countries participating
  - First time countries are undergoing public Joint External Evaluations to assess readiness
  - US needs to continue to support and build GHSA
- Another means of tracking progress toward preparedness, NTI/Economist Intelligence Unit/JH Center for Health Security developing Global Health Security Index which will track progress around the world
- Maintaining norms against biological, chemical and nuclear weapons through treaties and other means is more critical than ever
Pursue and invest in powerful new biotechnologies but also prepare to manage risks when they arise

- CRISPR/Cas is only one of the most visible tools emerging, countries around the world are making billion dollar investments
- Expect transformative tools like this to emerge again and again, suddenly
- Potential for enormous benefit for medicine, science, industry, agriculture
- Need to be scanning the horizon for new technologies and approaches that help prepare for new threats
- Need also to react wisely to new challenges or dangers that biotechnology will bring
  - For example: need to manage research – in US and internationally - that creates novel, high-lethality, highly transmissible viruses that do not exist in nature.
- Establish biosafety norms internationally for laboratory work that has the potential to cause epidemics or great harm following accidental or deliberate laboratory release
Fundamentals

• Need preparedness efforts for the common disasters AND for larger extraordinary catastrophic events
• Preparedness needs to continue to be non-partisan work – every political leader can understand the importance given the right information
• Preparedness community has great reservoir of committed and talented people - community is stronger together