NIH recently invited comments and suggestions on ECHO (the National Children’s Study Alternative)

Leverage existing cohorts to study environmental exposures on pediatric health outcomes

Focus areas:
- Obesity
- Birth defects and other early outcomes
- Neurodevelopment disorders
- Airway diseases

Virus-Like Particle Vaccine Protects Mice from Many Flu Strains

NIAID Research Could Aid Development of Universal Flu Vaccine

NIAID Research: Epstein-Barr Virus

- Epstein-Barr virus affects 9 out of 10 people during lifetime
  - Major cause of mononucleosis
  - Associated with 200,000 cases of cancer each year

- Experimental nanoparticle-based vaccine
  - Developed using structure-based design
  - Elicited potent neutralizing antibodies in animals

- Nanoparticle vaccine design could be used to create or redesign vaccines against other pathogens

Countries with Confirmed Cases of MERS-CoV, 2012-2015

Cumulative ~493 deaths/~1,382 cases (~36% case-fatality rate)

Source: WHO, July 29, 2015

Antimicrobial Resistance in the U.S. Results in Lost Lives and Dollars

- 2 M drug-resistant infections, 23,000 deaths/yr
- Annual costs:
  - $20 B in excess healthcare costs
  - $35 B in lost productivity
Increasing White House Emphasis on Antibiotic-Resistant Bacteria

“We now have a national strategy to combat antibiotic-resistant bacteria, to better protect our children and grandchildren from the reemergence of diseases and infections that the world conquered decades ago.”

– President Barack Obama, Global Health Security Agenda Summit, September 26, 2014
**Vaccines: Innovative Approach to Combating Antimicrobial Resistance**

- **Unique characteristics of the organisms of concern**
  - Many are hospital-associated infections
  - Small, localized, unanticipated outbreaks

- **Challenges to vaccine development**
  - Many of these pathogens associated with healthy human flora

- **Complex regulatory, policy, and implementation issues for vaccines**

- **Potential solution: “Prophylactic Immune Interventions”**
  - Targeted intervention for at-risk populations
  - Preventive approach for infectious disease control

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