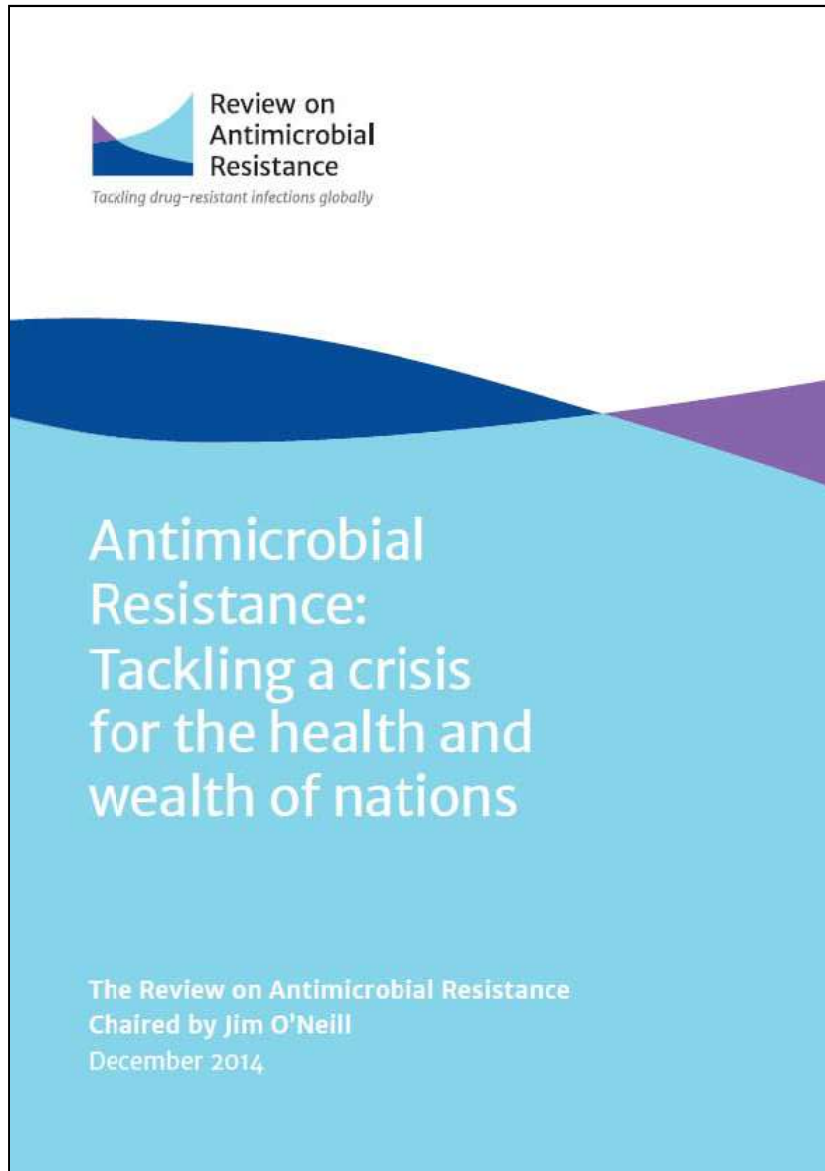


# **The Role of Vaccines in Antimicrobial Resistance Strategies**

**Global Vaccine and Immunization Research Forum  
March 15-17, 2016  
Johannesburg, South Africa**

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Director, National Vaccine Program Office  
US Department of Health and Human Services



# **Global Impact of AMR by 2050**

**300 million people are  
expected to die prematurely  
because of drug resistance**

**GDP will shrink by 2 to 3.5%**

**Global economy will lose between  
60 and 100 trillion USD worth of  
economic output**

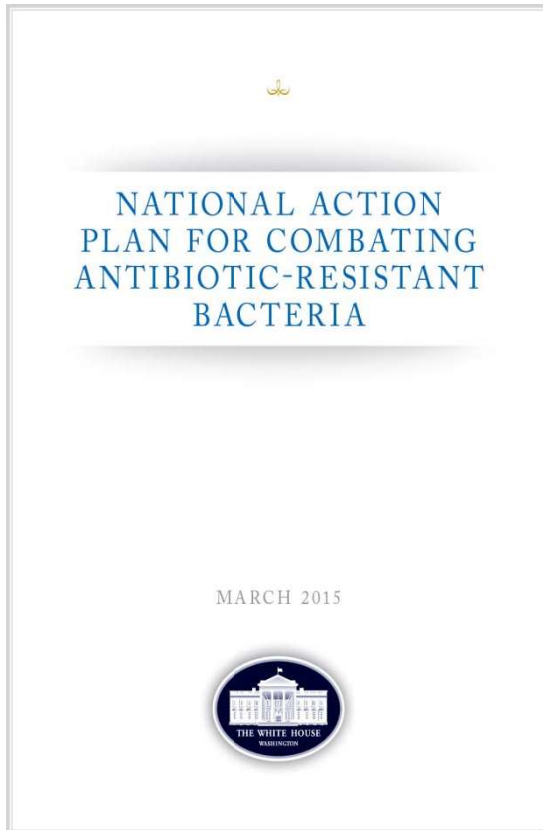
<http://amr-review.org/>

# WHO Global Action Plan on Antimicrobial Resistance

- Improve awareness and understanding of antimicrobial resistance
- Strengthen knowledge through surveillance and research
- Reduce the incidence of infection
- Optimize the use of antimicrobial agents
- Develop the economic case for sustainable investment that takes account of the needs of all countries, and **increase investment in** new medicines, diagnostic tools, **vaccines** and other interventions

[http://www.who.int/drugresistance/global\\_action\\_plan/en/](http://www.who.int/drugresistance/global_action_plan/en/)

# Goals of the US National Action Plan for Combating Antibiotic-Resistant Bacteria



1. Slow the Development of Resistant Bacteria and Prevent the Spread of Resistant Infections
2. Strengthen National One-Health Surveillance Efforts to Combat Resistance
3. Advance Development and Use of Rapid and Innovative Diagnostic Tests for Identification and Characterization of Resistant Bacteria
4. Accelerate Basic and Applied Research and Development for New Antibiotics, Other Therapeutics, and Vaccines
5. Improve International Collaboration and Capacities for Antibiotic Resistance Prevention, Surveillance, Control, and Antibiotic Research and Development

# A Call for Greater Consideration for the Role of Vaccines in National Strategies to Combat Antibiotic-Resistant Bacteria: Recommendations from the National Vaccine Advisory Committee

Approved by the National Vaccine Advisory Committee on June 10, 2015

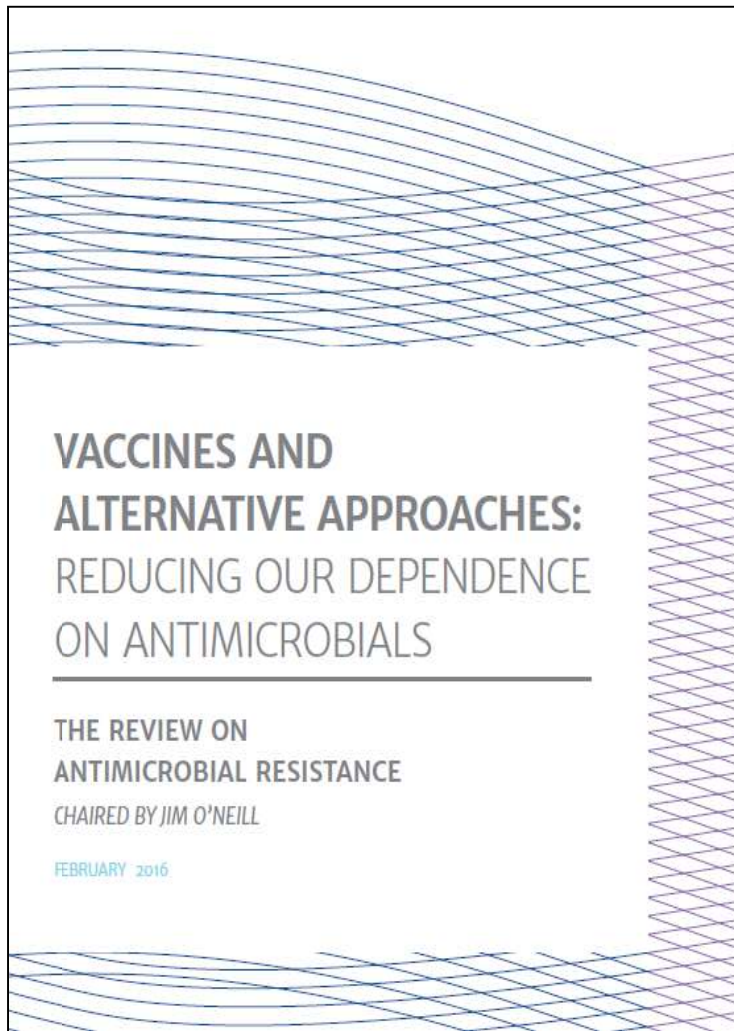
## NATIONAL VACCINE ADVISORY COMMITTEE

The emergence of a novel virus receives widespread attention in the news media and among the public. However, the greatest threat to public health in the United States is unlikely to be an exotic disease but,

improved prevention and stewardship of antibiotic use; (2) increase surveillance of emerging antibiotic resistance in humans, animals, and the environment; (3) improve capabilities for detection and diagnostics; (4) accelerate development of new products, including new classes of antibiotics, therapeutics, and vac-

# **NVAC: Role of Vaccines in Combating Antibiotic-Resistant Bacteria**

- Vaccines as part of antibiotic stewardship
  - Prevent bacterial infections and avoid need for antibiotics
  - Prevent use of antibiotics for viral infections
- Reduce transmission of antibiotic-resistant strains
- Develop new vaccines to target resistant pathogens
- Assess regulatory pathways and clinical trial designs to facilitate vaccine development
- Understand vaccine markets and incentives to support R&D for new vaccines

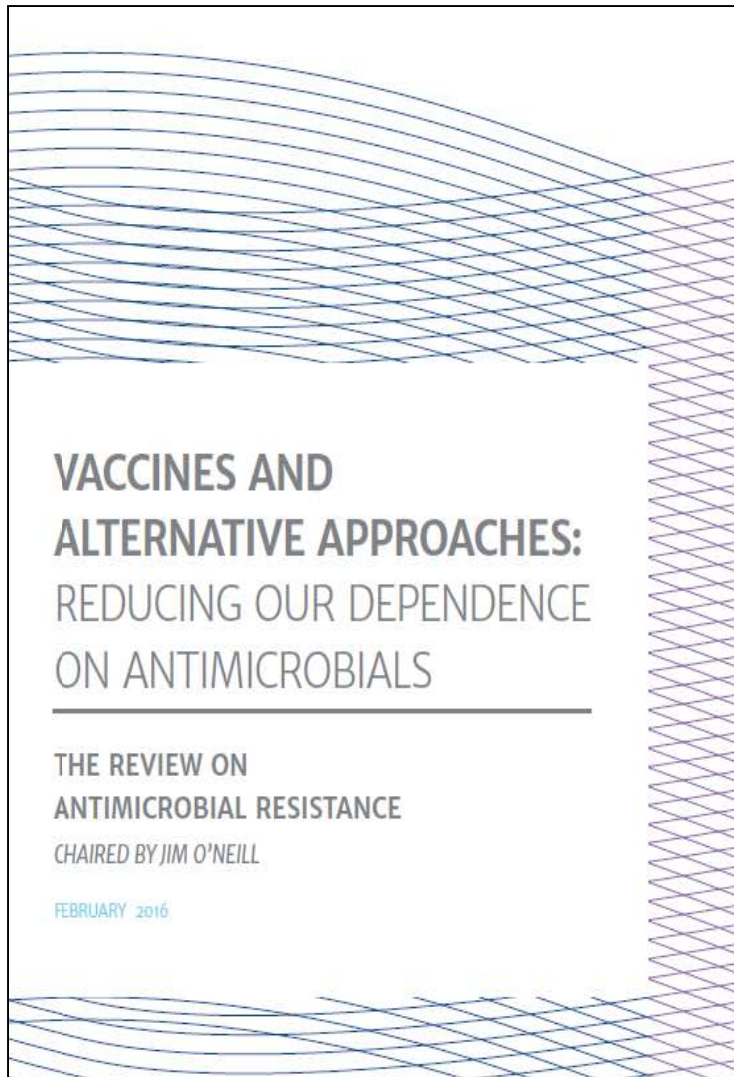


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## **Vaccines prevent infections and so reduce the need to use antibiotics**

This is true for vaccines that prevent bacterial infections, and it is also true for vaccines that prevent viral infections, such as the flu, which should not be treated with antibiotics but often are anyway. This may be for lack of rapid diagnostic tests to inform prescription or because patients buy them over the counter.

## **Vaccines also have the potential to reduce the use of antibiotics in agriculture**



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# Recommendations

- Use existing products more widely in humans and animals
- Renew impetus for early research
- Sustain a viable market for needed products





## Expanding the Value of Vaccines

### Over 7 million

Since its launch in 2000, Gavi has helped developing countries to prevent more than 7 million future deaths from hepatitis B, Haemophilus influenzae type b, human papillomavirus, Japanese encephalitis, measles, meningitis A, pneumococcal disease, rotavirus diarrhoea and yellow fever.

### Over half a billion

Number of children Gavi has reached with lifesaving vaccines in the 15 years since the organisation was founded.

? ~~XXXXXXXX~~ ?

Number of antibiotic courses not given because of illnesses prevented by vaccination