



Second Community Action in the field of Health (2008-2013)  
Consultation on Priorities for the Annual Work Plan 2009  
EVM views and proposals on priority areas

**Proposal number 3**  
**Health Security I**  
**Collect data on anti microbial resistance and vaccination**

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*EVM members companies are major suppliers of vaccines worldwide, producing the majority of vaccine doses in Europe. EVM members are: Baxter, Crucell, GlaxoSmithKline Biologicals, MedImmune, Novartis Vaccines, sanofi pasteur, sanofi pasteur MSD, Solvay Biologicals, and Wyeth Vaccines*

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In the preliminary orientation of the Work plan 2009, DG Sanco refers to the rationale use of antibiotics as a priority for objective 1 “Health security”. EVM acknowledges the importance of this item, especially for coping with anti microbial resistance, an issue widely acknowledged by EU stakeholders including the French and the incoming Czech and Swedish presidencies.

### Summary

Antibiotic resistance is on the rise in most countries across the European Union making common infections increasingly untreatable with routine antibiotics. As a result, novel and more expensive antibiotics need to be developed and used.

One of the most pragmatic responses is to promote the rational use of antibiotics together with preventing the underlying infections, which require antibiotic treatment.

In this respect, antibacterial vaccines may have a unique role in the global fight against antibiotic resistance. The preventive use of these vaccines would protect the individuals and communities against the infectious diseases by reducing the chance to meet an antibiotic-resistant bacteria and consequently of acquiring antibiotic-resistance; and should lead in reducing the very need to use antibiotics.

In addition, non-bacterial vaccine such as the yearly vaccine against influenza will protect against a primary viral infection, limiting the risk of subsequent bacterial complications – and in both cases it is known that antibiotics are extensively used.

A programme to combat antibiotic resistance will need to combine a number of different approaches including a rational use of antibiotics, preventing underlying infections and discovering new antibiotics.

### Background: Antibacterial vaccines

Vaccination can have multiple beneficial effects because the immune response to immunization may prevent infection, clinical disease, or both:

- (1) Provide direct protection of individual in the population from a disease due to a bacteria whether or not the bacteria is antibiotic and not antibiotic resistant
- (2) Inhibit carriage of bacteria particularly targeted by the vaccine, consequently decreasing the likelihood that they might be exposed to antibiotics and become antibiotic resistant,
- (3) Prevent transmission of antibiotic resistant strains amongst unvaccinated members of the population.

*Please find a non-exhaustive list of vaccines targeting potentially antibiotic-resistant bacteria*

Disease(s)	Pathogen	Vaccine type(s)	INN/ATC code
Cholera	<i>V. cholerae</i>	Inactivated + recombinant toxin subunit	To be added
Diphtheria	<i>C. diphtheriae</i>	Toxoid	
Meningitis	<i>N. meningitidis</i>	Polysaccharide, conjugate	
Meningitis, pneumonia, epiglottitis	<i>H. influenzae type b</i>	Polysaccharide, conjugate	
Meningitis, pneumonia, otitis media	<i>S. pneumoniae</i>	Polysaccharide, conjugate	
Tetanus	<i>C. tetani</i>	Toxoid	
Typhoid fever	<i>S. typhi</i>	- Polysaccharide, conjugate - Live attenuated	
Whooping cough	<i>B. pertussis</i>	Inactivated, sub-unit, toxoid	
Tuberculosis	<i>M. tuberculosis</i>	Live attenuated	

## **Specific cases of anti microbial resistance**

Although the misuse of antibiotics in the community is a primary driver of antibiotic resistance, there are other factors leading to the emergence of antibiotic-resistant infections in Europe, which could be effectively prevented by vaccination, such as:

### **a. Hospital-acquired infections**

Hospitals constitute particular breeding grounds for antibiotic resistant bacteria due to cross-patient contamination. Vaccines targeting hospital-acquired bacterial infections could potentially reduce the incidence of these diseases and the prevalence of antibiotic resistant bacteria.

### **b. Increase international travel**

The globalisation of travel and trade increases to the likelihood of travel-related diseases, which may already be marked by antibiotic resistance. Some of these diseases are vaccine preventable, and for others vaccines are under development.

### **c. Chronic diseases**

Elderly people have chronic diseases that could decompensate because of vaccine preventable bacterial diseases. In addition non-bacterial vaccine such as the yearly vaccine against influenza protects against a primary viral infection, and, consequently, any subsequent bacterial complications – and in both cases it is known that antibiotics are vastly used.

## **Vaccine impact on antibiotic prescriptions**

Antibacterial vaccines may have a unique role in the global fight against antibiotic resistance. The preventive use of these vaccines would protect the individuals and communities against the infectious diseases by reducing the chance to meet an antibiotic-resistant bacteria and consequently of acquiring antibiotic-resistance; and should lead in reducing the very need to use antibiotics. For example, the pneumococcal conjugate vaccine has been demonstrated to decrease the prevalence of antibiotic resistance. Another example could be typhoid fever and cholera for which safe and effective vaccines are available, as well as drug-resistant tuberculosis, for which research and development is gearing up in order to find an effective measure.

## **CONCLUSION/Proposal:**

**A programme to combat antibiotic resistance will need to combine a number of different approaches including a rational use of antibiotics, preventing underlying infections and discovering new antibiotics. Consequently, EVM calls for the Commission to allocate some funding to generate data on anti microbial resistance of vaccine preventable diseases (burden of these diseases, extent of anti microbial resistance regarding these diseases etc.).**