

# The Economic Value of Vaccination



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evidence has demonstrated that health has a major role to play as a driver for economic growth.

Improving health outcomes can have a positive impact on economic outcomes and societal well-being. This article highlights the economic value of vaccination in order to strengthen the evidence base behind the potential broader economic impacts of vaccination.

The vaccine industry is experiencing a new, more dynamic period. Since the year 2000, the global vaccine market has almost tripled – reaching over US\$ 17 billion in global revenue by mid-2008, and making the vaccine industry one of the fastest growing sectors of industry.

It has been shown that economic growth is driven by improved health, that's why the Investment in vaccination programs has dramatically increased over the past two decades. The benefits of vaccination are reported in terms of avoided deaths, life-years saved, disability-adjusted life years avoided or quality adjusted life years gained. These health effects are translated into positive economic outcomes, although provided significant savings by avoiding the health costs associated with treating diseases.

Vaccination is the miracle of modern medicine, it saved more lives worldwide than any other medical product or procedure over the last century as it contributed in the decrease of numerous infectious diseases and associated mortality, and has led to remarkable health gains.

The vaccination is recognized as a substantial preventive measure that improves health and allows individuals to contribute to economic growth by better physical, cognitive and educational performance. Theoretical and empirical



In 2013, it was estimated that 103 million cases of childhood diseases in the United States had been prevented by the use of vaccines since 1924.

But how to spend the limited financial resources dedicated to healthcare more efficiently for the benefit of the population? The value of vaccines is often not fully appreciated because traditional cost-effective calculations

underestimate the broader benefits. It is sometimes difficult to understand how a vaccine costing perhaps US \$5 per dose for example in low-income countries could make economic sense, when a routine immunization can cost less than that for six basic vaccines. But it is not the price that is the sole factor to be considered, the burden of disease and the vaccine's impact on the disease are other parts of the equation. Where children are at the highest risk of contracting disease and succumbing to it, investment in preventing disease can be highly cost-effective for poor countries, even at higher prices.

There is indisputable evidence that vaccines bring 'narrow' benefits related to health outcomes, health care cost savings, and protection against productivity losses directly related to the illness episode at the level of individual vaccines and at the community level via herd protection, so it is important to differentiate cost-effectiveness (value for money) from affordability (financial resources required); indeed, interventions with high value may not always be affordable. Although information on the cost-effectiveness of health interventions is increasingly being used in health policy globally, the extent to which this information influences decisions varies by country.

In recent years, several innovative public-private partnerships and new financing mechanisms have been introduced to provide predictable and sustainable external

financial support to help countries meet the vaccination related global goals.

However, vaccination represents a valuable investment in health with positive economic return but large coverage gaps remain, which will require significant financial resources and political will to address. So to run a successful national vaccination program, below are needed:

- Strong and effective leadership and national ownership of vaccination program.
- Country-driven policies, planning, monitoring, and reporting.
- Sound decision-making on which vaccines to schedule, based on local, regional, and global data.
- Use of routine surveillance data (immunization coverage, vaccine use and wastage, and incidence of diseases) for program management.
- The capacity for efficient financial planning, including multi-year planning and a budget line for vaccination in the national health budget, as well as knowledge of available international funding mechanisms.
- A well-functioning national regulatory authority.
- A motivated, well trained, and well supervised staff.
- A surveillance system for detecting, investigating, and responding to adverse events following immunization.
- Cold-chain facilities and logistics.
- Political motivation.

## Infos

### Le Venin de Serpent Corail Bleu Bientôt Utilisé Comme Puissant Antidouleur?

Le serpent bleu corail est l'un des animaux les plus mortels du monde, son venin serait cependant une piste sérieuse dans le traitement de la douleur. Selon les chercheurs de l'université du Queensland (Australie), le venin de ce serpent (aussi surnommé *Calliophis Bivirgatus*) contiendrait, en effet, de la calliotoxine, une toxine qui cible les canaux de sodium, ces récepteurs situés dans le cerveau et à l'origine de la transmission de la douleur. C'est en découvrant que ce venin, différent de celui de n'importe quel autre animal de cette espèce, ne tuait pas immédiatement mais agissait sur tous les nerfs des proies, que nos experts, emmenés par le Dr Bryan Fry, ont imaginé y puiser un sérum antidouleur.

#### Purifier la calliotoxine

Selon les résultats de leur étude publiée dans la revue

Toxins, en récupérant la calliotoxine nourrissant ce venin ultrapuissant qui ne tue pas et en la purifiant, il serait possible de mettre au point un méga antidouleur.

Ce n'est pas la première fois que des chercheurs s'intéressent aux propriétés du venin de serpent. L'Inserm (Institut national de la santé et de la recherche médicale) s'est, lui, penché sur le Mamba noir, qui vit en Afrique, et a découvert dans son venin deux toxines capables d'inhiber des récepteurs impliqués dans la sensation douloureuse.

«Ces molécules seraient aussi puissantes que la morphine, mais dénuées de ses effets indésirables», avait-il expliqué. Les experts de l'Inserm ont baptisé ces toxines les «mambalgines» et travaillent actuellement à la synthèse de dérivés, aussi efficaces et non toxiques.