



More than 70,000 deaths prevented by vaccination against three diseases in about 75 years? The estimation seems exaggerated



The Authors [1] project the Italian trend before vaccine introduction to the subsequent period, disregarding the influence of other factors and extraordinary circumstances such as World Wars.

For tetanus, the second World War's peak (likely attributable to wounds/traumas, poor care and hygiene) biases the model, projecting an unbelievable increase in deaths from 1960 to 2015, in the absence of vaccination. Moreover, the progress in surgery, obstetric antisepsis, diagnostic and therapeutic techniques, and the urbanization itself are obvious additional contributors to the tetanus mortality decline.

For diphtheria it is hard to assume that the difference between mortality rates before and after vaccination programs was attributable only to vaccine, considering that the parallel collapse of morbidity rates cannot be exclusively due to the toxoid vaccine, that essentially protects from disease, without avoiding colonization and transmission. Attributing all merits to vaccination ignores other factors, first of all antibiotics. Moreover, being diphtheria very infectious, the model (for this and other contagious diseases) should have incorporated the fall in birth rate. Indeed, the spread of infections through communities depends on contacts between individuals, strongly influenced by the sociodemographic structure of a population [2]: the more contacts the individuals have (even just in a family with many closely interconnected members and children), the more vulnerable they are to many infections.

In general, the relative weight of vaccinations in reducing deaths, though undoubtedly, should be balanced with the fact that the decline in mortality had interested also several infectious diseases for which there are no vaccines or mass vaccination programs: malaria, cholera, tuberculosis, typhoid and paratyphoid fever, erysipelas, and so on. The decline in mortality should be interpreted in a more structured way, including the influences of an improved nutrition in the host response (less lethality) to airborne infections, reduced exposure (from better hygiene) on water and foodborne diseases, and more effective therapies [3]. Without forgetting the effects of reducing birth rates on contacts and transmissions, within families and in the community.

Moreover, the Authors assumed that all the morbidity (and fatality) cases for the ten vaccine preventable diseases had not been vaccinated, but do the data always confirm this?

Furthermore, the Figure 3B, where pertussis morbidity rate is projected as increasing in absence of vaccination, introduced since 1995, should perhaps deserve some explanation.

Finally, the assumption, with many forcing of data, of more than 70,000 deaths prevented by vaccinations in about 75 years, has had a wide scientific and media echo. However, Public Health decision makers and the population should be aware that systematic reviews estimate for Italy a similar number of deaths just every year, preventable with simple/easy-to-implement and low-cost measures. Two examples are the increase of the daily consumption of tree nuts up to 20 g [4] (instead of an average of less than 2 g a day), or an everyday consumption of whole grain up to 150 g [5].

Conflict of interest

The authors do not declare any conflicts of interest.

References

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