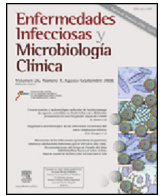




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Editorial

Resurgence of almost eradicated paediatric diseases and the importance of childhood vaccination



Resurgimiento de enfermedades pediátricas casi erradicadas y la importancia de la vacunación infantil

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It marks the 25th anniversary of the extraordinary Olympic Games in Barcelona in 1992. Tenor Josep Carreras and soprano Sarah Brightman performed the song *Friend for Life*, written specifically for those Olympics, at the closing ceremony. There are those who maintain that they were and still are the best Olympic Games in history.

Vaccines are, also undoubtedly, the most important health contribution to survival and well-being in terms of population health of the last century. And, therefore, we could well speak of vaccines as “friends for life of all the People”. Of the humanity in general, of the different social populations and of doctors and sanitary personnel who worry about the health of the people.

The existing evidence is compelling: the introduction of different vaccines has dramatically reduced – and is impossible to achieve something similar at the same level – many previously frequent, sometimes fatal, diseases that are sometimes responsible for serious short-term and potential aftermath.¹ Let's analyze some data. Smallpox, eradicated; for the time being it is the only disease in which total elimination has been achieved thanks to vaccination, in 1977.² Poliomyelitis, eradicating; only warfare in some regions has prevented reaching eradication, which has now been obtained for poliovirus 2 and is expected for the other two polioviruses by 2020.³ Measles, rubella, mumps: reduction of rates of diseases higher to 99%.⁴ Diphtheria, practically gone⁵, etc. although impossible to eradicate due to the epidemiological characteristics of *Corynebacterium diphtheriae*; for that reason avoiding it is absolutely dependent on the vaccination of the population, as was recently demonstrated in the case of the non-immunized boy who died in Catalonia.⁶ Tetanus: decreased incidence on the order of 97%, but this is another *Clostridium* impossible to contain in the absence of vaccination.⁷ Whooping cough: despite being the least controlled of universal and systematic vaccination diseases, infection rates have fallen by more than 90% with respect to the pre-vaccine era.⁸

Haemophilus influenzae type b is another example of resounding vaccine success, with incidence rates reduced by 99% after vaccine introduction.⁹ The vaccine against hepatitis B reaches an efficiency of the order of 95% in preventing the infection which, in turn, translates into similar percentages of prevention of development of liver cancer induced by this virus.¹⁰ The hepatitis A vaccine has an effectiveness of about 99%.¹¹ The conjugate vaccines against meningococci A, C, W and Y are also highly effective against these serogroups,¹² such as pneumococcal conjugate vaccines against most of the serotypes included in the different formulations.¹³ Other highly effective vaccines, for which definitive estimates of effectiveness are relatively complex and require population-based and longer-term analysis, include papillomavirus, rotavirus, varicella, and meningococcus B.¹⁴

With these data so evident and widely available to the population as a whole, how do you explain the rejection of vaccines? What factors have made it difficult to reach sufficient vaccine coverage rates or have them reduced to allow for the resurgence of some of immune-preventable diseases? There are two main reasons for this: reduced vaccination rates and less effectiveness consequent to prioritizing the reduction of adverse effects over effectiveness.^{4,15} The decrease in vaccination rates, in turn, has two origins: consequence of supply problems due to social disorders and warlike conflicts in some countries, and the one caused by an inconceivable voluntary decision to not vaccinate oneself or to not vaccinate children. I am aware that I have been very emphatic in using the word “inconceivable”, but I have not found another one that expresses better the fact of obviating the enormous and affordable information available on the extremely favourable benefit/risk ratio of current vaccines.

Increases in poliomyelitis cases related to perverse political situations (Nigeria) or wars (Afghanistan, Pakistan, Syria) are a real humanitarian misfortune, one among the many suffering from such populations.¹⁵ Poliomyelitis is the most dramatic and better known diseases affected by such situations due to the serious consequences easily identifiable thanks to the existing surveillance programs in the world. But it is obvious that the rest of diseases susceptible of vaccination are also affected.

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The increase in measles cases due to lack of vaccination consequent to false beliefs, false information, misrepresentations of facts and erroneous understandings is unforgivable.

The anti-vaccination movements, protected by a freedom of opinion and decision that competes with logic and health, have managed to occupy an absolutely undeserved place in our society. And they are doing a lot of damage. Why? What is the reason for their existence and their implantation? The answer is neither simple nor unique, but it can be summed up in the loss of credibility and respect for the established, the need to do different things, esoteric beliefs and social tolerance. The philosopher Edmund Burke says that “there is a limit beyond which tolerance ceases to be a virtue,” and this is a good example.

It is true that in some cases “non-vaccination” is the result of laziness. Such is the case, for example, of adult vaccination against influenza. But on most occasions of rejection of vaccines that occur in the child population, those responsible are malevolent physicians (and other health personnel) who induce unprepared parents or, and not exceptional, parents who are eager to have innovative ideas, who reject what the official account advocates because they are worth it and because they believe to be morally above the scientific knowledge, which they consider to be manipulated by economic interests. They fit perfectly into the newly established concept of “post-truth”, a neologism that serves to describe the situation in which in the formation of public opinion, objective facts have less importance and less influence than appeals to personal (false, pseudo-scientific) emotions and beliefs; that is to say, it consists in turning the tricks into truths. A pity.

The articles published in this issue of *Enfermedades Infecciosas y Microbiología Clínica* are clear examples of two of the situations that are causing an increase in the incidence of some vaccine-preventable diseases. Pertussis due mainly to the ostensible lower immunogenicity of acellular vaccines was introduced at the beginning of the 21st Century to make vaccination against *Bordetella pertussis* more acceptable. Initially, the whole cell vaccine caused a rate of adverse effects that some countries (Sweden, United Kingdom, Japan) were unwilling to assume; in fact, stopped vaccinating with serious repercussions in the form of epidemics with significant mortality among infants.¹⁶ These whole-cell vaccines carried numerous antigens/immunogens that usually induced a better immune response but at the cost of tolerance problems.

Since the age group with the greatest risk of serious consequences in case of acquiring the infection are infants younger than 3 months of age, a period prior to achieving effective direct active immunization, the strategy was to vaccinate the mothers during the second half of pregnancy. The aim was to passively transmit (transplacental transmission) antibodies to the foetus so that when it is born it is protected during the first months of life, and that the mother herself is not contagious.¹⁷ It is well established that parents are the main source of contagion to new-borns and infants.

The recrudescence of measles is for the other reason: the reduction of vaccination coverage of measles-mumps-rubella (MMR) as a result of falsehoods and deceptions poured on this vaccine. Among them is the perverse and evil performance of Andrew Wakefield who described and published in 1998 in *The Lancet* a cause-effect relationship between the measles vaccine included in the MMR and the development of inflammatory bowel disease and autism. Years later it was irrefutably demonstrated that that paper was fraudulent, for illicit economic interests through denunciations to insurance companies and to the Sanitary Administration; that is to say, pure and hard corruption and of the worst strain since it played with human health.¹⁸ *The Lancet* retracted the publication, the United Kingdom Royal College of Medicine expelled the character. But now, relocated and practicing in Texas, USA, he has become the inspirer of some esoteric opinions of President Donald Trump's advisors.

And the damage is already done: a significant reduction in measles vaccination coverage in many countries on account of those fallacies, which are still repeated in the anti-vaccination rumour mill. Near Spain, outbreaks in Italy and Portugal in recent months, with severe or even fatal cases, are irrefutable evidence of the high risk of forgetting the importance of that vaccine. It is very important to have an accurate surveillance of cases of measles as shown in the paper about measles epidemiology in vaccinated people also published in this issue.¹⁹

Picking up the phrase of the philosopher George Santayana “Those who do not remember the past are condemned to repeat it”, if we do not consider the diseases of the past, we will suffer them again. And it is already happening.

The immunization schedule is a temporary sequence of immunizations that are administered generically and systematically in a given country or geographic area. Since the vast majority of vaccines are given in infancy and adolescence, it is usually referred to vaccines that are implemented at these ages, although it is increasingly being extended to adulthood.

A vaccine calendar is a logical, reasoned, scientific, affordable and, to a greater or lesser extent, available and acceptable selection of the diseases we wish to prevent, the age at which we consider appropriate to initiate and continue immunization, the interval between doses administration guidelines and even commercial pharmaceutical preparations which we consider preferable to use.

Those of us who believe that vaccines deserve the highest prioritization, we have a duty to explain and justify very well in comparative terms with other health measures the preeminent value of immunizations.²⁰ And we must do this by convincing both, the parties involved in health decisions and society as a whole, of the goodness and benefits at the individual level and for the entire population to have as wide a vaccination schedule as possible and, of course, free to all who really need it. It cannot be stressed enough the importance of following this in order to achieve the objectives of eliminating or minimizing diseases that experts and scientific societies have considered worthy of being avoided by active immunization.

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