

Measles outbreaks, a public health focus

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We have problems with measles. But the key question is not the acceptance of the vaccine, but access to it and problems with its effectiveness.

1.- Access

For example, in America measles outbreaks are related with access problems to the vaccine for the poor and indigenous people (in 2018, Brazil, Amazonas 9,778 cases and 6 deaths, and Venezuela 5,668 cases and 74 deaths) (1).

In Europe, measles outbreaks are also related with access to the vaccine in situations of social disorganization, poverty and ethnic minorities, such as gypsies. In 2018, for almost 900 millions populations, there were 82,596 cases and 72 deaths. As the WHO Europe pointed out: "Most of the countries struggling with suboptimal immunization coverage against measles in the Region are middle-income countries" and the first measure to close the door on measles is: "to ensure that all population groups have equitable access to vaccination services and that these are convenient" (2).

2.- Effectiveness

The measles vaccine produces immunity that fades after some years. There is a continuous waning of vaccine-induced immunity (3-5). For this reason, in New Zealand has being calculated that additional immunisation beyond childhood programs to target naïve individuals is economically beneficial even when childhood immunisation rates are high (6).

Therefore, when the largest outbreak of measles in North America (Canada) was studied, almost half of those affected were properly vaccinated (7). In an outbreak in Porto, in 2018, of the 96 confirmed cases, 67 (69.8%) were vaccinated with two doses of measles vaccine or measles mumps and rubella vaccine (8).

Viruses evolve which might also decreases the effectiveness of the vaccine. Virus exhibit different antigenicity and it has been hypothesized that this could potentially lead to less efficiency of the current vaccine or cause genotypic-specific escape to neutralization (9).

3.- Outbreaks with more than 95% vaccine coverage

In Spain, vaccination is voluntary but coverage is over 95%. This does not prevent outbreaks of measles, as in Madrid in 2011, with measles virus antibodies of 97.8% in the population (10). In this outbreak of measles, the gypsies were 36% of those affected being only 1% of the population (11). In the largest outbreak in Spain, in Seville in 2011, there were 1,760 cases in a poor and marginalized population (12).

4.- Confidence and trust

On the other hand, the case of the Philippines measles outbreak is exemplary in terms of the necessary care that must be provided throughout the field of vaccines. The errors in the vaccination against dengue have discredited the authorities, and the vaccines, and we should see its rejection, the subsequent outbreak of measles and deaths as "side effects" of such errors (13, 14).

5.- Unusual but possible

Vaccine associated measles is an extremely rare event, but when considering mandatory policies it cannot be forgotten. The live attenuated vaccine is not given to pregnant patients or immunocompromised patients for good reason. But there are rare cases of vaccine associated measles infection in immunocompetent, HIV negative patients (15-18).

Summary

The scenario in measles epidemiology is changing (9) and the analysis of measles outbreaks should go far beyond the "anti-vax", the mandatory policies and the discredited study published in *The Lancet* in 1998 (Wakefield and autism).

We need to take into account problems of access as demonstrate the outbreak in Madagascar (19), acceptability and a mix of both (20, 21) and problems of effectiveness (3-9). Restoring confidence and commitment is not enough (22). Even large budget reductions in public health spending were a contributing factor to measles outbreak in Italy, for example (23).

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