

# Measles outbreaks, a public health focus. By Juan Gérvas

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 have relationship 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 have also relationship 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). Re-emergence is possible to occur several decades after introduction of high levels of vaccination. 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 decrease 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 the rejection of them, the outbreak of measles and the consequent 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 reasons. 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 (with more than 1,200 deaths and 115.000 cases (19, 20), acceptability and a mix of both (21, 22) and problems of effectiveness (3-9). Even large budget reductions in public health spending were a contributing factor to measles outbreak in Italy, for example (23).

Restoring confidence and commitment is not enough (24). We need a better vaccine and better routine immunisation programmes and catch-up campaigns. For example, in Belgium official recommendations for catch-up vaccination with measles vaccine have been updated and include adults up to birth year 1971 (25).

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