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Universal varicella vaccination in the Veneto Region, Italy: launch of a programme targeting all children aged 14 months and susceptible adolescents

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Introduction

In Italy, 500,000 cases of varicella are estimated each year, most of them occurring in children aged between 0 and 14 years [1]. While varicella is generally benign, its course can be hampered by complications such as pneumonia, bacterial skin infections, necrotizing fasciitis and neurological manifestations. The overall complication rate is estimated at 4.9 per 100 varicella cases [2], with children over 15 years of age and those under one year of age mostly affected [3]. Severe and complicated cases generally require hospitalisation. In the Veneto Region of Italy, 992 subjects were hospitalised for varicella between 1999 and 2004 and of those, 66% were under 14 years old [4].

In 2006, universal varicella vaccination (active offer, free vaccination) of children aged 14 months and susceptible adolescents was introduced in the Veneto Region's vaccination calendar. Varicella vaccine was to be administered with the first dose of Measles-Mumps-Rubella (MMR) vaccine. The programme started with the cohort of children of 14 months of age born in 2005, and with the cohort of adolescents of 12 years of age born in 1994 and with a negative history of varicella. A 60% adherence rate was targeted for the first year of the programme, considering a programme initiation with two separate MMR and varicella vaccines while the tetravalent Measles-Mumps-Rubella-Varicella (MMR-V) vaccine was expected to be available in 2007. This brief communication presents coverage rates for the year 2006.

Methods

All Veneto Region Health Care Units (HCU) were required to provide the following information:

- number of subjects born between 1 January 2005 and 30 June 2005
- number of subjects solicited for vaccination
- number of subjects with positive varicella history
- number of subjects vaccinated with one dose.

Data on adolescents was not requested in this evaluation conducted during the first year of implementation of the vaccination programme.

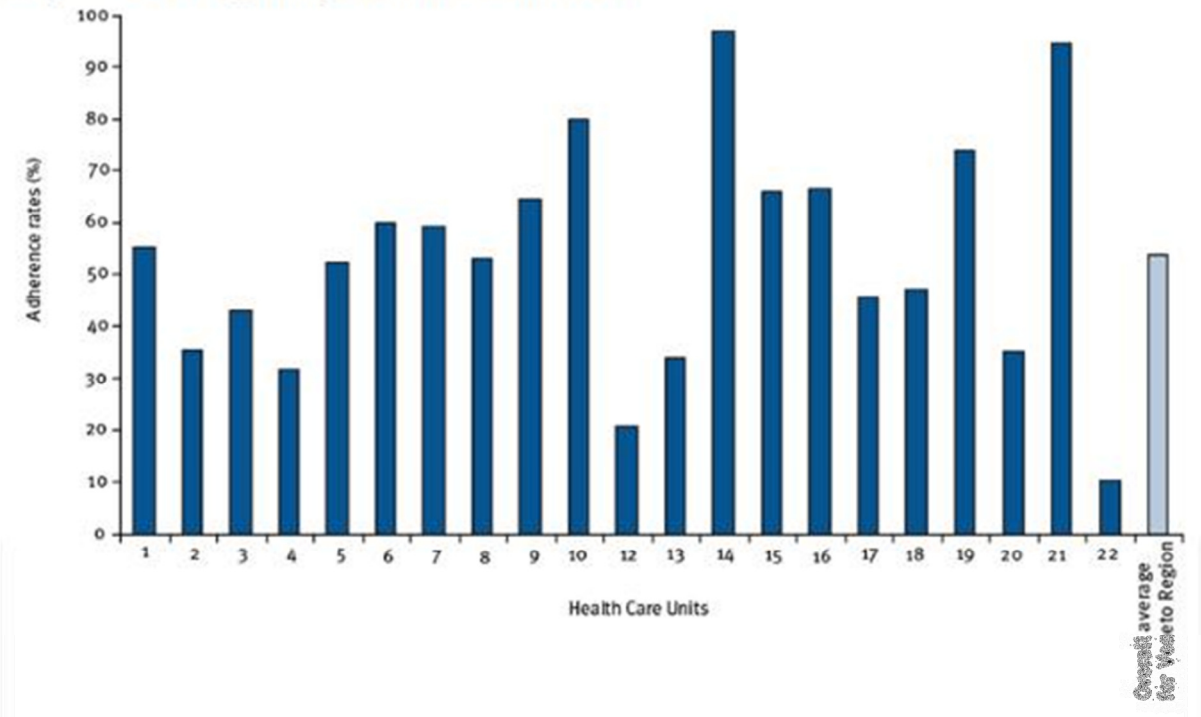
Results

Adherence data are currently available for the whole of 2006, while other data are presented for the period 1 January 2006 to 30 September 2006; the number of subjects vaccinated with one dose was provided for children born between 1 January 2005 and 30 June 2005. All 21 HCUs in the Veneto Region contributed data.

The overall adherence rate for the children's cohort was close to 54% for the first year of the programme (Figure 1). Of note, important variations were seen between HCUs – these could partly be attributed to the different timing of programme initiation.

FIGURE 1

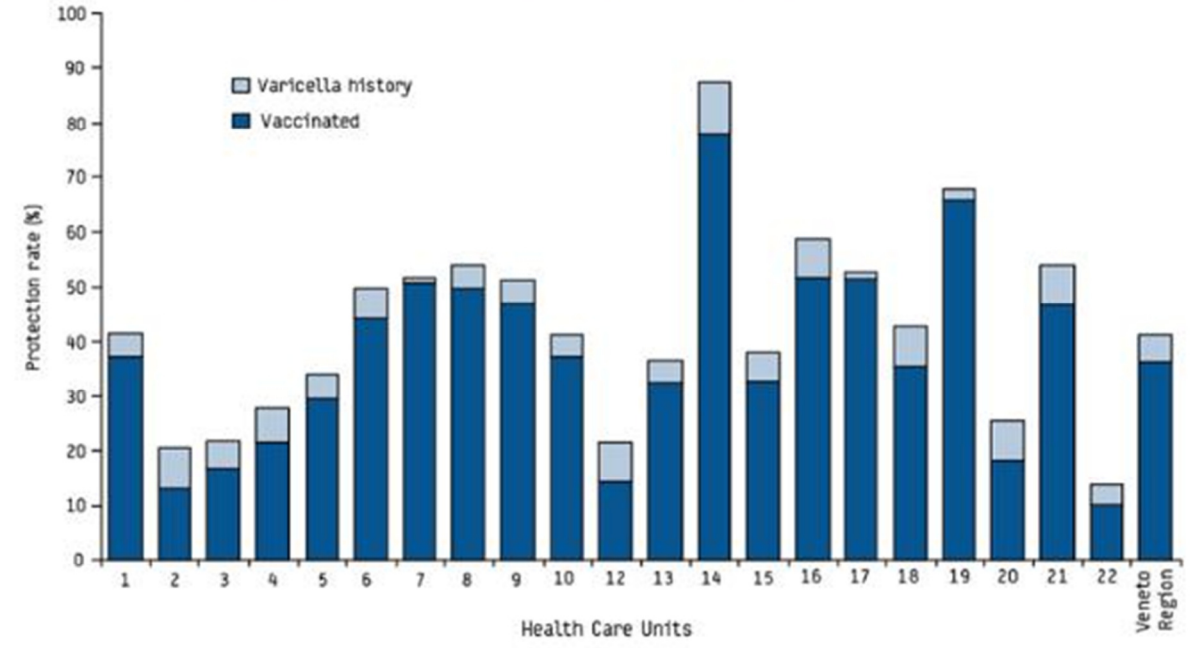
Adherence rates for varicella per Health Care Unit in the Veneto Region of Italy for the year 2006, regarding children born in 2005



The following data represent nine months' results (1 January 2006 to 30 September 2006). Of the 22,379 children targeted, 16,367 (73%) were actively solicited for varicella vaccination, with an average adherence rate for the region of 54%. A total of 8,153 children were vaccinated, with a coverage rate of 36.4% (range 10.2 – 77.9%). Of the 16,367 children solicited for vaccination, 1,155 (7.1%) had a positive history for varicella (not vaccinated when found to be positive); taking into account only the 15,212 susceptible children, a corrected coverage rate was calculated at 38.4% (taking out of the denominator the number of children with varicella history). Overall, protected subjects represent 41.6% of the targeted cohort (Figure 2).

FIGURE 2

"Protection" rates for varicella in the Veneto Region, Italy, according to Health Care Unit, for the period 1 January 2006 - 30 September 2006



Conclusion

Varicella is a frequent infection in childhood and although most cases are mild, complicated cases still occur, resulting in a significant socio-economic burden. The implementation of an active offer for universal vaccination represents a major challenge, as reflected by the diversity of results obtained by HCUs for the first year of the programme. As expected, differences in organisation and timing of initiation for the 21 HCUs in the Veneto Region may have accounted for the variations observed (HCU number 11 is based outside the Region, hence the numbering). Nevertheless, the overall results for the first year of implementation of the new regional vaccine calendar are satisfying, with an average regional coverage rate of over 36% and adherence rate over 50%.

This preliminary report is a first step in the evaluation of the varicella vaccination programme in Veneto. With the introduction of the new tetravalent MMR-V vaccine (Proquad) in April 2007, we expect better adherence to varicella vaccination through synergy with the current MMR elimination programme, including the possibility to introduce a second dose of varicella vaccine later on for children aged five to six years at the same time as the second dose of MMR vaccine. Obvious advantages of the combined tetravalent vaccination relate to the reduction of vaccination appointments and the number of injections, with better acceptance from families, lower workload for HCUs and reduced healthcare costs. Increasing adherence rates are expected to decrease health care expenditures for varicella, not only in targeted children, but also, owing to lower virus circulation, in adults, who are usually more prone to complications. Overall, quadrivalent vaccination will help reach appropriate herd immunity against measles, rubella, mumps and varicella.

Other important tools for the success of the programme are improved communication, effective adverse event reporting, networking with local paediatricians to gather data on disease incidence, and vaccine safety. Communication tools focusing on information about the efficacy, safety and tolerability of the varicella vaccine were put in place in early 2007. With regard to adverse events, a regional system is also operating ('Canale verde' – Green Channel) through counselling services for subjects with prior adverse events following immunisation or with suspected contra-indications to vaccine administration, as well as surveillance of adverse events following immunisation reported in the region. In addition, the Veneto Region participates in a European virological surveillance of strain types (wild or vaccine types) in breakthrough infections or complications. Our experience to date with MMR-V is similar to that reported in the literature, with no sign of increased adverse reactions after the introduction of the tetravalent vaccine [5,6].

Regarding varicella incidence, we plan to collaborate with Veneto paediatricians on disease monitoring later on in the programme. We should be able to see trends from the regional analysis of data gathered by a national sentinel network of paediatricians dedicated to the surveillance of vaccine-preventable diseases such as varicella, measles, mumps and rubella.

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