

Evaluation of effect of gradual replacement of oral (OPV) by inactivated polio vaccine (IPV) on occurrence of vaccine-associated paralytic poliomyelitis (VAPP) in Poland.

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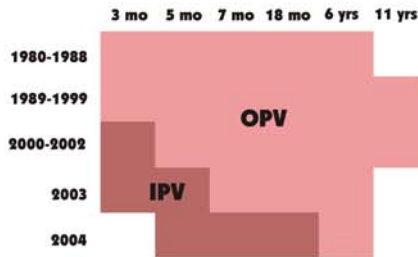
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Background

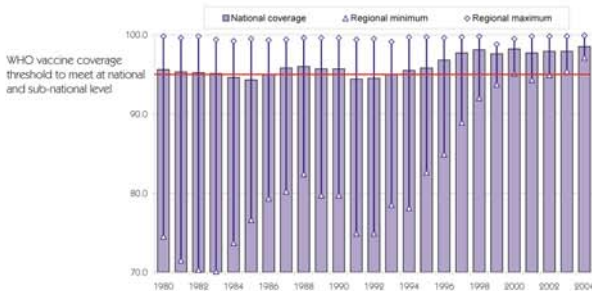
Since 2000, OPV was gradually replaced by IPV (Fig. 1)

Figure 1. Polio vaccines used in national immunisation schedule, Poland, 1980-2004



The vaccination coverage improved considerably since 1980 (Fig. 2). Improvement in national vaccination coverage was accompanied by narrowing of inter-regional differences.

Figure 2 Coverage of polio vaccination among 2-year olds, Poland, 1980-2004



Material and Methods

Data sources:

- official vaccination estimates - number of OPV doses
- VAPP registry (started 1979) - data on VAPP cases

Definitions:

Vaccine-associated Paralytic Poliomyelitis (VAPP) is a case with acute paralytic illness in which vaccine-like poliovirus is isolated from stool samples, and the virus is believed to be the cause of the disease.

- A vaccine recipient is a person who has onset of AFP 4 to 40 days after receiving OPV and has neurologic sequelae compatible with polio 60 days after the paralysis began
- A community-acquired case is defined as a person who has residual paralysis 60 days after the onset of AFP and had contact 4 to 40 days before the paralysis began with a person who received OPV somewhere between 4 and 85 days before the contact's paralysis began.

Analysis:

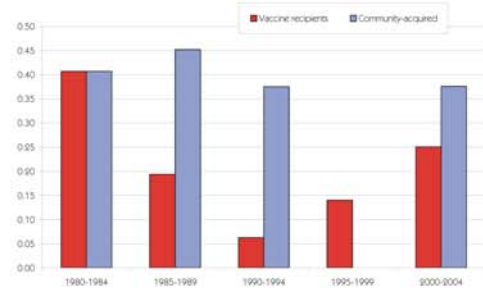
VAPP rate = number of VAPP cases per million OPV doses administered in a year

Rates and VAPP case characteristics were compared in 5-year intervals

Results

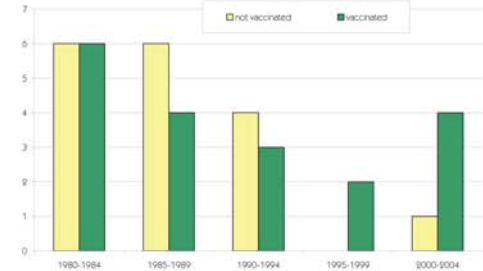
During 1980-2004, 36 VAPP cases were reported. 25 were boys (69%) and 11 were girls (31%). The percent of community-acquired cases ranged from 0% in 1995-1999 to 86% in 1990-1994 (Fig. 3).

Figure 3. VAPP rate by case classification, Poland, 1980-2004



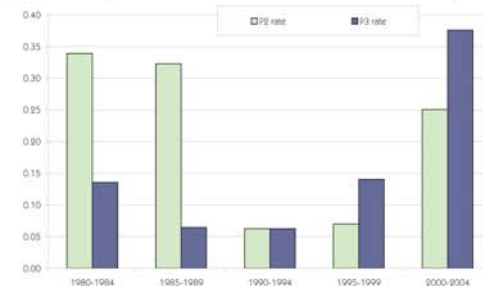
In the first 15 years, most VAPP cases were among children unvaccinated. The proportion of children vaccinated increased in the last decade (Fig. 4).

Figure 4. Number of VAPP cases by vaccination status, Poland, 1980-2004



The most prevalent poliovirus isolated from VAPP cases was type 2 in 1980-1989 and type 3 in 1995-2004 (Fig. 5).

Figure 5. Rate of polioviruses isolated from VAPP cases, Poland, 1980-2004



Conclusions

- Available evidence shows that gradual introduction of IPV since 2000 was not effective in eliminating VAPP cases
- Due to improvement of vaccination coverage, most of cases reported in the last decade were among vaccinated persons
- The situation has to be carefully monitored in the future and more attention should be paid to contraindications for vaccination