

CARE IN PEDIATRIC ONCOLOGY



Care in Pediatric Oncology

Editors

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Vaccines

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The child/teenager needs medical orientation to receive vaccines, and some vaccines cannot be used in children under treatment with medications against cancer (chemotherapeutic drugs). Thus, it is important to follow all orientations.

There are vaccines produced in many ways, with live attenuated microorganisms, inactivated or killed microorganisms, fractions or subunits of genetic material (Figure 1). When the child is treating cancer, their body's defense is reduced (low immunity). Thus, when undergoing treatment, the child should not receive vaccines made from live attenuated compounds and only take vaccines under orientation by the doctor or vaccination centers (World Health Organization - WHO, 2021; Fundação Oswaldo Cruz, 2016; Toscano; Kosim, 2003).

Figure 1 - Pharmacist producing the vaccine



Examples of types of vaccines:

- **Virus-like particles (VLP):** Human Papilloma Virus (HPV) (Zardo et al., 2014);
- **Killed/inactive parts or compounds:** COVID-19 (WHO, 2023; Ministério da Saúde (BR), 2021); Diphtheria and Tetanus (Double Adult – dT) (Ministério da Saúde (BR), 2021); the Flu (Influenza) (Ministério da Saúde (BR), 2021); Pneumococcus (Pneumococcal 13-valent, Pneumococcal 23-valent) (Ministério da Saúde (BR), 2021); Poliomyelitis or Infantile Paralysis (VIP); Diphtheria, Tetanus e Pertussis (dTpa) (Ministério da Saúde (BR), 2015); Meningococcal ACWY (Ministério da Saúde (BR), 2015); Hepatitis A (Ministério da Saúde (BR), 2015);
- **Weakened (attenuated) virus:** Poliomyelitis or Infantile Paralysis (VOP) (Toscano; Kosim, 2003) – in drops (oral); Measles, Rubella and Mumps (MMR) (Ministério da Saúde (BR), 2021); Yellow Fever (Ministério da Saúde (BR), 2021); Measles and Rubella (MR) (Ministério da Saúde (BR), 2021); Human Rotavirus (VORH) (Ministério da Saúde (BR), 2015); Measles, mumps, rubella and chicken pox (MMRV) (Ministério da Saúde (BR), 2015);
- **Weakened (attenuated) bacteria:** Tuberculosis (BCG) (Ministério da Saúde (BR), 2021);
- **Synthetic Genetic material:** COVID-19 (WHO, 2023).

However, they all need the child’s/teenager’s doctor’s orientation to evaluate the use.

Vaccines which CAN be used by the child/teenager (Toscano; Kosim, 2003)

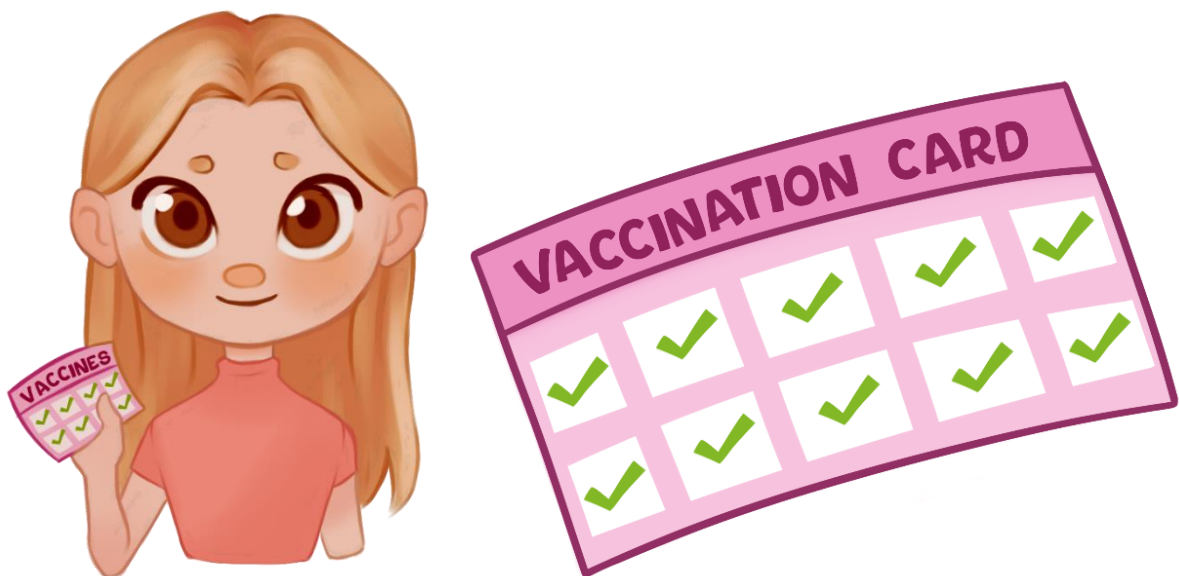
VACCINES	COMPONENTS	PREVENTED DISEASES
Against hepatitis B	Virus surface antigen (Recombinant)	Hepatitis B
Against hepatitis A	Inactive virus	Hepatitis A
Tetavalent (DTP + Hib) diphtheria, tetanus, pertussis, type b Haemophilus influenzae	Products of PRP bacteria (toxins) conjugated with a protein	Diphtheria, tetanus, pertussis, meningitis, and other infections by type b Haemophilus influenzae
Against infection by Pneumococcus. Pn13.	Streptococcus pneumoniae Polysaccharides	Pneumonia, otitis, meningitis, and other diseases caused by Pneumococcus
Meningococcal ACWY	Conjugated	Invasive disease caused by Neisseria meningitidis C
Against diphtheria, tetanus, and pertussis (DTP)	Killed bacteria and products of bacteria (toxins)	Diphtheria, tetanus, pertussis
Against poliomyelitis – injectable vaccine (VIP)	Inactivated virus	Poliomyelitis

Vaccines which MUST be avoided during treatment (Toscano; Kosim, 2003)

VACCINES	COMPONENTS	PREVENTED DISEASES
Against tuberculosis (BCG-ID)	Live-attenuated bacteria	Severe forms of tuberculosis (specially miliary and meningeal)
Against poliomyelitis – oral vaccine (VOP)	Live-attenuated virus types I, II, and III	Poliomyelitis or Infantile Paralysis
Oral vaccine of attenuated G1P1 (Sociedade Brasileira de Imunizações, 2023) human rotavirus	Live-attenuated virus	Diarrhea by rotavirus
Against yellow fever	Live-attenuated virus	Yellow Fever
MMR-vaccine Against measles, mumps and rubella	Live-attenuated virus	Measles, mumps, rubella

ATTENTION: It is important that caregivers and closer relatives to the child/teenager with cancer and under treatment with chemotherapeutic drugs are up-to-date with vaccines (Figure 2).

Figure 1 - Caregiver showing his son's ID card up to date



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