EXPERT CONSENSUS ON RE-IMMUNIZATION STRATEGIES FOR PEDIATRIC ONCOLOGY PATIENTS IN EGYPT

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The increasing population of immunocompromised individuals, particularly pediatric cancer patients and bone marrow transplants (BMTs) recipients, face an increased risk of vaccine-preventable diseases. Evolving dynamics in immunosuppression, propelled by cancer therapy advancements, underscore the necessity for tailored revaccination strategies.

Revaccinating pediatric oncology patients present challenges owing to compromised immune systems from cancer and treatments. Although revaccination is a vital intervention to address this immunity gap, its execution is complex, considering factors such as optimal timing, vaccine selection, compliance, and the patients' overall health status.

In Egypt, despite significant advancements in the survival of childhood cancer patients, their revaccination is frequently overlooked. This neglect stems from a substantial caseload, insufficient awareness among oncologists and parents, and the absence of a unified global or national vaccination schedule for this subgroup.

The consensus outlines standardized revaccination guidelines for childhood cancer survivors, developed by collaborating specialists in pediatric oncology, infectious diseases, and immunization.

The revaccination policy advises administering vaccines six months post-treatment, beginning at 12 months for BMT patients without antibody level assessment. Children diagnosed after completing general vaccination need a booster shot; those diagnosed before completion require a full re-vaccination schedule. BMT patients need a complete revaccination schedule.

In conclusion, revaccination is not only safe but also imperative. These guidelines serve as a crucial resource for healthcare professionals, offering a nuanced approach to revaccination within pediatric oncology.

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Chemotherapy Patients' Vaccination Schedule

Start Time — 6 MONTHS POST COMPLETION OF CHEMOTHERAPY

Non-live vaccines	Dosage and schedule of vaccination	
	Completed primary immunization	**Previously unimmunized**
Diphtheria, tetanus, and acellular pertussis vaccine	Regardless of Age, single dose	Regardless of Age: 3 doses at 0,2,4 months
Hemophilus influenzae type b (Hib)	Single booster dose	Age: 6 month- 1year: (3 doses) 2 doses 2 months apart, and booster at 18 months
		Age 1-5 years: 2 doses, 2 months apart
		Age > 5 years: Single dose
Inactivated poliovirus vaccine (IPV)	Single dose	3 doses, at 0,1 and 6 months
Hepatitis B vaccine (HBV)	Single dose	3 doses at 0,1 and 6 months
Hepatitis A vaccine (HAV)	Single dose	2 doses, 6 months apart
Inactivated Influenza Vaccine	Single dose once/year (September – March)	
	Eligible even during chemotherapy administration	
Pneumococcal vaccine	Age <2 years : (2 doses) 1 dose of PCV13, dose 2 of PPSV23	Age <2 years : 3 doses of PCV13, 2 months apart + 2 doses of PPSV23
	Age > 2 years: 2 doses of PPSV23	Age 2-5 years: 2 doses of PCV13, 2 months apart + 2 doses of PPSV23
	Dose 2 of PPSV23 to be given 5 years after dose 1 of PPSV23	Age 6-18 years: 1 dose of PCV13 + 2 doses of PPSV23*
Meningococcal vaccine (conjugated) (MenACWY)	Age ≥ 2 years: Single dose	Age ≥ 2 years: 2 doses, 2 months apart
	4 weeks after completion of PCV13 series	

Start Time — 12 MONTHS POST COMPLETION OF CHEMOTHERAPY

Live vaccines	Dosage and schedule of vaccination	
Measles, Mumps, and Rubella (MMR)	Single dose	2 doses, 1 month apart
Varicella vaccine	Single dose	2 doses, 3 month apart

**Booster PPSV23 after 2 months from last PCV13 dose, Dose 2 of PPSV23 to be given 5 years after dose 1 of PPSV23*

†Booster PPSV23 after 2 months from last PCV13, and No GvHD, Dose 2 of PPSV23 to be given 5 years after dose 1 of PPSV23

BMT Patients' Vaccination Schedule

Start Time— 12 MONTHS POST BMT

Non-live vaccines	Dosage and schedule of vaccination
Diphtheria, tetanus, and acellular pertussis vaccine	Regardless of Age: 3 doses at 0,2,4 months
Hemophilus influenzae type b (Hib)	3 doses, 2 months apart
Inactivated poliovirus vaccine (IPV)	3 doses, 2 months apart
Hepatitis B vaccine (HBV)	3 doses at 0,1 and 6 months
Hepatitis A vaccine (HAV)	2 doses, 6 months apart
Inactivated Influenza Vaccine	Age >9 years: Single dose once/year (September-March)
	Age <9 years; a 2nd dose is given 1 month from the initial dose
Pneumococcal vaccine†	3 doses of PCV13 (conjugate), 2 months apart + 2 doses of PPSV23
Meningococcal vaccine (conjugated) (MenACWY)	Age ≥ 2 years: 2 doses, 2 months apart
	4 weeks after completion of PCV13 series

Start Time — 2 YEARS POST BMT, 1 YEAR OFF IMMUNOSUPPRESION, 8 MONTHS FROM IVIG

Live vaccines	Dosage and schedule of vaccination
MMR	Optional: if No GvHD, No ongoing immunosuppression 2 doses,1 month apart

Remarks

1) Patients with active chronic GvHD who are unlikely to respond to PPSV23 it is preferable to administer a 4th dose of PCV13 and delay PPSV23
2) Post-vaccination testing for Hib BaAb 1–2 months after 3rd dose to ensure protection. Non responders should receive a 2nd 3 dose series.

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