



11th EUROPEAN CONFERENCE on INFECTIONS in LEUKAEMIA



► **CONFERENCE**
From September
17th to 19th, 2026

Revised Guidelines slide set
September 2026

Part II

Vaccination of CAR T cell treated patients,
patients treated with bispecific antibodies, and
general topics regarding vaccination



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Grading system

Category, grade		Definition
Strength of recommendation	A	Strongly supports a recommendation for use
	B	Moderate evidence to support a recommendation for use
	C	Poor evidence to support a recommendation
	D	Supports a recommendation against use
Quality of evidence—Level	I	Evidence from ≥ 1 properly randomized controlled trial
	II	Evidence from ≥ 1 well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from > 1 centre); from multiple time series; or from dramatic results from uncontrolled experiments
	III	Evidence from opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees
Quality of evidence—Index (for Level II)	r	Meta-analysis or systematic review of RCT
	t	Transferred evidence, that is, results from different patients' cohorts, or similar immune-status situation
	h	Comparator group is a historical control
	u	Uncontrolled trial
	a	Published abstract (presented at an international symposium or meeting)



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ECIL-11 recommendations

Pneumococcal vaccination

Recommendation	Grade
Pre-CAR-T	
Limited data to support recommendation	Not graded
Post-CAR-T	
Vaccinate with PCV	AII
At least 2 doses, preferably 3 doses	BII
Among the available PCVs, the physician should choose the one with the broader serotype-spectrum according to local epidemiology and national recommendations	
Timing	
No IGRT: At signs of B-cell reconstitution	BII
On IGRT: vaccinate at discontinuation of IGRT	BIII



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ECIL-11 recommendations

Influenza vaccination after CAR-T

Recommendation	Grade
Pre-CAR-T	
If influenza season is anticipated or ongoing, vaccinate prior to lymphodepleting chemotherapy (≥ 2 weeks before)	BIII
Post-CAR-T	
Administer annual seasonal influenza vaccination (single dose) for as long as the patient is considered immunosuppressed	AIIIt
In the first influenza season following CAR-T treatment, use HD formulation if available (in most countries licensed from 65 years)	BIIIt
Consider a second dose in the same season in adults vaccinated early after CAR-T ($< 6-12$ months)	BIIIt
In previously unvaccinated children ≤ 9 years of age, a second dose is advised ≥ 4 weeks after the first	AIIIt
Timing	
If influenza season is anticipated or ongoing, vaccinate as early as ≥ 3 months post-CAR-T, regardless of immune reconstitution status, ongoing IGRT or pre-CAR-T vaccination	BIIIt

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ECIL-11 recommendations

COVID vaccination after CAR-T

Recommendation	Grade
Pre-CAR-T	
If SARS-CoV-2 circulation is anticipated or ongoing and no vaccination in the preceding 6 months, vaccinate prior to lymphodepleting chemotherapy (≥ 2 weeks before)	BIII
Post-CAR-T	
Administer annual single dose with latest updated vaccine for as long as the patient is considered immunosuppressed	Allu
During sustained, prolonged immunosuppression, or in an outbreak situation, more than one dose per year may be considered	CIItu
Timing	
If SARS-CoV-2 circulation is anticipated or ongoing, vaccinate as early as ≥ 3 months post-CAR-T, regardless of immune reconstitution status, pre-CAR-T vaccination or IGRT	BIItu



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ECIL-11 recommendations :

RSV vaccination after CAR-T

Recommendation	Grade
Pre-CAR-T	
In high-risk patients ¹ , if season is anticipated and never vaccinated, vaccinate prior to lymphodepletion (≥2 weeks)	CII
Post-CAR-T	
Consider RSV vaccination in all adult (≥18 years) CAR-T recipients	BI
No preferential recommendation can be given for Abrysvo/Arexvy/mResvia	Not graded
Currently one dose is recommended. Need for booster unclear, no recommendation can be made.	Not graded
Timing	
Vaccinate preferably at signs of B-cell reconstitution	BI
Earlier vaccination (≥3 months) may be considered on an individual basis in high-risk patients, regardless of immune reconstitution or IGRT during season/outbreak.	CII



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¹Risk-factors: Age, prolonged lymphopenia, pre-existing lung disease

ECIL-11 recommendations

RZV vaccination after CAR-T

Recommendation	Grade
Pre-CAR-T	
Not necessary since antiviral prophylaxis is generally recommended	Not graded
Post-CAR-T	
Vaccination with RZV (2 doses according to label)	BIIt
Timing	
The first dose should be given when CD4 counts reached $> 200 \text{ cell/mm}^3$, and antiviral prophylaxis should be continued at least 1 month after the 2 nd dose	CIII

* Vaccination should not influence the duration of antiviral prophylaxis



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ECIL-11 recommendations

dT-Polio+ Pertussis vaccination of CAR-T recipients

Recommendation	Grade
Pre-CAR-T	
No data to support recommendation	Not graded
Post-CAR-T	
At least one dose from 12 months post-CAR-T, then according to national recommendations	BIII
Timing	
No IGRT: at signs of B-cell reconstitution	BIII
On IGRT: vaccinate at discontinuation of IGRT	BIII



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ECIL-11 recommendations

HIB vaccination of CAR-T recipients

Recommendation	Grade
Pre-CAR-T	
No data to support recommendation	Not graded
Post-CAR-T	
HIB vaccination remains optional (adult and children). Aspects to take into account: risk factors (BCMA vs CD 19), country guidelines for high-risk individuals	CIII
Timing	
At signs of B-cell reconstitution Either at the same time as pneumococcus vaccine, or combined with DTP-IPV (off IGRT)	CIII



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ECIL-11 recommendations

Meningococcal vaccination of CAR-T recipients

Recommendation	Grade
Pre-CAR-T	
No data to support recommendation	Not graded
Post-CAR-T	
No CAR-T specific data.	
Vaccinate as per national age-based and risk-factor immunisation programmes	BIII
Those with additional risk factors, such as splenectomy, functional asplenia, or eculizumab treatment, who were fully vaccinated prior to CAR-T, should receive a booster dose for both, MenB and MenACWY	CIII
MenC should be used where MenACWY is not available .	
Vaccination should be administered in outbreak settings in line with local guidance.	CIII
Timing	
At signs of B-cell reconstitution	CIII

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ECIL-11 recommendations

HBV vaccination of CAR-T recipients

Recommendation	Grade
Pre-CAR-T	
Hepatitis B vaccination can be considered in high-risk endemic areas A complete series is rarely achievable before lymphodepletion; where attempted, use an accelerated schedule (0-7-21 days) and complete the series after CAR-T.	CIII
Post-CAR-T	
Vaccinate any CAR-T recipient with anti-HBs <10 IU/L	BIIIt
Confirm protection post-vaccination by serology; anti-HBs ≥10 IU/L defines protection. A higher peak response (e.g., ≥100 IU/L) may be desirable where durability is expected to be poor	Not graded
In anti-HBc patients on prophylaxis: complete vaccination schedule before anticipated stop of antiviral prophylaxis. In patients who fail to respond after a complete series (anti-HBs remain ≤10IU/L) , continue prophylaxis until immune reconstitution.	CIII
Timing	
At signs of B-cell reconstitution	BIIIt
Choice of vaccine	
No preferential recommendation is made. Standard 3-dose recombinant series at 0, 1, and 6 months or accelerated (0-7-21 days and 4 months), if available Heplisav-B (2 doses, 0 and 1 month). Dialysis-dose (40 mcg) is alternative for the 3-dose series.	Not graded

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ECIL-11 recommendations

Live-attenuated vaccines for CAR-T recipients

Recommendation	Grade
Pre-CAR-T	
Not recommended	DIII
Post-CAR-T	
Use of live-attenuated vaccines (MMR, VZV, nasal influenza, (travel: Yellow fever, Qdenga, IXCHIQ, oral LAV: typhoid fever, rota) following CAR-T is not recommended while immunosuppressed	DIII
Adults: Check titers for measles when criteria for live vaccine are met, revaccinate only seronegative recipients (check serology after the 1 st dose) Children: Either check measles and VZV titers when criteria for live vaccine are met, or give 2 doses MMR-VZV dose	Vaccinate: BIII Number of doses adults CIII children: CII
Balance risk of exposure (travel to endemic areas, outbreaks) and risk of vaccine-induced disease	in discussion part of paper
Criteria	
Live vaccines from ≥12 months post-CAR-T, provided: off immunosuppression, B-cell recovery, T-cell reconstitution, off IGRT ≥8 months, no signs of disease relapse	

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ECIL-11 recommendations

Tick-borne encephalitis (TBE) vaccination

Recommendation	Grade
Pre-CAR-T	
No data to support recommendation	Not graded
Post-CAR-T	
Indication follows national recommendations and individual exposure: patients residing in endemic areas, or travelling to them with anticipated outdoor exposure (e.g. hiking, camping, forestry) during tick season	BIIt
In previously fully vaccinated individuals, consider 1 additional dose	CIII
In unvaccinated individuals, extended primary series of 4 doses, then boosters per national schedule	CIIt
Timing	
At signs of B-cell reconstitution	CIIt



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*Ozog et al,
Nat Com 2026 in press*

How to deal with patients without signs of B-cell reconstitution

Current knowledge about vaccine-responses in patients without signs of B-cell reconstitution is very limited, and vaccination should therefore be performed on a case-by-case basis.

Antibody mediated immunity: **no vaccination needed while under IGRT (but no contraindication)**

- Pneumococcus: initiate vaccination ≥ 12 months, serotype-specific serology might guide need for additional doses
- Hib: if indication for vaccination, initiate vaccination ≥ 12 months
- dTpa-IPV: Postpone until B cell recovery, or if vaccinated before, perform post-vaccination serology

Other vaccines :

- HBV: no vaccination needed during prophylaxis. If high risk of exposure, use of post-exposure prophylaxis possible, initiate vaccination at ≥ 12 months, check serology after last dose.
- Meningococcus: initiate vaccination ≥ 12 months even if under IGRT (low/no content of specific Abs)
- TBE : Advise for additional avoidance measures (Allt) if risk of exposure. Case-by-case indication for vaccination.



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Vaccine group

Bispecific antibodies



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CAVEAT!

Very few studies with very limited number of patients

In the few published studies, limited information on schedules and endpoints.

Almost no information on BS-antibody therapy for NHL.

Thus, most information is transferred or expert opinions



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ECIL-11 recommendations

Patients treated with bispecific antibodies– myeloma/NHL

Recommendations	Grade
Before start of therapy	
Is recommended if feasible due to time to start of BS-therapy (adults with myeloma and lymphoma)	Allt
<u>Recommended vaccines</u>	
Influenza (seasonal)	Allt
A high dose or adjuvanted vaccine is preferred	BIIt
Covid-19 If season is imminent and no vaccination in the preceding 6 months	BIIt
RSV	CIIt
PCV	BIIt
<i>Among the available PCVs, a vaccine with a largest number of serotypes (PCV13, 15, 20, 21) is recommended according to local epidemiology and national recommendations</i>	
Other vaccines can be considered as recommended by national authorities and local epidemiology and if time allows	CIII
Based on the acuteness of the underlying disease, not relevant before starting blinatumumab.	



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Ozog et al,
Nat Com 2026 in press

ECIL-11 recommendations

Patients treated with bispecific antibodies– myeloma/NHL

Recommendation	Grade
After start of bispecific antibody therapy	
Influenza (when season is imminent) irrespective of ongoing BS-therapy or if patients are on IGRT A high dose or adjuvanted vaccine is preferred Two doses can be considered	Allt BIIIt CIIIt
Covid-19 (annual) irrespective of ongoing IGRT RSV prior to 1 st season if not given before start of bispecific antibodies irrespective of ongoing IGRT	Allt BIII



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Patients treated with bispecific antibodies– myeloma/NHL

Recommendation	Grade
After stopping or interruption of bispecific antibody therapy	
<u>Regardless of IGRT</u> Influenza (when the season is imminent), irrespective of ongoing BS-therapy A high dose or adjuvanted vaccine is preferred Two doses can be considered Covid-19 (annual) RSV if not given previously RZV at the time for stopping of antiviral prophylaxis is planned <u>Patients not on IGRT*</u> PCV** dT – pertussis HBV if not on antiviral prophylaxis	 Allt CItt CItt Allt BItt BItt Allt BItt BItt
 * Signs of immune reconstitution necessary for start of vaccinations ** Among the available PCVs, a vaccine with the largest number of serotypes (PCV13, 15, 20, and 21) is recommended according to local epidemiology and national recommendations	



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Patients treated with bispecific antibodies– blinatumomab/ALL

Recommendation	Grade
After start of bispecific antibody therapy	
Influenza (when season is imminent) irrespective of ongoing BS-therapy or if patients are on IGRT A high dose or adjuvanted vaccine is preferred	CIII CIII
Covid-19 (annual) irrespective of ongoing IGRT	CIII
After stopping bispecific antibody therapy	
<u>Regardless of IGRT</u> Influenza (when season is imminent) irrespective of ongoing BS-therapy or if patients are on IGRT A high dose or adjuvanted vaccine is preferred Two doses are recommended	AIIt CIIt BIIt
Covid-19 (annual) irrespective of ongoing IGRT	BIIt
<u>Patients not on IGRT*</u> According to recommended schedule for patients on maintenance therapy	BIIt



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Ozog et al,
Nat Com 2026 in press

ECIL-11 recommendations

Patients treated with bispecific antibodies– live attenuated vaccines

Recommendation	Grade
After start of bispecific antibody therapy	
Not recommended	DIII
After stopping bispecific antibody therapy	
<u>Patients on IGRT</u> Not recommended due to futility	DIIIt
<u>Patients not on IGRT</u> No general recommendation can be given. The benefit must be greater than the risk. Before a LAV is considered, there must be proof of immune reconstitution and a clear increased risk for severe disease if the patient is exposed for example a patient being seronegative for measles or necessary travel to an area where the risk for infection is high.	



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*Ozog et al,
Nat Com 2026 in press*

Assessment of individual vaccine response and durability of the response



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Assessment of specific antibodies before and after vaccination

ECIL 7:

- **BEFORE vaccination:** recommended only for HBV, LAVV and Yellow fever to avoid an unnecessary vaccination
- **AFTER vaccination:** encouraged only:
 - to decide of additional doses in patients who are likely to have a suboptimal response (severe GVHD, Rituximab)(e.g., assessment of anti-Measles Abs after MMR vaccination)
 - to decide on booster doses 3-10 years after transplant

Addition ECIL11

In case long-term assessment of Abs cannot be done for deciding boosts, the patient should at least receive boosts according to the national recommendations for his/her age range



Immunoglobulin replacement therapy (IgRT) and vaccination



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Vaccination after IgRT

- Immunoglobulin replacement therapy *per se* generally does not interfere with the response to non-live vaccines.
- Therefore, in patients on IGRT, the decision for non-live vaccines should be based on
 - the clinical indication and any passive protection provided by IGRT
 - immunoreconstitution after therapy of cancer (e.g., B-cells, need for IGRT) and the expected immune response to the vaccine

Mellinghoff et al Lancet Oncol, 2026, 97: e195; Cordonnier et al Lancet Infect Dis 2019; 19: e200

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Vaccination after IgRT

- IGRT may interfere with the efficacy of live-attenuated vaccines such as those against measles and varicella
- Therefore, live-attenuated vaccines should not be administered within 8 months after IGRT (≥ 400 mg/kg)
 - Vaccination response should be assessed if the patient had received IGRT within this period of time to decide whether an additional dose of vaccine should be given

Mellinghoff et al Lancet Oncol, 2026, 97: e195; Cordonnier et al Lancet Infect Dis 2019; 19: e200



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Vaccination of household members of HCT and CAR-T cell recipients



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Vaccination of household members of HCT recipients/CAR T cell recipients/BS antibody treated patients

Individuals who live with patients belonging to these riskgroups should be either immunized or vaccinated according to their age and country recommendations, especially for VZV and MMR

Household members should receive inactivated influenza vaccine (IIV):

- beginning of the season before transplant and the first season after transplant AIII
- and annually as long as the patient is judged to be severely immunosuppressed CIII

Household members is recommended to receive vaccination against SARS-CoV-2 according to national recommendations and regulatory authority approval BII

Household contacts should be encouraged to receive age-appropriate RSV vaccination whenever possible Not graded

The live attenuated influenza vaccine (LAIV) should not be used in individuals living with an HSCT recipient, in the first months of transplant or who has GVHD BIII

The same precaution is logical for household members of CAR T/BS antibody-treated patients BIII

Infants 2-7 months in close contacts with HSCT recipients should be vaccinated for rotavirus but the HSCT recipient should have no contact with the stools or diapers of the vaccinated children for 4 weeks following vaccination Not graded



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Vaccination of health care workers in the hematology ward



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Vaccination of the healthcare personnel in the hematology ward

ECIL 7 guidelines

ECIL 7

- Hospital staff working with immunocompromised patients should receive inactivated influenza vaccine (IIV) annually **All t**
- Hospital staff working with hematology or HSCT patients should be vaccinated according to the country recommendations and additionally to the hospital guidelines
- Health care workers who are seronegative for Measles or for VZV should be vaccinated. In case of post-vaccine rash, they should avoid any contact with immunocompromised patients
- Vaccination of health care personnel against SARS-CoV-2 in accordance with regulatory authority approval and national recommendations, is recommended (Cesaro et al, Leukemia 2025)



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