

# VACCINATING THE IMMUNOCOMPROMISED HOST



## Why Vaccinate the Immunocompromised Host (ICH)?

- ICH are at much higher risk for severe, prolonged, and complicated infections.
- Infectious Diseases may trigger the underlying disease.
- Infection prevention lowers hospitalizations, reduces antibiotic use, morbidity, and mortality.
- Vaccination is a core part of infection control: cocooning of household/close contacts is essential.
- ICH benefit from both direct and indirect (herd) protection.

## Adverse Events and Side Effects

- Inactivated vaccines: Side effect profile is similar to healthy adults; no evidence for a link with new or worsened autoimmune disease or organ rejection.
- Live vaccines: Higher risk in severely immunocompromised ; can rarely cause severe or fatal disease, so generally contraindicated.
- Autoimmune flares after vaccination are coincidental rather than causal; monitor but do not withhold needed vaccines.
- Most adverse events are mild, and serious events are rare when guideline-concordant schedules are followed.

## Vaccine Efficacy in ICH

- Immunogenicity is often reduced, especially early after transplant, with biologics, or with profound immunosuppression—yet many ICH achieve protective responses.
- Available evidence indicates that clinical protection is reduced – but should not delay guideline-based vaccination.
- Effectiveness improves with time from immunosuppression, but early vaccination (e.g. 3 months post-HSCT) is beneficial.
- Extra doses, higher vaccine schedules, or post-vaccination serology may be required in selected populations.

## Practical Clinical Approach (Bullet & Table Summary)

- Prioritize inactivated vaccines, live vaccines only with specialist input in patients with low-level immunosuppression.
- Vaccinate before immunosuppression if possible: ideally 2+ weeks for inactivated, 4+ weeks for live vaccines.
- Give indicated vaccines during maintenance therapy if not feasible before; avoid live vaccines during peak immunosuppression.
- Restart inactivated vaccines ~3 months post-HSCT/chemotherapy; delay after rituximab/anti-CD20 for at least 6 months.
- Use additional or sequential doses for pneumococcus, HBV, Tdap, and COVID-19.
- Screen for latent infections (e.g. TB, HBV); assess antibody status before key live vaccines.
- Cocoon: Fully vaccinate household/close contacts, avoid OPV in contacts of severely immunocompromised patients.

**Table – Vaccine types in ICH**

■ Green = generally recommended; ■ Yellow = consider with timing / specialist input; ■ Red = avoid in severe immunosuppression.

Vaccine type / example	Severe ICH (HSCT early, high-dose steroids, anti-CD20, SOT early)	Mild-moderate ICH (csDMARDs, low-dose steroids, some biologics)
Inactivated routine (DT/Td/Tdap, IPV, HBV, Hib)	follow schedule; consider extra doses in high-risk (HBV, TBE, etc.)	follow schedule
Inactivated influenza (IM)	annually, priorities all ICH ≥6 months	annually
Pneumococcal (PCV13/15/20, PPV23 if locally recommended)	sequential higher-dose schedules; early post-HSCT and in MM, SOT, asplenia	follow risk-based schedule
Recombinant / subunit (HPV, HBV, zoster-subunit, MenB, conjugate MenACWY)	indicated per age and risk; may need additional doses or ICH serology in high - risk	indicated per age and risk
mRNA / viral-vector COVID-19	additional primary/booster doses vs general population per national guidance	standard or slightly intensified schedule
LAIV (live intranasal influenza)	avoid; inactivated alternative available	generally, avoid; use inactivated IM vaccine
OPV (oral polio)	contraindicated	avoid; use IPV
MMR, varicella, MMRV, yellow fever	avoid in patients with severe immunosuppression; consider only if clearly indicated and with specialist input	may be possible in select low-level immunosuppression with careful timing and monitoring

## Accelerated and Alternative Pathways

- For VZV seronegative ICH with significant exposure, specific VZV immunoglobulin within 96 hours is preferred; oral aciclovir/valaciclovir is an alternative if immunoglobulin is unavailable.
- After measles exposure in ICH, high dose IVIG as soon as possible (within 6 days) is recommended, irrespective of baseline antibody levels; active measles vaccination is not used as post exposure prophylaxis in severely immunocompromised patients.
- Routine serologic testing is of limited value for the decision on booster doses as serological assays are standardized for disease diagnostics, not for evaluating a protective threshold. It may be useful in selected high risk contexts (e.g. HBV in dialysis/oncology, pneumococcal in HSCT) but does not replace a documented vaccination history.

## Further Reading and Recommendations

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