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Association for the Advancement of Blood & Biotherapies

Association Bulletin #26-05

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To: AABB Members

From: Jose Cancelas, MD, PhD – President
Debra BenAvram, FASAE, CAE – Chief Executive Officer

Re: **B-Cell-Depleting Monoclonal Antibody Therapy and Blood Safety**

Association Bulletins provide a mechanism for publication of documents that have been approved by the AABB Board of Directors for distribution to individual and institutional members, such as:

- Standards that were adopted after publication of the most recent edition of *Standards.*
- Statements of AABB policy intended for distribution to members.
- Guidance, recommendations, and reports that have been developed by AABB Committees or National Office staff for distribution to members.

This bulletin:

- Was developed in response to new information shared by Centers for Disease Control and Prevention (CDC) representatives to the Transfusion Transmitted Diseases (TTD) Committee and the Donor History Task Force (DHTF). Consistent with AABB's close working relationship with CDC on blood safety, the TTD Committee, the DHTF, and an ad hoc working group of AABB members with relevant expertise in transfusion medicine and donor screening reviewed the information and developed this bulletin.
- Describes an update to blood donor screening practices based on new information related to donors undergoing B-cell-depleting monoclonal antibody therapies for non-deferral medical conditions and the potential impact on blood and blood component recipients.
- Adds a new medication(s) and an associated donor deferral to the AABB Medication Deferral List version 4.0 (MDL v4.0).
- Clarifies that the current edition of *Standards for Blood Banks and Transfusion Services* (*BBTS Standards*) requires accredited facilities to implement the updated version of the MDL within 6 months of the effective date of the MDL (BBTS Reference Standard 5.4.1A – Requirements for Allogeneic Donor Qualification, #10).
- Does not establish a new BBTS standard.

Please note: any references to products in this Association Bulletin are for informational purposes only and do not imply endorsement.

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Background

Key Points Related to New Information on B-Cell-Depleting Monoclonal Antibody Therapy

- B-cell-depleting monoclonal antibodies are increasingly used to treat a wide range of non-malignant autoimmune conditions, many of which would not otherwise exclude individuals from blood donation.
- These therapies can result in prolonged B-cell depletion, immunosuppression with reduced antibody responses, and delayed immune reconstitution after discontinuation.
- Emerging evidence suggests an increased risk of prolonged and potentially asymptomatic viral infections, including arboviruses such as West Nile virus (WNV), in individuals receiving these therapies.
- Although no confirmed cases of transfusion-transmitted infections (TTIs) have been reported (noting the limited ascertainment of donor medication use), theoretical risk exists related both to undetected donor viremia and the potential transfer of therapeutic monoclonal antibodies to recipients.

B-Cell-Depleting Monoclonal Antibody Therapy

B-cell-depleting monoclonal antibodies are increasingly used to treat non-malignant autoimmune conditions associated with dysregulated B-cell activity.[1,2] Many such conditions do not disqualify individuals undergoing these therapies from blood donation. On- and off-label uses include neurologic conditions such as multiple sclerosis (MS), myasthenia gravis, and neuromyelitis optica spectrum disorders; rheumatologic diseases such as rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, Sjögren's syndrome, and polymyositis/dermatomyositis; and miscellaneous disorders such as pemphigus vulgaris and some forms of glomerulonephritis.

Parenteral monoclonal antibody preparations targeting CD19, CD20, and CD52 surface antigens are used to deplete antibody-producing B cells. Circulating B-cell levels fall below normal within days to a few weeks of initiation of treatment and remain absent (<1% of peripheral CD45-positive cells) or low for 6 to 18 months.[3,4] After peripheral counts return to normal, memory B-cell numbers may remain suppressed for years. Return to normal B-cell levels upon cessation of therapy, and normalization of antibody response to vaccination, requires 9-36 months, with older age and cumulative dosing associated with longer periods of immunosuppression.[3,4] Concomitant hypogammaglobulinemia in up to 40% of treated patients further contributes to enhanced susceptibility to bacterial, viral, fungal, and parasitic infections.[2]

Arboviruses are among infections reported with higher prevalence and severity among people undergoing B-cell-depleting therapies.[5] Not unexpectedly, diagnostic test performance is also affected in these individuals, with delayed serologic evidence of infection. Protracted viremia has been described in the setting of SARS-CoV-2 and WNV infections, and it is plausible that other viral infections, including additional arboviruses, may result in prolonged viremia.[6,7]

Case reports abound of severe neuroinvasive arboviral infections in individuals on chronic B-cell-

depleting therapies.[5] WNV in particular, has been reported to have a more severe course, associated with prolonged viremia.[7,8] In late 2025, the US Centers for Disease Control and Prevention (CDC) were made aware of two WNV presumed-viremic blood donors with detectable viral RNA in excess of 120 days (Carolyn V. Gould, MD, MSCR, personal communication). Both donors were receiving anti-CD20 therapy for multiple sclerosis. The first individual was asymptomatic, but tested positive for WNV via nucleic acid test (NAT) twice, 129 days apart, and on day 164, was PCR-negative but tested positive via plaque-reduction neutralization test (PRNT) by CDC testing. The second donor developed fatigue, headache, and anorexia along with neurologic symptoms confused with underlying MS in the fall of 2024. A blood donation approximately 1 month later was WNV NAT-negative, but at a donation ~4 months after symptom appearance, the donor was WNV NAT-positive and remained PCR-positive at testing 6 months after symptoms appeared. Treatment with intravenous immunoglobulin resolved the donor's symptoms. The individual made a WNV NAT-negative blood donation about 9 months after initial symptom onset, but 5 months after that (14 months from symptom onset), was again WNV NAT-positive, confirmed by PCR. No recipient reports were available for either NAT-negative donation.

There is a small risk that individuals undergoing B-cell-depleting therapies may be minimally symptomatic, but potentially viremic with arboviruses such as WNV or other mosquito- or tick-borne illnesses for which blood donations are not tested. A thorough Medline search was conducted seeking reports of TTIs from blood donors treated with B-cell-depleting monoclonal antibodies. This returned no relevant case reports, case series, or commentaries. The risk of TTI from immunodeficient blood donors receiving ongoing B-cell-depleting therapy thus remains theoretical.

Many North American blood collectors do not defer donors for receipt of B-cell-depleting therapies and may or may not defer for the underlying conditions treated with these medications. Eligible donors may receive an intravenous infusion or subcutaneous injection quite close to the time of donation. Thus, depending upon the dose, route, and pharmacokinetics of each antibody, a small but significant proportion of the dose may be removed (reducing therapeutic efficacy) and ultimately transfused into patients for whom B-cell depletion may be deleterious.

Although individuals undergoing B-cell-depleting treatment regimens for hematologic cancers are not eligible for blood donation, a non-exhaustive list of reported uses of these monoclonal antibodies for non-neoplastic diseases is provided in Table 1 below. The maximum fraction of the dose removed in a 500-mL whole blood donation can be calculated from the drug's post-administration C_{max} using an average estimated blood volume (EBV). (Note that this table uses whole blood donation for illustrative purposes, but apheresis donation levels can also be calculated by product volume.) The half-life of injectables calculated from common conditions treated with B-cell-depleting therapy (MS and moderate-to-severe rheumatoid arthritis) are also listed in the table. Five half-lives are required to clear ~97% of circulating antibody, a level generally considered to have little potential effect.

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Table 1. Pharmacokinetic Characteristics Relevant to Blood Donation for B-Cell-Depleting Monoclonal Antibody Therapies

Agent	Antibody	% Dose in 500 mL of Whole Blood*	t½ / Deferral	Non-neoplastic Uses
Alemtuzumab Brand name: *Lemtrada*	Anti-CD52 Humanized, >90% human	Dosed IV every 12 months; 13%	70 days = 5 x 14-day half-life	On-label Use • MS
Inebilizumab Brand name: *Uplizna*	Anti-CD19 Humanized, >90% human with low fucose Fc region	Dosed IV every 6 months; 21%	90 days = 5 x 18-day half-life	On-label Use • NMOSD, IgG4-RD, MG
Obinutuzumab Brand name: *Gazyva*	Anti-CD20 Humanized, >99% human with low fucose Fc region	Dosed IV every 6 months; 23%	110 days = 5 x 22-day half-life	On-label Use • Lupus nephritis Off-label Use • MOGAD, anti-MAG neuropathy, inflammatory myopathies
Ocrelizumab Brand names: *Ocrevus,* *Ocrevus Zunovo*	Anti-CD20 Humanized, >90% human	Dosed IV/SQ every 6 months; 18% (less with SQ)	130 days = 5 x 26-day IV half-life (20-day SQ half-life)	On-label Use • MS Off-label Use • CIDP
Ofatumumab Brand name: *Kesimpta*	Anti-CD20 Human	Dosed SQ every 1 month; 4%	80 days = 5 x 16-day half-life	On-label Use • MS Off-label Use • AE, CIDP, PV
Rituximab Brand names: *Rituxan,* *Riabni,* *Ruxience,* *Truxima*	Anti-CD20 Chimeric, ~65% human	Dosed IV every 6 months; 20%	RA: 21 days (range: 9-36 days) 180 days = 5 x 36-day half-life	On-label Use • RA, PV, ANCA vasculitis Off-label Use • MS, MG, NMOSD, IgG4-RD, SLE and other GNs, inflammatory myopathies
Ublituximab Brand name: *Briumvi*	Anti-CD20 Chimeric, ~65% human with low fucose Fc region	Dosed IV every 6 months; 15%	110 days = 5 x 22-day half-life	On-label Use • MS Off-label Use • NMOSD

*Calculated from post-infusion or injection C_{max} after a dose in a patient with 5 L EBV.

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CD19/20: Present on B cells; **CD52**: Present on B and T cells, monocytes/macrophages
Abbreviations: AE = autoimmune encephalitis; ANCA = antineutrophil cytoplasmic antibody; CIDP = chronic demyelinating polyneuropathy; GN = glomerulonephritis; IgG4-RD = immunoglobulin G4-related disease; IV = intravenous; MAG = myelin-associated glycoprotein; MG = myasthenia gravis; MOGAD = myelin oligodendrocyte glycoprotein antibody-associated disease; MS = multiple sclerosis; NMOSD = neuromyelitis optica spectrum disorder; PV = pemphigus vulgaris; RA = rheumatoid arthritis; SLE = systemic lupus erythematosus; SQ = subcutaneous
Note: Loncastuximab **(***Zynlonta*; anti-CD19), Tafasitamab **(***Monjuvi*; anti-CD19), and Blinatumomab **(***Blincyto*; a CD19/CD3 bispecific T-cell engager) are all labeled only for neoplastic disease with no non-neoplastic off-label uses described outside of clinical trials. These have not been included here.

Donor Deferral Considerations to Address Risks

Three potential risks associated with donor receipt of B-cell-depleting monoclonal antibody therapy include:

1. Transfusion Recipient: Increased risk of a recipient TTI due to subclinical infection of an asymptomatic, immunodeficient donor with infectious agent burdens below current NAT detection levels or with pathogens (eg, many arboviruses) for which blood is not currently screened.
2. Transfusion Recipient: Introduction of potentially clinically significant levels of immunomodulatory agents into blood components when the donor has quite recently self-injected or had an infusion.
3. Donor: Reduction of circulating therapeutic antibody levels when donors have recently received treatment. Many of these drugs have longer half-lives, a low volume of distribution, and are found in significant levels in the blood.

Several options were considered to minimize these risks, including:

1. Addition of B-cell-depleting monoclonal antibodies to the MDL v4.0 with sufficient deferral periods to prevent donations containing an immunomodulatory dose or alternately, a longer period required for donor immune reconstitution.
2. Use of the question, “In the past 8 weeks have you received any vaccinations or other shots?” to identify donors with a recent B-cell-depleting monoclonal antibody infusion or injection potentially capable of delivering some fraction of the dose to blood recipients while reducing therapeutic levels of antibodies in the donor.
3. Addition of screening questions to the Donor History Questionnaire to identify all donors undergoing these therapies who are at risk for long-term immunodeficiency and additional TTI risk, and/or antibody depletion/transfusion to patients.

Each of these options would remove currently eligible donors accepted by some blood collectors. The proportion of US blood donors receiving B-cell-depleting therapies is not known. One US

blood collector reported that in 6 of 281,718 (1 per 46,953) interviews over a 52-month period, questioning revealed the receipt of B-cell-depleting antibody therapy to the query, "In the past 8 weeks, have you had any vaccinations or other shots?" (S. Pandey, personal communication). These donations were from 4 individuals with MS (2 receiving ofatumumab, 1 ocrelizumab, and 1 rituximab), representing 1 per 19,816 unique donors. Given the every-6-month injection schedule for many antibody therapies, there are likely to have been more donors receiving B-cell-depleting monoclonal antibodies than those receiving a parenteral dose in just the 8 weeks before presentation. In 517 of the 281,718 interviews, recent or other (non-B-cell-depleting) injectable monoclonal antibody preparations were noted (1 per 545), highlighting the increasing use of other types of immunomodulators.

International Practices

The Australian Red Cross Lifeblood collects data on rituximab use. In 2025, 15 donors in their blood management system reported recent rituximab use. Provided the donor's underlying condition is acceptable, the donor becomes eligible 6 months after treatment with rituximab is completed. Of the 15, six were deferred on attendance. In 2025, with 1,856,637 attendances, the deferral rate was 1 in 309,440 attendances. (A. Cheng and V. Hoad, personal communication). Use of ofatumumab, ocrelizumab, and alemtuzumab for MS in 2023 has been estimated at up to 1 per 2,800 Australians (only a small percentage of whom may present for blood donation and be deferred).[9]

Practices outside the United States may also help in considering policy alternatives (including maintenance of the status quo or leaving eligibility decisions to blood center physicians). AABB's TTD Committee recently conducted a survey of 22 European Blood Alliance and Commonwealth (Australia, Canada, and the United Kingdom) collectors asking whether they allowed donors with significant systemic or neurologic autoimmune diseases to donate blood and whether B-cell-depleting monoclonal antibody receipt was sought and/or cause for deferral. Most blood collectors routinely defer donors receiving B-cell-depleting monoclonal antibodies due to the implied severity of underlying illnesses treated with potent immunomodulators. Only 1 North American center allows individuals with active, antibody-treated systemic or neurologic autoimmune disease to donate. All collectors ask about prescription medication use, focusing on regular use with additional prompts over the past 2-4 weeks to 12 months; none separately ask about receipt of B-cell-depleting therapies. Only 5 centers (23%) list neither these agents nor proscribed relevant classes of drugs (ie, immunomodulators or monoclonal antibodies) on an MDL. Of the 12 collectors that do not automatically and indefinitely defer individuals with autoimmune disease who require immunomodulatory treatment, for those achieving remission and able to stop therapy, most use a 6-month deferral. Others require deferral for 3-12 months after discontinuation of therapy. These deferrals were based on the stated intention to prevent the introduction of immunomodulatory or teratogenic agents into donated blood components.

Deferral for Donors Receiving Monoclonal Antibodies

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Although the risk for transmission of a relevant transfusion-transmissible agent remains theoretical for donors undergoing B-cell-depleting therapies, CDC's report of prolonged WNV viremia in 2 relatively asymptomatic donors prompted a review of the management of these donors. The introduction of immunomodulatory agents into the blood supply when donation is proximate to a parenteral dose is preventable. Avoiding the removal of circulating therapeutic antibodies shortly after a donor receives a dose of costly monoclonal preparations is similarly preventable.

Specific questioning about the use of these agents and deferral for the entire period of potential increased susceptibility to infection (up to 3 years) is logistically challenging and likely not feasible. However, preventing donation for some period after ongoing infusions or injections would remove many individuals at sustained risk for infection from the donor pool and prevent transfusion of immunomodulatory agents to sick patients. Because these monoclonal antibodies are generally dosed every 6 months, the present 8-week capture question for parenteral medication use excludes many, but not all, donors at risk of significant antibody depletion and transfer to blood components. Use of the MDL to defer donors for at least 5 drug half-lives achieves these goals while also preventing donations from individuals receiving chronic therapy who may be at increased risk for transmitting an arboviral or other infection. A 6-month period should provide reasonable safety, be less confusing than drug-dependent multiple time frames, and is consistent with other modeled data. Donor deferral rates are likely to be acceptable with this approach.

Thus, the TTD Committee and DHTF have determined that the AABB MDL should be updated to include a 6-month deferral period following the date of the last dose of B-cell-depleting monoclonal antibody therapy. The DHTF has added the following monoclonal antibodies to the MDL v4.0 (Figure 1):

PLEASE TELL US IF YOU ARE BEING TREATED WITH ANY OF THE FOLLOWING TYPES OF MEDICATIONS:	OR HAVE TAKEN:		WHICH IS ALSO CALLED:	ANYTIME IN THE LAST:
Immunosuppressants	CD19/CD20/ CD52 B-cell-depleting monoclonal antibody therapy	Briumvi Gazyva Kesimpta Lemtrada Ocrevus/Ocrevus Zunovo Rituxan/Riabni/Ruxience Truxima Uplizna	ublituximab obinutuzumab ofatumumab alemtuzumab ocrelizumab rituximab rituximab inebilizumab	6 months

Figure 1. B-cell-depleting monoclonal antibodies added to AABB medication deferral list (MDL) v4.0.

Implementation

AABB's *BBTS Standards*, Reference Standard 5.4.1A requires AABB-accredited facilities to implement the updated version of the MDL within 6 months of the MDL effective date.

- This updated MDL v4.0 is not intended to be retroactively applied to products collected

under previously existing standards.
- The following resources have been developed to assist AABB members with the implementation of updated MDL v4.0.
    - AABB Medication Deferral List v4.0 PDF, Word, updated September 2026.
    - Medication Deferral List v4.0 - updated September 2026, Immunosuppressants – Toolkit for Implementation.

References

1. Delate T, Hansen ML, Gutierrez AC, Le KN. Indications for rituximab use in an integrated health care delivery system. J Manag Care Spec Pharm 2020;26:832-8.
2. Blincoe A, Labrosse R, Abraham RS. Acquired B-cell deficiency secondary to B-cell-depleting therapies. J Immunol Methods 2022;511:113385.
3. St Clair EW. Good and bad memories following rituximab therapy. Arthritis Rheum 2010;62:1-5.
4. Greenfield AL, Hauser SL. B-cell therapy for multiple sclerosis: Entering an era. Ann Neurol 2018;83:13-26.
5. Kapadia RK, Staples JE, Gill CM, et al. Severe arboviral neuroinvasive disease in patients on rituximab therapy: A review. Clin Infect Dis. 2023;76:1142-8.
6. Little JS, Edelstein GE, Swank Z, et al. Protracted SARS-CoV-2 infection in B-cell depleted patients: Immunologic and viral characteristics and response to dual and extended antiviral therapy. Clin Infect Dis 2026;81:1050-61.
7. Centers for Disease Control and Prevention. (2026, August 11). Risk of severe arboviral disease in patients receiving B Cell-depleting or modulating medications CDCHAN-00532 [Health Alert]. Atlanta, GA: CDC, August 11, 2026. [Available at cdc.gov/han/php/notices/han00532.html (accessed August 27, 2026).]
8. Ardakani RV, Crane PD, Pastula DM, et al. West Nile virus neuroinvasive disease in patients treated with anti-CD20 therapies. Neurol Clin Pract 2025;15:e200489.
9. McCombe P, Butzkueven H, Samjoo I, et al. Utilisation of high efficacy therapy for managing multiple sclerosis in Australia. BMJ Neurol Open 2024;6(S1):A9.

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