Perspective Article

European Expert Recommendations on Teclistamab Management for Relapsed or Refractory Multiple Myeloma

Paula Rodríguez-Otero,[1] Philippe Moreau,[2] Maria Victoria Mateos,[3] Maria Theresa Krauth,[4] Leo Rasche,[5] Efstathios Kastritis,[6] Albert Oriol,[7] Elena Zamagni,[8,9] Claire Albrecht,[10] Eva Rubio-Azpeitia,[11] Niels W.C.J. van de Donk[12]

Abstract

The global incidence of multiple myeloma (MM) continues to rise. While survival rates for newly diagnosed patients have improved substantially with the introduction of novel therapies, outcomes remain poor for those with triple-class-exposed (TCE) relapsed/refractory MM (RRMM). Recent therapeutic innovations, including chimeric antigen receptor T-cell therapy, antibody-drug conjugates, and bispecific antibodies, offer new effective options for this challenging population. Teclistamab, the first approved B-cell maturation antigen-targeted bispecific antibody, has demonstrated deep and durable responses and an acceptable safety profile in TCE RRMM. Teclistamab is now a recommended treatment from second relapse onwards in patients with TCE RRMM in the 2025 European Hematology Association-European Myeloma Network guidelines. Nevertheless, considering the novelty of this agent and its overall safety profile, there is a need for clear guidance on patient management in routine clinical practice. Here, we aim to provide a comprehensive overview of the clinical profile of teclistamab and expert recommendations on its optimal use in TCE RRMM. We focus on key aspects and considerations needed for patient selection (including special populations such as the elderly, frail individuals, those with extramedullary disease or renal impairment), as well as therapy initiation, and strategies for adverse event prevention, monitoring, and management. Ultimately, this review aims to support physicians in maximizing the therapeutic potential of teclistamab, improving outcomes for patients through tailored, evidence-based management.

Clinical Lymphoma, Myeloma and Leukemia, Vol. 26, No. 3, e408–e420

Keywords: Bispecific antibody, Prophylaxis, Special patient populations, Therapy initiation, Therapy management

Abbreviations: AE, adverse event; BCMA, B-cell maturation antigen; bsAb, bispecific antibody; CAR-T, chimeric antigen receptor T-cell; CD, cluster of differentiation; CMV, cytomegalovirus; CR, complete response; CRP, C-reactive protein; CRS, cytokine release syndrome; CT, clinical trial; DOR, duration of response; EHA, European Hematology Association; EMD, extramedullary disease; EMN, European Myeloma Network; FcRH5, Fc receptor-homolog 5; GPRC5D, G protein–coupled receptor class C group 5 member D; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; HSV, herpes simplex virus; ICANS, immune effector cell-associated neurotoxicity syndrome; IgG, immunoglobulin G; IMF, International Myeloma Foundation; IgRT, immunoglobulin replacement therapy; IMWG, International Myeloma Working Group; IVIg, intravenous immunoglobulin; LDH, lactate dehydrogenase; LOT, line of therapy; mAbs, monoclonal antibodies; mDOR, median duration of response; MM, multiple myeloma; mOS, median overall survival; mPFS, median progression-free survival; MRD, minimal residual disease; NR, not reached; NGT, Nominal Group Technique; OPD, outpatient dosing; ORR, overall response rate; OS, overall survival; PCR, polymerase chain reaction; PFS, progression-free survival; PI, proteasome inhibitor; PJP, *Pneumocystis jirovecii* pneumonia; PK, pharmacokinetics; QW, weekly; Q2W, biweekly; Q4W, every 4 weeks; RI, renal impairment; RRMM, relapsed/refractory multiple myeloma; SC, subcutaneous; SCIg, subcutaneous immunoglobulin; SmPC, Summary of Product Characteristics; SUD, step-up dosing; TBE, target-cell-biologics-effector; TCE, triple-class-exposed; VGPR, very good partial response; VZV, varicella zoster virus.

[1]Cancer Center Clínica Universidad de Navarra, CCUN, CIMA, CIBERONC, IDISNA, Pamplona, Spain
[2]Centre Hospitalier Universitaire de Nantes, Nantes, France
[3]University Hospital of Salamanca/IBSAL/CIC/CIBERONC, Salamanca, Spain
[4]Department of Medicine I, Division of Hematology and Hemostaseology, Medical University of Vienna, Vienna, Austria
[5]Department of Internal Medicine II, University Hospital of Würzburg, Würzburg, Germany
[6]Department of Clinical Therapeutics, School of Medicine, "Alexandra" General Hospital, National and Kapodistrian University of Athens, Athens, Greece
[7]Institut Català d'Oncologia and Institut Josep Carreras, Hospital Germans Trias i Pujol, Badalona, Barcelona, Spain
[8]IRCCS Azienda Ospedaliero-Universitaria di Bologna, Istituto di Ematologia "Seràgnoli", Bologna, Italy
[9]Dipartimento di Scienze Mediche e Chirurgiche, Università di Bologna, Bologna, Italy
[10]Johnson & Johnson, Issy les Moulineaux, France
[11]Johnson & Johnson, Madrid, Spain
[12]Amsterdam University Medical Center, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

Submitted: Oct 29, 2025; Revised: Dec 3, 2025; Accepted: Dec 11, 2025; Epub: 13 December 2025

Address for correspondence: Paula Rodriguez-Otero, MD, PhD, Clínica Universidad de Navarra, Avda PIO XII 36, 31008 Pamplona, Spain
E-mail contact: paurodriguez@unav.es

2152-2650/$ - see front matter
https://doi.org/10.1016/j.clml.2025.12.003

Introduction

The prevalence of multiple myeloma (MM) is increasing, with an estimated 46,000 people in Europe diagnosed with MM by 2025.[1] Survival rates with first-line treatments have improved substantially with new treatment combinations such as anti-CD38 monoclonal antibody (mAb)-based quadruplets, with projected median progression-free survival (mPFS) rates estimated to be 205 months (17 years) in transplant-eligible and 100 months (8.3 years) in transplant-ineligible patients in the PERSEUS and CEPHEUS trials, respectively.[2] Nevertheless, many patients experience continuous relapses and outcomes worsen with each subsequent treatment line.[3,4] In this relapsed/refractory MM (RRMM) setting, despite increased treatment options and improved survival rates over recent years, the prognosis is still poor for patients exposed to the three main classes of MM therapy (proteasome inhibitors [PI], immunomodulatory drugs, and anti-CD38 mAbs); known as triple-class-exposed (TCE); with an overall response rate (ORR) of 32.5%, mPFS of 4.6 months, and median overall survival (mOS) of 14.8 months when treated with traditional approaches.[5]

Therapeutic Options in TCE RRMM

The introduction of new immunotherapies has revolutionized the treatment landscape for TCE patients with RRMM and has allowed for substantially improved outcomes in this patient population.[6] Chimeric antigen receptor T-cell (CAR-T) therapy targeting B-cell maturation antigen (BCMA) has proven very effective,[7] but it may not be a feasible treatment option for some patients, such as elderly/frail patients, those with rapidly progressing disease, with specific comorbidities or those without effective bridging therapy options. Bispecific antibodies (bsAbs) targeting BCMA (such as teclistamab, elranatamab, linvoseltamab, and etentamig), G protein–coupled receptor class C group 5 member D (GPRC5D, such as talquetamab) or Fc receptor-homolog 5 (FcRH5) (such as cevostamab) are effective off-the-shelf treatment options with manageable toxicity profiles.[7] Other treatments such as belantamab mafodotin (an antibody-drug conjugate) combinations, selinexor (a selective inhibitor of nuclear export) combinations and melflufen (a peptide-drug conjugate) can also be considered in this setting.[7-10] In this expert recommendations review, we focus on treatment, patient considerations, and patient management with teclistamab.

Teclistamab in RRMM

In 2022, teclistamab became the first BCMAxCD3 bispecific to be approved by the European Medicines Agency and the U.S. Food and Drug Administration in TCE RRMM, following the positive results of the pivotal phase I/II MajesTEC-1 study.[11-13] With a median follow-up of 30.4 months, teclistamab demonstrated deep and durable responses,[14] with an ORR of 63.0%, 59.4% of patients achieving a very good partial response or better (≥VGPR) and 46.1% of patients achieving complete response or better (≥CR).[14] mPFS and mOS were 11.4 months and 22.2 months, respectively.[14] Duration of response (DOR), PFS, and OS were further improved for patients with deep responses (ie, those achieving ≥ VGPR, ≥CR, or minimal residual disease [MRD] negativity), and for those with ≤3 prior lines of therapy (LOT).[14,15] MajesTEC-1 recruitment coincided with the period with highest death rate of the COVID-19 pandemic, which impacted the trial results. For this reason, a posthoc analysis was performed to censor COVID-19 deaths.[16] This analysis showed that mPFS, mOS, and median DOR (mDOR) were prolonged compared with the overall MajesTEC-1 cohort, with an mDOR of 26.7 months, mPFS of 15.1 months, and mOS of 28.3 months.[16] Moreover, in a recently published pooled analysis that included 217 patients from three registrational studies (MajesTEC-1, and the MajesTEC-1 Asian cohorts from China and Japan), the results were consistent with the COVID-19 censored analysis: ORR was 66.4% and 49.8% of patients achieved ≥ CR. mDOR, mPFS, and mOS were 26.7, 15.1, and 26.3 months, respectively.[17] A subgroup analysis of MajesTEC-1 in patients with high-risk features showed that patients ≥75 years, with high risk (HR) cytogenetics, or penta-drug refractoriness achieved response rates comparable to the broader patient population, whereas patients with other high-risk characteristics, such as extramedullary disease (EMD), remained difficult to treat.[18]

The safety profile of teclistamab is comparable to other BCMA T-cell redirecting therapies, with infections, cytopenias, and cytokine release syndrome (CRS) being the most frequently reported any-grade adverse events (AEs).[14] Nevertheless, in MajesTEC-1, low rates of discontinuation due to AEs and infections were reported (4.8% and 3.0%, respectively).[14] Furthermore, there was an observed decrease in the number of new-onset Grade ≥3 infections over time, coinciding with increased awareness on infection risk with BCMA bispecifics, use of immunoglobulin G (IgG) replacement therapy (IgRT), improved antimicrobial prophylaxis, and a switch to biweekly (Q2W) dosing in responders; and no new safety signals were identified in the long-term follow-up.[19]

Real-world data generally support the findings of MajesTEC-1.[20] In a recently published systematic literature review including six studies of teclistamab use in the real world, ORR ranged from 59.0% to 66.0%, with 38.0% to 51.0% of patients achieving ≥ VGPR.[20] More than half of patients in these studies would have been ineligible for MajesTEC-1, demonstrating the effectiveness of teclistamab in a broader patient population, including patients with prior BCMA-targeted therapy, high disease burden, poor performance status, cytopenias, and renal impairment (RI).[20] A real-world study by the US Myeloma Immunotherapy Consortium included 509 patients treated with teclistamab, of which 89% would not have been eligible for MajesTEC-1.[21] An ORR of 53% with a ≥ VGPR of 45% were reported, which are slightly inferior results to the pivotal trial. Factors associated with reduced effectiveness in this study were prior BCMA treatment, high tumor burden at baseline, lymphopenia, and elevated ferritin levels. However, the authors highlighted that a significant proportion of patients with adverse prognostic features still experienced clinically meaningful and durable responses, indicating that these negative factors mainly impact the chances of achieving an initial response. The safety profile was consistent with that previously reported, regardless of MajesTEC-1 eligibility. Notably, the all-grade infection rate was 42%, with 22% serious infections, potentially reflecting the improvement in prophylactic measures and IgRT use when compared to the pivotal trial.[21] Furthermore,

a European observational, retrospective study of patients receiving teclistamab outside of clinical trials (REALiTEC) included 113 patients from eight different countries, accessing teclistamab mainly from preapproval access programs (88.5% of cases).[22,23] REALiTEC included a heavily pretreated patient population and reported an ORR of 60.2% with a ≥ VGPR rate of 52.2%. With a median follow-up of 20.7 months, mDOR was 20.3 months, mPFS was 9.7 months, and mOS 26.2 months.[22,23] Outcomes were improved in patients achieving deep responses (≥VGPR). No differences in effectiveness were observed in patient subgroups with historically poorer outcomes, such as patients with high-risk cytogenetics or those penta-class refractory. The safety profile in REALiTEC was comparable to that described in MajesTEC-1.[22,23] This increasing body of evidence supports the use of teclistamab as an effective option for patients with TCE RRMM in routine clinical practice.

Given the relatively recent approval of teclistamab in many countries, guidance on optimizing patient management and supportive care is crucial to improve outcomes, including in broader patient populations that were not comprehensively represented in the pivotal trial. This manuscript aims to provide an overview of the most relevant data that support the optimal use of teclistamab, along with expert recommendations and practical guidance for its use in RRMM.

Methodology

Experts participating in this publication were selected based on their clinical backgrounds in MM, extensive experience using teclistamab inside and outside clinical trials (CTs), as well as having a substantial portfolio of research publications and CT participation in MM. Topics selected were areas where expert recommendations would be of benefit to healthcare professionals treating patients with teclistamab. All participants reviewed the most up-to-date clinical evidence and existing guidelines on the use of teclistamab in RRMM. Expert recommendations were formulated after a meeting aimed at discussing the most significant clinical data and gathering practical, experience-based insights from leading experts in the field.

To gain expert recommendations, the Nominal Group Technique (NGT) was implemented. The NGT, which is described in more detail by McMillan et al,[24] allows for simplicity, structured discussion, and immediate consensus. Advisors completed a premeeting survey with key questions related to teclistamab treatment. They completed this survey separately to ensure opinions were captured without external influence. Results of the premeeting survey were pooled and analyzed ahead of the meeting so that areas where more discussion would be required to deliver consensual recommendations could be identified.[24]

To implement the NGT, the meeting was structured as

- Reviewing areas of focus identified from the premeeting survey responses.
- Structured discussion in a round robin format to allow sequential view sharing and equal contribution from all experts.
- Group discussion to allow time for questions, clarification, and consolidation of key recommendations.

Discussion

Expert Opinions and Recommendations

Special Patient Populations. Teclistamab use should not be restricted, despite limited data available in some patient populations not broadly represented in the pivotal trial.[15] Recommendations on teclistamab use in the following subpopulations of interest are described below: patients with a history of recurrent infections, patients aged ≥75 years and frail patients, those with EMD, RI, prior exposure to BCMA-targeted agents and patients in the early relapse setting.

Patients With a History of Prior Recurrent Infections. As per the teclistamab Summary of Product Characteristics (SmPC), patients with active infections should not initiate treatment with teclistamab.[12] Most MM patients experience multiple infections due to disease-inherent immune impairment and immunosuppression related to previous anti-MM treatments.[25] Experts generally agreed that a history of prior infections should not contraindicate teclistamab treatment, and that treatment decision should be based on a risk/benefit assessment and an informed discussion with the patient. Caution is advised, and robust primary prophylactic measures (such as regular IgRT from teclistamab initiation or earlier, regardless of IgG levels or infectious risk, and antibiotics/antivirals) are critical to successfully treat and maintain patients on treatment and minimize infection risk. No clear definition of "recurrent infections" exists; however, it was proposed that the type and severity of recent infections, as well as number of prior hospitalizations due to those infections, could have an impact in the decision to initiate teclistamab treatment. Organ damage or permanent sequelae secondary to a prior infection (ie, cardiac insufficiency) should also be considered when treating patients with teclistamab, with close monitoring strongly advised. Experts generally favored the use of an alternative agent targeting GPRC5D (if available) for patients with prior severe recurrent infections or chronic conditions (such as chronic obstructive pulmonary disease), owing to a better preservation of humoral immunity and lower infectious risk compared with BCMA-directed bsAbs, although use of teclistamab would not be contraindicated in those patients.[26]

Patients Aged Over 75 Years and Frail Patients. Real-world studies including elderly patients have shown efficacy and safety comparable with MajesTEC-1.[27-29] In multicenter studies from the US and France, including a total of 688 patients with RRMM treated with teclistamab, 25.0% of patients were aged ≥75 years, and the median number of prior LOTs was 4 to 6. In both studies, mPFS was longer in the ≥75 years population than in the <75 years population, with a mPFS of 10.7 to 16.4 months in patients ≥75 years vs. 5.2 to 9.1 months in patients <75 years.[28,29] No significant difference in the rates of any-grade CRS, or any-grade immune effector cell-associated neurotoxicity syndrome (ICANS) was observed between the ≥75 and <75 age groups in these studies.[28,29] Despite being potentially driven by confounding factors such as the elderly potentially having a more indolent form of MM, these studies support the favorable effectiveness and manageable safety profile of teclistamab in older patients with TCE RRMM.[27-29] Considering frailty, a

retrospective International Myeloma Foundation (IMF) study assessed the feasibility of teclistamab treatment in frail patients. The study included 81 patients with a median age of 76 years; most (72.8%) were considered frail, and 64.4% were classified as "ultra frail."[30] With a median follow-up of 13.1 months, ORR was 55.0% in the fit group and 66.1% in the frail group.[30] Estimated 12-month PFS rates in the fit and frail patient groups were 50.8% and 40.6%, and estimated 12-month OS rates were 74.2% and 56.2%, respectively. However, frail older adults had higher rates of infections (including Grade ≥ 3), CRS, and ICANS than the fit population. The authors concluded that these data suggest that BCMA-targeted bsAbs are effective and tolerable in frail patients, but implementing extra prophylactic and supportive care measures is needed in this patient population to optimize outcomes.[30] Additionally, another single-center, retrospective study assessed clinical outcomes with bsAbs based on frailty.[31] Best ORR was 80.0% (48.0% VGPR) in the frail group ($n = 40$) and 73.0% (31.0% VGPR) in the nonfrail group ($n = 62$). With a median follow-up of 8.6 months, no significant differences were observed in mPFS (not reached [NR] vs. 11 months) or OS (37 vs. 25 months) between the frail and nonfrail groups. In contrast with the prior study, safety was also comparable between the frail and nonfrail patients.[31] Overall, these data support teclistamab as a feasible and effective treatment option in older and frail patients with RRMM.

It was unanimously agreed by the experts that teclistamab should be considered in patients ≥75 years. Treatment of frail patients should also be considered, with an individualized risk/benefit assessment and consideration of the underlying reason for frailty. Frailty assessments are not standardized and are not always representative (such as the Activities of Daily Living and Instrumental Activities of Daily Living assessments), so they should be interpreted with caution. Frailty due to MM (ie, due to MM-related bone disease) should not contraindicate treatment, as it could partially resolve during treatment, but frailty due to other comorbidities requires careful evaluation of the risk/benefit balance of the treatment. Close monitoring, aggressive prophylaxis, and optimized supportive care is essential in this patient group. Moreover, AEs that may require long hospitalizations could potentially lead to increased risk of nosocomial infections and reduced performance/cognitive status in frail patients.[32] Social surroundings are also important for these patients to have support to follow their treatment appropriately, report AEs, and reach appropriate medical assistance if needed.

Patients With EMD. Patients with EMD have historically impaired outcomes with most available MM treatments.[33] In a pooled analysis of 302 patients with TCE RRMM from the LocoMMotion and MoMMent studies, 29 patients had EMD, with 52.0% of patients identified as having true-EMD, 41.0% with paraskeletal disease, and 7.0% of patients with an undetermined subtype.[34] With a median follow-up of 26.5 months, ORR was 24.1%, mDOR was 10.0 months, mPFS was 2.7 months and mOS was 7.2 months.[34] A multicenter US study of 385 patients receiving teclistamab showed that patients with true-EMD (26.0%) and paraskeletal disease (11.0%) had significantly lower effectiveness outcomes (ORR, PFS, and OS) compared with those without EMD.[35] Real-world data from the RetrosTECtive study, as well as from a recently published cohort from Germany, also demonstrated that EMD patients had impaired outcomes as compared to those without EMD.[29,36] Nevertheless, although response rates in patients with EMD are lower than those without, it was unanimously agreed that, due to a lack of more effective treatments and approved combinations, teclistamab should be considered as a valid option in these patients as MajesTEC-1 shows there is a possibility to reach a ≥ CR in 17.9% of patients with EMD, with a 24-month DOR of 50.0%; results that compare very favorably with traditional approaches.[18]

Some studies have shown that debulking with chemotherapy prior to teclistamab could be an effective option. A French study across 15 IMF centers evaluated the effectiveness and tolerability of conventional chemotherapy as a debulking strategy prior to the use of bsAbs in patients with EMD and/or high tumor burden.[37] With a median follow-up of 11 months, the ORR after one cycle was 63% with 49% ≥ VGPR. PFS was comparable to the non-EMD patients. Authors concluded that, in their experience, this strategy is feasible and can be used to improve responses to bsAbs. Similarly, a Canadian study on prior debulking in these patients showed that patients with high tumor burden who received debulking had similar ORR, PFS, and OS to the overall patient population, with chemotherapy reducing the risk of nonresponse.[38] Experts agreed that prior debulking could be an option for EMD patients to improve outcomes with teclistamab, but the agents and number of cycles needed, as well as the tolerability of those agents are factors to take into consideration and still not well understood to broadly implement this approach. Experts also mentioned that combination strategies could be of interest in this patient population. In the RedirecTT-1 study, combining teclistamab and talquetamab, an ORR of 78.9% and a ≥ CR rate of 54.4% were observed, as well as 13-month PFS and OS rates of 61.0% and 74.5%, respectively.[39] These impressive results have not been previously reported in this patient population and exceed those of standard therapies and novel T-cell redirecting therapies. Moreover, it was also suggested that radiotherapy may also be beneficial for patients with extramedullary plasmacytomas to decrease tumor burden.[40] Further research is granted to improve outcomes in this patient population that still represents a significant medical unmet need.[41]

Patients With RI. Up to 50.0% of patients with MM have RI at the time of diagnosis, and approximately 2.0% to 10.0% require dialysis, with outcomes tending to be worse in this patient group than in patients without RI.[42-44] A real-world study from the US ($N = 384$) showed that patients with RI receiving teclistamab had similar outcomes compared with those without RI.[45] ORR was 52.0% vs. 56.0%, with a ≥ VGPR rate of 47.0% vs. 46.0% in patients with and without RI, respectively. Similar results were observed for PFS and OS, and the safety profile was consistent between the two groups.[45] A French case series assessed the outcomes of teclistamab in 15 patients with RRMM undergoing dialysis.[44] Overall, 14 of 15 patients had a response to teclistamab (11 being ≥ VGPR), and mPFS was NR. Grade 1 to 2 CRS occurred in 73.3% of patients with no Grade 3 to 4 CRS. These findings were further supported by an international, multicenter, retrospective study by the International Myeloma Working Group (IMWG), including 210 patients. In total, 26 patients were

considered to have RI, defined by a creatinine clearance rate of ≤30 mL/min. The study found no significant difference in ORR between patients with RI compared with those without (66.7% vs. 67.1%, respectively). PFS and OS rates at 6 months were also similar between those with and without RI (62% vs. 52%, and 80% vs. 72%, respectively).[46] Considering the latter, teclistamab seems to be a feasible, effective and safe option for patients with RI, including those on dialysis.[46] It was unanimously agreed by the experts that teclistamab should be considered as a treatment option in patients with RI, as recommended in the recently published European Hematology Association-European Myeloma Network (EHA-EMN) guidelines.[7] Dose modifications are not required for this subgroup of patients[46]; however, some experts recommended that it could be advantageous for renal function to be stable prior to initiating teclistamab. Moreover, it was mentioned that careful infection prophylaxis and close monitoring should be also established for this patient subgroup, as risk of infection can be higher among patients with severe RI or on dialysis.

Patients With Prior BCMA Exposure. Studies have demonstrated that teclistamab provides clinically meaningful responses in patients with RRMM with prior anti-BCMA treatment. In MajesTEC-1 cohort C including patients with prior exposure to BCMA ($n = 40$), after a median follow-up of 26.3 months, ORR was 52.5%, ≥VGPR rate was 47.5%, ≥CR rate was 30.0%, and mPFS was 4.5 months.[47] The safety profile of teclistamab was similar to that of patients with no prior BCMA exposure.[47] In the above-mentioned real-world evidence study by the US Myeloma Immunotherapy Consortium, 236 of the 509 patients were treated with prior BCMA.[21] Those patients had an ORR rate of 48%, compared with 58% in patients without prior BCMA. A significant impact in response rates as well as PFS was observed in patients who received BCMA-directed therapy within the prior 9 months to teclistamab initiation was reported, with prior CAR-T cell therapy having a stronger association with impaired outcomes as compared to prior belantamab mafodotin.[21] In REALiTEC, 40 patients were BCMA-exposed,[22] ORR rates were comparable between the BCMA-exposed and BCMA-naïve groups (52.6% and 64.0%, respectively) but mPFS was shorter with 3.4 vs. 13.8 months. In this cohort, it was observed that prior treatment with antibody-drug conjugates, but not CAR-T, had a significant negative effect on PFS and OS.[23] Discrepancies between these findings may be due to the characteristics of the individual patients (such as number of prior LOT, high-risk characteristics, refractoriness to prior BCMA), and further research is granted to elucidate the best sequencing pattern. Time between prior BCMA and teclistamab could have a direct influence on teclistamab efficacy, but the exact washout time and the role of potentially adding a "bridging" therapy between BCMA-directed therapies remain unclear. A multicenter US study of 193 patients with prior BCMA-directed therapy showed that the optimal cut-off from the last BCMA-directed therapy exposure to teclistamab initiation was >8.7 months.[27] Patients with >8.7 months between last exposure to prior BCMA-directed therapy and teclistamab initiation had a significantly superior mPFS compared with patients with <8.7 months. Overall, these results suggest that timing of teclistamab initiation in relation to last exposure to prior BCMA-directed therapy is important, and having a washout period between BCMA-targeting therapies could be associated with an improved PFS.[27] Several experts recommend a ≥6-month washout period from prior BCMA exposure for antigen recovery; with longer washout periods being associated with better outcomes. However, in some cases, a more indolent form of MM can allow for long washout periods, but for aggressive forms, treatment needs to be initiated quickly, and allowing for those periods could be challenging. It was mentioned that BCMA-testing prior to anti-BCMA re-challenge may also be of benefit. Overall, it was recommended to use an alternative target, such as GPRC5D if access allows, in patients with prior exposure to BCMA-targeted therapies.

Patients in the Early Relapse Setting. Teclistamab is approved for patients with RRMM who have received at least three prior therapies, including an IMID, a PI, and an anti-CD38 antibody (TCE) and have demonstrated disease progression on the last therapy.[11,12] Considering current available standard of care combinations in the front line and first relapse settings, a patient can become TCE relatively quickly in the treatment journey (ie, the first or second relapse).[7] In the recently published EHA-EMN guidelines for the treatment of MM, teclistamab is recommended as early as second relapse.[7] In MajesTEC-1 improved outcomes were observed in patients with ≤3 prior LOTs than those with >3, with an ORR of 74.4%, a ≥ CR of 60.5%, and a mPFS of 21.7 months.[15] It was generally agreed that patients should be considered for teclistamab by prior treatment exposure rather than the number of prior LOTs. As risk of comorbidities and high-risk features increases over time, outcomes in TCE patients may be optimized with novel therapies in the early relapse setting, although access to teclistamab in early lines in Europe is variable depending on reimbursement conditions.

Expert Recommendations on Special Patient Populations

- Patients with a history of recurrent infections should be considered as candidates for teclistamab, depending on severity and need for hospitalization. However, caution and evaluation of comorbidities and risk/benefit of treatment is advised, and primary prophylaxis with IgRT and antibiotics/antivirals is strongly recommended. Alternatively, GPRC5D-targeted therapy can be used if access allows, due to a lower risk of infections.
- Elderly and frail patients can be considered for teclistamab treatment as it is effective and well-tolerated in this patient population. The underlying reason for frailty should be considered, especially for complications that could lead to hospitalization, to ensure a positive benefit-risk ratio.
- Teclistamab is a valid treatment option for patients with EMD. Strategies such as debulking prior to treatment, as well as combination with other agents, may help improve outcomes in this patient population and are granted further investigation.
- Teclistamab is a valid treatment option for patients with RI, even those on dialysis, as recommended in the EHA/EMN guidelines.
- Teclistamab provides clinically meaningful responses in patients with prior exposure to BCMA-targeted agents. If feasible, a washout period of ≥6 months is recommended to allow for

antigen recovery. However, switching to GPRC5D targeting agents is preferred if access allows.
- Patients should be considered for treatment with teclistamab according to prior treatment exposure rather than prior LOT and should be treated as soon as access allows for improved outcomes.

Therapy Initiation and Management

Following core guidelines for therapy initiation and management is recommended, including the EU SmPC, CT recommendations, IMWG guidelines and others.[7,12,48-50] As per the SmPC, when initiating teclistamab treatment, premedication and step-up dosing (SUD) is required (0.06 and 0.3 mg/kg) prior to reaching a weekly (QW) maintenance dose of 1.5 mg/kg subcutaneously.[12] It is important that patients remain close to the healthcare facility and are monitored for signs and symptoms of CRS daily for 48 hours after administration of all doses within the teclistamab SUD schedule.[12]

Inpatient and Outpatient Dosing

Outcomes from different US and European centers support community use and outpatient administration as a feasible option for teclistamab SUD when established protocols are implemented. It has been proposed that up to 50.0% of patients receiving teclistamab in the next 3 years could be treated as outpatients during the SUD phase, with implementation of outpatient dosing (OPD) across Europe rising and experience being gained.[51] European consensus guidelines for outpatient administration have been recently published, focusing on the practicalities of safely delivering OPD for patient convenience, quality of life and hospital resource optimization.[51,52] These recommendations detail preparations for OPD (including infrastructure and patient selection), treatment initiation (ie, actions prior to SUD), and post-SUD management (including AE monitoring and management). Experts identified some barriers to OPD, including logistics, patient distance to hospital, and limited resources for patient monitoring. They recommended a holistic assessment of the patient to be performed prior to initiating OPD, as some patients (such as those who are elderly, frail, or not adequately supported at home) may not be ideal candidates for OPD. As OPD becomes more common, adequate infrastructure, protocols, emergency department training, and patient education are required.[53,54]

It was also noted that patient communication is essential for safe delivery of teclistamab. When a patient initiates teclistamab, they should be provided with a patient card that details the symptoms of CRS and ICANS, as well as contact information for their treating physician/center and information around SUD.[55] Discussion between a nurse, the patient, and their carers is also advantageous for education on what to expect. Patient advocacy groups also have a critical role in this communication and provide support to patients and families when required.

CRS Prophylaxis and Management

In MajesTEC-1, CRS events were manageable and mild in severity, with most events resolving without the need for treatment discontinuation.[13,14,56-59] In the long-term follow-up, 72.1% of patients experienced CRS, of which only one event was Grade 3/4 and happened in the setting of a pneumonia, highlighting the importance of not starting treatment during an active infection.[14] Currently, there are no validated tools or biomarkers to predict for CRS risk or severity. Based on their clinical experience, experts advised special caution in some patients, such as those with high tumor burden, EMD, significant comorbidities, elevated lactate dehydrogenase (LDH), high ferritin, and/or C-reactive protein (CRP) levels at baseline. CRS incidence has been reported as lower in real-world studies as compared to CTs; maybe due to improved awareness and understanding of the prevention and management strategies for CRS or inherent underreporting of low-grade events in real-world studies. In the above-mentioned REALiTEC study, CRS occurred in 55.7% of patients, with most cases being Grade 1 to 2.[22] Similarly, in the pooled real-world analysis of 875 patients receiving teclistamab, CRS occurred in 52.9% of patients, with only 1.3% of patients experiencing Grade $\geq$ 3 CRS.[20]

The use of prophylactic tocilizumab has been proposed as a strategy to reduce CRS rates and perform OPD safely.[51,52] In an exploratory cohort of MajesTEC-1 analyzing the impact of prophylactic tocilizumab, CRS incidence decreased from 72.1% to 25.0% when using tocilizumab, while teclistamab responses were not impacted.[59] Additionally, preliminary results from the phase II OPTec study showed that prophylactic tocilizumab administered before the first SUD reduced the risk of CRS without further impacting teclistamab efficacy or safety.[60] A retrospective study of 243 patients found that the combination of tocilizumab for CRS prophylaxis and dexamethasone for CRS management could be an effective strategy for teclistamab OPD, although dexamethasone was associated with a higher CRS recurrence.[61] In a study of 29 patients receiving teclistamab for RRMM (20 through a compassionate use program and 9 through the MajesTEC-1 trial), it was found that prophylactic tocilizumab administered prior to the first SUD reduces the incidence of low-grade CRS (10.3%) without compromising efficacy outcomes ($\geq$VGPR reported in 75.9% of patients), adding to the evidence that minimizing the low CRS rate with tocilizumab prophylaxis may improve the safety and feasibility of OPD.[62] It was generally agreed that prophylactic tocilizumab (if commercially accessible) could be used in a selected patient population at a higher risk of CRS receiving teclistamab in the outpatient setting. Tocilizumab is not considered necessary for all patients, but a safe and effective tool for OPD. Providing patients with dexamethasone for at-home use in case of occurrence of low-grade CRS could also be a valid alternative for OPD due to its effectiveness and availability. Nevertheless, dexamethasone dosing needs to be managed with caution in patients treated with teclistamab, as it has been identified as a significant and independent risk factor for increased infections, including infection by atypical pathogens such as fungal infections and *Pneumocystis jirovecii* pneumonia (PJP), particularly when used long-term or at high dose.[63,64] Further research is warranted to determine the best approach for CRS prevention and OPD, but decisions will most likely be driven by access and personal experience.

For CRS and ICANS management, it is advised to follow the IMWG guidelines.[50]

Expert Recommendations on Therapy Initiation and CRS Prophylaxis

- OPD of teclistamab is feasible and is increasing with experience.
- There are no validated tools to predict for CRS risk, but some patients may have a higher risk, such as those with high tumor burden, EMD, elevated LDH, high ferritin, and/or CRP levels.
- Prophylactic tocilizumab can be an effective tool for CRS prevention in the outpatient setting and for community use, especially for those patients at higher risk.
- Provision of dexamethasone to patients for at-home use in the case of low-grade CRS can be useful for quick outpatient management, especially in patients who live further from the hospital.

Prevention and Management of Infections

In the long-term follow-up of MajesTEC-1, infections were reported in 78.8% of patients (55.2% Grade 3/4). The onset of new Grade $\geq$ 3 infections declined over time, which may be attributed to the transition from QW to Q2W dosing and increased use of IgRT.[14] However, the risk of infection remains for the duration of teclistamab treatment and even after it is discontinued, so patients should be continuously monitored. Adequate infection prophylaxis and management with supportive care is critical to maintain patients on treatment.[14] As such, recommendations on the management of infections are available in the EU SmPC from MajesTEC-1 trial experience, in IMWG guidelines, from the National Institute for Health and Care Excellence, and others.[12,13,19,25,50,58,65-67]

Infection Prophylaxis. Screening for hepatitis B virus (HBV), varicella zoster virus (VZV), and human immunodeficiency virus (HIV) before treatment with teclistamab is highly recommended. Screening for hepatitis C virus (HCV) and cytomegalovirus (CMV) was also performed by some of the experts. Anti-viral prophylaxis should be tailored depending on patient risk and the results of the screening, but prophylaxis for herpes simplex virus (HSV) and VZV with prophylactic acyclovir or valacyclovir is required before and during treatment. In patients at risk of HBV reactivation (or with chronic infection), treatment with entecavir/tenofovir should be given before starting treatment, and polymerase chain reaction (PCR) monitoring every 3 months is recommended. Vaccinations should be up to date before initiating teclistamab; current IMWG guidelines recommend that all MM patients should be vaccinated against influenza, COVID-19, herpes zoster virus, and streptococcus pneumoniae.[50] It was also been suggested that vaccinating against respiratory syncytial virus, recently approved for immunocompromised patients, would be beneficial.[68] If vaccinations are not up to date prior to treatment initiation, they should be provided after the CRS window to adequately identify any potential fever. Generally, broad-spectrum prophylaxis with antibiotics is not recommended, but could be considered (such as levofloxacin) for patients with prior recurrent infections or frail patients. Nevertheless, trimethoprim/sulfamethoxazole (cotrimoxazole) prophylaxis for PJP is required before and during treatment, with pentamidine or atovaquone being alternatives in the case of trimethoprim or sulfamethoxazole allergy.[69] In patients receiving higher doses of immunosuppressive therapy (such as several doses of tocilizumab or high/prolonged doses of steroids), those who are frail, and those with a history of invasive fungal infections (for example, aspergillosis)—further antifungal prophylaxis may also be required in agreement with infectious disease teams. This may be particularly pertinent in patients with coexisting neutropenia. Using granulocyte colony-stimulating factor for patients with neutropenia prior to or during treatment initiation is advised, but ideally not during SUD to avoid the CRS risk period.

Use of IgRT. Reducing the risk of infections for patients receiving BCMA bsAbs with robust infection prophylaxis with primary IgG replacement is an essential strategy for significantly reducing infection-related morbidity and mortality.[59,60,63,64] In MajesTEC-1, patients who received primary prophylaxis with intravenous immunoglobulins (IVIg) had a significantly lower incidence of serious infections vs. patients who did not receive primary IVIg prophylaxis (5.3% and 54.8%, respectively).[70] In this study, primary prophylaxis was defined as IVIg supplementation in cases with polyclonal IgG $<$ 4 g/L, and secondary prophylaxis was defined as IVIg given in patients who developed a severe infection with IgG $<$ 4 g/L.[70] In a multi-institutional study of 168 patients treated with teclistamab, 42.0% of patients received IVIg supplementation, mainly as primary prophylaxis.[71] The results of this study showed that infection-free survival (all grade and Grade $\geq$ 3) was significantly improved in patients who received primary IVIg prophylaxis, and the use of primary IVIg prophylaxis was a predictor of improved OS in the multivariate analysis.[71] Hence, primary prophylaxis with IgRT is essential for all patients receiving teclistamab. In line with this recommendation, a recently published viewpoint recommends primary IgRT prophylaxis as standard of care for all patients with MM receiving bsAbs regardless of polyclonal IgG levels or infection history, as this approach would ultimately be both the simplest and safest option.[72] IgRT should begin within the first month of teclistamab initiation, regardless of IgG levels and infectious risk, and possibly earlier in frail patients or those with polyclonal IgG $<$ 400 mg/dL, and should be administered regularly. In the case of restricted access and IgRT being administered according to polyclonal IgG levels, caution is advised as a single polyclonal IgG level $\geq$400 mg/dL may not necessarily quantify humoral immunity and ensure protection against circulating viruses such as influenza and SARSCoV-2, for which continuous IgRT can confer meaningful immunity.[72] In addition, the threshold of 400 mg/dL may be too low as physiological IgG levels in healthy subjects range from approximately 600 to 1600 mg/dL, and levels can drop quickly. Thus, starting IgRT when polyclonal IgG levels are 500 to 600 mg/dL may be beneficial for infection risk and outcomes.[73] IgRT should continue after stopping teclistamab until IgG levels are fully recovered, as hypogammaglobulinemia can persist for several months after treatment discontinuation. There is no consensus on the appropriate duration of IgRT after teclistamab discontinuation, but experts considered a 6 to 12-month period to be suitable (depending on IgG recovery and infectious risk).

The method of IgG administration (intravenous or subcutaneous [SC]) may vary depending on the formulation. SC immunoglobu-

lin (SCIg) is available in some countries and can serve as an alternative to IVIg. SCIg is often favored for patients with home-based therapy, appears to provide more stable IgG levels with fewer fluctuations and a reduced risk of systemic reactions vs. IVIg; however, it typically requires more frequent administration.[74] SCIg could be more cost-effective than IVIg given the costs of infusions and/or hospitalizations required for the latter. Conversely, IVIg may be more effective for rapidly increasing IgG levels, requires less frequent administration but must be given in a hospital or clinic setting, and as previously mentioned, might carry a risk of systemic side effects. Of note, it was advised that, when using IVIg, infusion should be avoided during the CRS period, to clearly distinguish between IgRT-related infusion reactions and CRS. There is also a hyaluronidase-enhanced SCIg that uses the enzyme hyaluronidase to help overcome the limitations on the maximum volume that can be delivered into the SC area by enabling dispersion and absorption of SCIg.[75] It was agreed that ultimately, both options are valid, and the decision between them should be based on the patient's condition, characteristics, access and hospital organization.[74] The suggested dose of IgRT may vary depending on the route of administration. For IV dosing, 0.4 g/kg monthly was recommended.

Expert Recommendations on Infection Prophylaxis

- Patients should be screened for HBV, VZV, and HIV. Screening for HCV and CMV may also be considered.
- Anti-viral prophylaxis should be tailored depending on patient risk, but for HSV/VZV prophylaxis is strongly advised before treatment.
- Vaccinations should be up to date.
- PJP prophylaxis with trimethoprim/sulfamethoxazole is strongly recommended.
- Antifungal prophylaxis can be considered in patients with history of fungal infections, use of high-dose steroids or prolonged steroid use, frailty, and neutropenia.
- IgRT is essential in patients receiving teclistamab and should be given as primary prophylaxis when possible, beginning within the first month of teclistamab initiation and administered regularly. IgRT should be continued until IgG recovery even after teclistamab treatment is stopped.
- In the case of restricted access to IgRT, starting supplementation when polyclonal IgG levels are <400 mg/dL may not be optimal, and to avoid quick drops that may compromise patient's seroprotection, IgRT should be initiated when higher levels of polyclonal IgG (500-600 mg/dL) are detected.
- IVIg or SCIg can be administered, and choice is dependent on access, patient characteristics, and hospital organization.

Infection Management Strategies. When a patient with RRMM develops fever, infection should always be considered as the primary cause until proven otherwise. Patients with febrile neutropenia should have blood and other bacterial cultures collected and started promptly on broad-spectrum antibiotics.[63] Therapy should be administered based on the patient's history—including prior infections, viral serostatus, recent treatments, and comorbidities—as well as clinical, radiological, and microbiological findings.[63] Using broad-spectrum antibiotics for the management of common, nonserious infections is the most used approach. To manage potentially serious infections, such as pneumonia, hospitalization, along with aggressive use of intravenous antibiotics and close monitoring for viral and fungal infections (with treatment as needed), as well as IgRT, is recommended. Collaboration with radiologists, pulmonologists, and the infectious disease team is critical, with treatment discontinuation as per SmPC guidance if serious AEs occur.[12]

Cytomegalovirus. While CMV reactivation is rare in immunocompetent individuals, it is common in immunocompromised individuals.[76] The risk of CMV reactivation in patients with MM is increased after autologous stem cell transplant, CAR-T or anti-CD38 mAb treatment.[76] A US study assessed the risk factors and clinical impact of CMV reactivation in 48 patients receiving teclistamab.[76] CMV PCR and serology testing was performed in 23 patients and CMV DNAemia was detected in 12 of 23 (52.2%) patients with a median time to DNAemia of 54 days. These patients were more prone to have CMV IgG seropositivity (91.7% vs. 45.5%) and to develop other types of infections (67.0% vs. 27.0%), including Grade 3 to 4 infections. Oral valganciclovir was initiated in 11 of 12 patients, and teclistamab was continued while on valganciclovir in all patients except for one. Median time for clearance was 26 days (21-43). Current guidelines do not recommend routine PCR monitoring of CMV.[12,13,19,25,50,58,65-67] However, this study concluded that healthcare professionals should remain vigilant of CMV infection—regardless of patient CMV seropositivity status or the presence or absence of symptoms—due to the impaired cellular and humoral immunity in RRMM patients.[76] Experts acknowledged that a large proportion of the general population will have a history of CMV infection and, in their experience, CMV infection is rare in patients receiving teclistamab. Monitoring should be performed as clinically indicated, such as in the presence of unexplained fever, cytopenia, weight loss, or diarrhea. CMV treatment should be initiated when clinical symptoms appear in conjunction with a high or increasing viral load. If treating CMV with valganciclovir, patients should be regularly monitored for cytopenias that could lead to worsening of infections. Collaboration with the infectious disease team for management of CMV is strongly advised.

Expert Recommendations on the Management on Infections and CMV

- For the management of common, nonserious infections, such as upper respiratory tract infections, antibiotics/antivirals, active monitoring, and IgRT are strongly advised.
- For the management of potentially serious infections, such as pneumonia, hospitalization, along with the previous recommendations, should be considered.
- When suspecting an infection, testing should be performed, and CMV treatment should be initiated when clinical symptoms appear in conjunction with a high or increasing viral load.
- Collaboration with infectious disease teams is strongly advised.

Teclistamab Dosing. As stated in the SmPC, in patients who have achieved a ≥ CR for ≥6 months, a reduced dosing frequency of 1.5 mg/kg Q2W can be considered.[12] In the MajesTEC-1 study, new-onset Grade ≥ 3 infections decreased over time, with fewer

Table 1 Overview of Ongoing Clinical Trials of Teclistamab

Patients	Study	Phase	Experimental Therapy	ORR/≥CR
RRMM	MajesTEC-1; MMY1001 (NCT03145181)	I	Teclistamab monotherapy	65%/40% ($n = 40$ RP2D; 5PL)[85]
	MajesTEC-1; MMY1001-P3 (NCT04557098)	II	Teclistamab monotherapy	63%/46.1% ($n = 165$; 5PL)[14]
	MajesTEC-3; MMY3001 (NCT05083169)	III	Teclistamab + daratumumab SC vs. DPd or DVd	NR[a]
	MajesTEC-9; MMY3006 (NCT05572515)	III	Teclistamab vs. PVd or Kd	NR[a]
	TRIMM-2; MMY1002 (NCT04108195)	I	Teclistamab or talquetamab + daratumumab SC ± P	70%/50% ($n = 10$; ≥3PL)[86]
	TRIMM-3; MMY1005 (NCT05338775)	Ib	Teclistamab or talquetamab + PD-1 inhibitor	NR[a]
	RedirecTT-1; MMY1003 (NCT04586426)	Ib/II	Teclistamab + talquetamab ± daratumumab SC	78%/48% ($n = 94$; 4PL)[81]
NDMM	MajesTEC-4; MMY3003 (NCT05243797)	III	Teclistamab ± R vs. R (post-transplant maintenance)	Tec (QW-Q4W)-Len: 100%/90.6%[b] ($n = 32$)
				Tec (Q4W)-Len: 90.6%/65.6%[b] ($n = 32$)
				Tec (Q4W): 93.3%/70%[a] ($n = 30$)[80]
	MajesTEC-5; MMY2003 (NCT05695508)	II	Teclistamab + DRd ± V (induction) Teclistamab + DR (post-transplant maintenance)	Tec (QW)-DR: 100%/100% ($n = 10$)
				Tec (Q4W)-DR: 90%/70% ($n = 20$)
				Tec (Q4W)-DVR: 89.5%/52.6% ($n = 19$)[87]
	MajesTEC-7; MMY3005 (NCT05552222)	III	Teclistamab + daratumumab SC + R vs. DRd	SRI: 92.3%/80.8% ($n = 26$)[88]
RRMM and NDMM	MajesTEC-2; MMY1004 (NCT04722146)	I	Teclistamab + daratumumab SC + P Teclistamab + daratumumab SC + VR Teclistamab + nirogacestat Teclistamab + R Teclistamab + daratumumab + R	94.1%/64.7% ($n = 17$; 1-3PL)[89] NR[a]

Abbreviations: CR = complete response; DR = daratumumab and lenalidomide; DPd = daratumumab, pomalidomide, and dexamethasone; DRd = daratumumab, lenalidomide, and dexamethasone; DVd = daratumumab, bortezomib, and dexamethasone; Kd = carfilzomib and dexamethasone; LEN = lenalidomide; NDMM = newly-diagnosed multiple myeloma; NR = not reached; ORR = overall response rate; P = pomalidomide; PD-1 = programed cell death protein 1; PL = prior lines; PVd = panobinostat, bortezomib, and dexamethasone; Q4W = every 4 weeks; QW = weekly; R = lenalidomide; RP2D = recommended phase II dose; RRMM = relapsed/refractory multiple myeloma; SC = subcutaneous; SRI = safety run-in; tec = teclistamab; V = bortezomib; VR = bortezomib and lenalidomide.

[a] Not publicly available information. Dosing and schedules are described in respective study protocols (data on file).

[b] Best response on maintenance.

infections reported in patients switching to Q2W dosing and receiving IgRT.[19] Maintaining treatment intensity (ie, QW dosing) in the first months of treatment is critical to control disease and achieve deep responses (median time to ≥ CR in MajesTEC-1 was 4.6 months).[20] Dose reduction without compromising efficacy is essential, especially in patients who are in late LOT with few or no subsequent treatments available. It was generally agreed that reducing dosing frequency to 1.5 mg/kg Q2W should be considered when patients achieve and maintain deep and durable responses (VGPR/CR), or because of persistent AEs. Factors that should drive decision-making when reducing dosing frequency are depth of patient response to treatment, AEs associated with treatment, and ultimately, patient convenience. Further dose reductions to monthly (Q4W) administration of 1.5 mg/kg are off-label but could

be considered when there is a clear rationale for the specific patient (ie, recurrent AEs and/or the presence of deep and long-term durable responses). With the available evidence today, the impact of the reduced 1.5 mg/kg Q4W dosing schedule on the long-term outcomes of patients is not well established. Consequently, general recommendations outside of label guidance cannot be made due to the current lack of robust clinical data.

A recent study by Guo et al[77,78] detailed the pharmacokinetics (PK), pharmacodynamics, and anti-cancer efficacy of various dosing schedules for teclistamab. The results of this study support the approved transition to a dosing regimen of 1.5 mg/kg Q2W for patients who have maintained a ≥ CR for ≥6 months. Results showed comparable formation of target-cell-biologics-effector (TBE) trimers, tumor volume reduction, and sustained responses when comparing QW and Q2W dosing schedules; however, an initial schedule of 1.5 mg/kg QW was necessary to achieve maximum tumor reduction during the early treatment phase. PK simulations indicated that the median steady-state profiles were similar between the 1.5 mg/kg Q2W and 3 mg/kg Q4W teclistamab dosing regimens, as 3 mg/kg Q4W dosing resulted in analogous median TBE trimer formation. In contrast, lower doses such as 1.5 mg/kg Q4W led to decreased exposure compared with the established 1.5 mg/kg Q2W regimen.[77,78] Given this, it was proposed that the less frequent dosing schedule of 3 mg/kg Q4W may maintain responses similar to those achieved with the 1.5 mg/kg Q2W schedule. Some experts highlighted that this study may have some limitations in its applicability to clinical practice and should be interpreted with caution, but that it is a valid tool until further clinical data on less frequent dosing is published. Additional clinical evaluation of the 3 mg/kg Q4W schedule[77,78] is being conducted in more than a thousand patients across five phase III studies (MajesTEC-3 [NCT05083169], MajesTEC-4 [NCT05243797], MajesTEC-7 [NCT05552222], MajesTEC-9 [NCT05572515], MonumenTAL-6 [NCT06208150]).

Expert Recommendations on Teclistamab Dosing

- Treatment intensity (ie, QW dosing) in the first months of treatment is critical to reach and maintain the deepest responses in TCE RRMM patients (time to CR is 4.6 months in MajesTEC-1).[20]
- Switching to 1.5 mg/kg Q2W after ≥6 months of treatment in the presence of sustained ≥ VGPR is an option to decrease infectious risk and treatment burden.
- Dose de-escalation to 1.5 mg/kg Q2W, along with IgRT, can help reduce Grade 3 to 4 infections.
- The impact of a further reduced dosing schedule on the long-term outcomes of patients is still to be described.
- Ongoing studies are evaluating the dosing schedule of 3 mg/kg Q4W in earlier LOT.

Future Perspectives

The efficacy and safety of teclistamab alone and in combination with other agents such as daratumumab and talquetamab are being investigated in a range of phase I to III trials (Table 1). It was generally agreed that teclistamab will be used as part of combination therapy in the future, but these ongoing trials are still to be read out. It was also agreed that teclistamab will be used in the early relapse setting (1-3 prior LOTs) in the future, pending the results of the phase III MajesTEC-3 and MajesTEC-9 trials, or in the front-line setting (as part of induction or maintenance therapy), especially for patients with high-risk characteristics. However, this is dependent on the continuation of promising early data readouts from clinical studies such as MajesTEC-4 and MajesTEC-5,[77-80] where teclistamab demonstrated 100.0% MRD-negative responses in newly-diagnosed, transplant-eligible patients; the highest response rate ever reported in MM.[79,80] Fixed-duration teclistamab could be a possibility in this setting, as recovery of humoral immunity is key. However, it was acknowledged that these indications are all pending approval, and appropriate management of infections should be an important consideration. The promising results of the combination of teclistamab plus talquetamab were highlighted, considering the recently published data from the RedirecTT-1 study previously described.[81,82] The RRMM treatment landscape is quickly evolving with the clinical development of trispecific antibodies. Studies of JNJ-79635322, a BCMAxGPRC5DxCD3 trispecific antibody, are ongoing and have shown positive results, with an ORR of 100.0% and CR of 70.4%, as well as an improved safety profile with the recommended Phase II dosing.[83] Phase I results have also been reported for a BCMAxCD38xCD3-targeted trispecific antibody, ISB 2001, demonstrating an ORR of 75.0% across eight doses and a CR of 13.0%.[84] These advancements will likely have a big impact on the RRMM treatment landscape.

Conclusions

- Teclistamab has demonstrated notable efficacy and has a well-characterized and manageable safety profile in TCE RRMM patients, with more than 20,800 patients treated commercially worldwide. (Data on file. Johnson & Johnson. 2025)
- Teclistamab is a valid therapeutic option in a broad range of patient subgroups, usually underrepresented in the CTs.
- Effective use of teclistamab, including supportive care and appropriate prophylaxis, is essential for achieving optimal outcomes.
- IgRT as primary prophylaxis is critical to prevent infections; regular use and starting within the first month of teclistamab treatment, if not earlier in some patients, should be universally implemented.
- Reducing teclistamab dosing frequency to 1.5 mg/kg Q2W should be considered to lower the risk of infections alongside IgRT, but if tolerability allows, only after sustained deep responses are achieved.
- Teclistamab is being developed in earlier LOT in monotherapy and in combination with other agents, with 3 mg/kg Q4W dosing being explored in these trials.
- The above expert recommendations intend to support hematologists and oncologists in caring for patients receiving teclistamab to achieve the best clinical outcomes.

Data Availability

The data sharing policy of Janssen Pharmaceutical Companies of Johnson & Johnson is available at https://www.janssen.com/clinical-trials/transparency. Requests for access to the study data can

be submitted through Yale Open Data Access (YODA) Project site at http://yoda.yale.edu.

Disclosure

P.R.O. is a consultant for AbbVie, BMS, Pfizer, and Roche; is a member of a board of directors or advisory committee for AbbVie, BMS, GSK, Johnson & Johnson, and Kite Pharma, Oncopeptides, Pfizer, Sanofi, and Takeda; and has received honoraria from Amgen, BMS, GSK, Johnson & Johnson, Regeneron, Sanofi, and Takeda. P.M. has received honoraria and/or served on advisory boards for AbbVie, Amgen, Celgene, Johnson & Johnson, Sanofi, and Takeda. M.V.M. has received honoraria from AbbVie, Amgen, BMS/Celgene, GSK, Johnson & Johnson, Oncopeptides, Pfizer, Regeneron, Sanofi, Stemline, and Takeda; is a member of a board of directors or advisory committee for AbbVie, BMS/Celgene, GSK, Johnson & Johnson, Oncopeptides, Pfizer, Sanofi, Stemline, and Takeda; and is a speakers' bureau member for Johnson & Johnson. M.T.K. has been a consultant for and has served in advisory boards for: AMGEN, Celgene, Novartis, BMS, Johnson & Johnson, Sanofi, GSK, Takeda, Pfizer, Oncopeptides, and Stemline. L.R. has received research support from BMS and serves in advisory boards for Johnson & Johnson, Amgen, BMS, Sanofi, Takeda, Roche, and Pfizer. E.K. has received research support from Johnson & Johnson, GSK, and Pfizer, and serves on advisory boards for Johnson & Johnson, GSK, Pfizer, and Menarini. A.O. has received honoraria from BMS, GSK, Johnson & Johnson, Menarini, Oncopeptides, Pfizer, and Sanofi, and is a member of a board of directors or advisory committee for BMS, GSK, Johnson & Johnson, Menarini, Oncopeptides, Pfizer, and Sanofi. E.Z. has received honoraria from Johnson & Johnson, BMS, Amgen, and Takeda. E.R.A. and C.A. are employees of Johnson & Johnson. N.W.C.J.v.d.D. has received research support from Johnson & Johnson, Amgen, Celgene, Novartis, Cellectis, and BMS, and serves in advisory boards for Johnson & Johnson, Amgen, Celgene, BMS, Sanofi, Takeda, Roche, Novartis, Bayer, Adaptive, Galapagos, Kite Pharma, Merck, Pfizer, AbbVie, and Servier, all paid to institution. All the experts involved are named authors of this article and were responsible for idea generation and were given the opportunity to review the expert recommendations prior to their submission for publication.

CRediT authorship contribution statement

Paula Rodríguez-Otero: Writing – review & editing, Supervision. **Philippe Moreau:** Writing – review & editing. **Maria Victoria Mateos:** Writing – review & editing. **Maria Theresa Krauth:** Writing – review & editing. **Leo Rasche:** Writing – review & editing. **Efstathios Kastritis:** Writing – review & editing. **Albert Oriol:** Writing – review & editing. **Elena Zamagni:** Writing – review & editing. **Claire Albrecht:** Writing – review & editing, Supervision, Methodology, Funding acquisition. **Eva Rubio-Azpeitia:** Writing – review & editing, Supervision, Methodology, Funding acquisition. **Niels W.C.J. van de Donk:** Writing – review & editing, Supervision.

Acknowledgments

The authors would like to thank Ashfield MedComms for providing medical writing support. The expert meeting and manuscript development were supported by Johnson & Johnson.

References

1. Myeloma Patients Europe. *Incidence of myeloma* Accessed: 15 October 2025 https://www.mpeurope.org/incidence-of-myeloma/#:~:text=Myeloma%20is%20rare%2C%20accounting%20for,to%20almost%2046%2C000%20by%202025.
2. Sonneveld P, Zweegman S, Facon T, et al. Modeling long-term progression-free survival in transplant-eligible and transplant-ineligible newly diagnosed multiple myeloma treated with daratumumab, bortezomib, lenalidomide, and dexamethasone. *Presented at the 6th European Myeloma Network (EMN) Meeting*; 2025:B04.
3. Rodriguez-Otero P, Paiva B, San-Miguel JF. Roadmap to cure multiple myeloma. *Cancer Treat Rev*. 2021;100:1–8. doi:10.1016/j.ctrv.2021.102284.
4. Yong K, Delforge M, Driessen C, et al. Multiple myeloma: patient outcomes in real-world practice. *Br J Haematol*. 2016;175(2):252–264. doi:10.1111/bjh.14213.
5. Weisel K, Mateos MV, Bittrich M, et al. Outcomes in patients with triple-class—exposed relapsed/refractory multiple myeloma treated with real-life standard-of–care therapies in LocoMMotion and MoMMent Final Data. *Presented at the 30th European Hematology Association (EHA)*; 2025:PS1783.
6. Moreau P, Mateos MV, Gonzalez Garcia ME, et al. Comparative effectiveness of teclistamab versus real-world physician's choice of therapy in LocoMMotion and MoMMent in triple-class exposed relapsed/refractory multiple myeloma. *Adv Ther*. 2024;41(2):696–715. doi:10.1007/s12325-023-02738-0.
7. Dimopoulos MA, Terpos E, Boccadoro M, et al. EHA-EMN evidence-based guidelines for diagnosis, treatment and follow-up of patients with multiple myeloma. *Nat Rev Clin Oncol*. 2025;22:680–700. doi:10.1038/s41571-025-01041-x.
8. Richardson PG, Oriol A, Larocca A, et al. Melflufen and dexamethasone in heavily pretreated relapsed and refractory multiple myeloma. *J Clin Oncol*. 2021;39(7):757–767. doi:10.1200/jco.20.02259.
9. Richter J, Madduri D, Richard S, Chari A. Selinexor in relapsed/refractory multiple myeloma. *Ther Adv Hematol*. 2020;11:1–10. doi:10.1177/2040620720930629.
10. European Medicines Agency. Blenrep. Accessed: August 21, 2025. https://www.ema.europa.eu/en/medicines/human/EPAR/blenrep-0#overview; 2025.
11. TECVAYLI® (teclistamab-cqyv) injection, for subcutaneous use. Prescribing information. Accessed: October 7, 2025. https://www.janssenlabels.com/package-insert/product-monograph/prescribing-information/TECVAYLI-pi.pdf; 2024.
12. TECVAYLI® solution for injection. Summary of product characteristics. Accessed: October 7, 2025. https://www.ema.europa.eu/en/documents/product-information/tecvayli-epar-product-information_en.pdf; 2024.
13. Moreau P, Garfall AL, van de Donk NWCJ, et al. Teclistamab in relapsed or refractory multiple myeloma. *N Engl J Med*. 2022;387(6):495–505. doi:10.1056/NEJMoa2203478.
14. Garfall AL, Nooka AK, van de Donk NWCJ, et al. Long-term follow-up from the phase 1/2 MajesTEC-1 trial of teclistamab in patients with relapsed/refractory multiple myeloma. *J Clin Oncol*. 2024;42:7540. doi:10.1200/JCO.2024.42.16_suppl.7540.
15. Costa LJ, Van de Donk N, Rosinol L, et al. Long-term follow-up from the phase 1/2 majestec-1 trial of teclistamab in patients with relapsed/refractory multiple myeloma: subgroup analysis by lines of therapies. *Hematol Transfus Cell Ther*. 2024;46(suppl 4):S515. doi:10.1016/j.htct.2024.09.865.
16. van de Donk NWCJ, Bahlis N, Costa LJ, et al. Impact of COVID-19 on outcomes with teclistamab in patients with relapsed/refractory multiple myeloma in the phase 1/2 MajesTEC-1 study. *Blood Cancer J*. 2024;14(1):186. doi:10.1038/s41408-024-01160-1.
17. Martin TG, Mateos MV, van de Donk NWCJ, et al. Pooled efficacy and safety of teclistamab with 217 patients with triple-class exposed relapsed/refractory multiple myeloma from 3 registrational clinical studies. *Blood*. 2024;144(suppl 1):3331–3333. doi:10.1182/blood-2024-200354.
18. Costa LJ, Bahlis NJ, Usmani SZ, et al. Efficacy and safety of teclistamab in patients with relapsed/refractory multiple myeloma with high-risk features: a subgroup analysis from the phase 1/2 MajesTEC-1 study. *Clin Lymphoma Myeloma and Leuk*. 2024;24(suppl 1):S546–S547. doi:10.1016/S2152-2650(24)01664-1.
19. Nooka AK, Rodriguez C, Mateos MV, et al. Incidence, timing, and management of infections in patients receiving teclistamab for the treatment of relapsed/refractory multiple myeloma in the MajesTEC-1 study. *Cancer*. 2024;130(6):886–900. doi:10.1002/cncr.35107.
20. Derman B, Tan C, Steinfield I, et al. Real-world evidence evaluating teclistamab in patients with relapsed/refractory multiple myeloma: a systematic literature review. *Cancers (Basel)*. 2025;17(7):1–37. doi:10.3390/cancers17071235.
21. Razzo BM, Midha S, Portuguese AJ, et al. Real-world experience with teclistamab for relapsed/refractory multiple myeloma from the U.S. Myeloma Immunotherapy Consortium. *Blood Cancer Discov*. 2025;6(6):561–571. doi:10.1158/2643-3230.Bcd-24-0354.

22. Kortüm KM, Uttervall K, Popat R, et al. First results from REALiTEC: a multi-country non-interventional retrospective study of teclistamab outside of clinical trials in RRMM. *Presented at the 6th European Myeloma Network (EMN) Meeting*; 2025:B07.
23. Popat R, Kortüm KM, Uttervall K, et al. REALITEC subgroup analysis: a multi-country observational retrospective study of teclistamab in patients with relapsed/refractory multiple myeloma outside of clinical trials. *HemaSphere*. 2025;9(S1):930–931. doi:10.1002/hem3.70152.
24. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. *Int J Clin Pharm*. 2016;38(3):655–662. doi:10.1007/s11096-016-0257-x.
25. Raje NS, Anaissie E, Kumar SK, et al. Consensus guidelines and recommendations for infection prevention in multiple myeloma: a report from the International Myeloma Working Group. *Lancet Haematol*. 2022;9(2):e143–e161. doi:10.1016/s2352-3026(21)00283-0.
26. Rodríguez-Otero P, Schinke CD, Chari A, et al. Analysis of infections and parameters of humoral immunity in patients (pts) with relapsed/refractory multiple myeloma (RRMM) treated with talquetamab (tal) monotherapy in MonumenTAL-1. *J Clin Oncol*. 2023;41(16_suppl):8020. doi:10.1200/JCO.2023.41.16_suppl.8020.
27. Dima D, Vazquez-Martinez MA, Davis JA, et al. Outcomes of teclistamab (Tec) in patients with relapsed/refractory multiple myeloma (RRMM) with prior exposure to BCMA-directed therapy (BCMA-DT): a multicenter study from the U.S. Multiple Myeloma Immunotherapy Consortium. *Blood*. 2024;144(suppl 1):897–899. doi:10.1182/blood-2024-203409.
28. Pasvolsky O, Dima D, Feng L, et al. Outcomes of elderly patients with relapsed refractory multiple myeloma (RRMM) treated with teclistamab: a multicenter study from the U.S. Multiple Myeloma Immunotherapy Consortium. *Blood Cancer J*. 2025;15(1):92. doi:10.1038/s41408-025-01297-7.
29. Perrot A, Hulin C, Boumendil A, et al. Teclistamab in relapsed refractory multiple myeloma: a multi-institutional real-world study from the French early access program. *Haematologica*. 2025;110(4):990–994. doi:10.3324/haematol.2024.286118.
30. Mian H, Martin TG, Pond GR, et al. Outcomes of frailty subgroups of older adults (age ≥ 70) treated with teclistamab: an International Myeloma Foundation immunotherapy database real-world analysis. *Leukemia*. 2025;39(5):1252–1255. doi:10.1038/s41375-025-02552-3.
31. Adegbite BO, Tan CR, Shekarkhand T, et al. Outcomes in frail patients receiving BCMA-directed bispecific antibodies for relapsed/refractory multiple myeloma. *Blood Adv*. 2025;9(15):4016–4022. doi:10.1182/bloodadvances.2025015973.
32. Davis JA, Dima D, Ahmed N, et al. Impact of frailty on outcomes after chimeric antigen receptor T cell therapy for patients with relapsed/refractory multiple myeloma. *Transplant Cell Ther*. 2024;30(3):298–305. doi:10.1016/j.jtct.2023.12.015.
33. Dima D, Abdallah AO, Davis JA, et al. Impact of extraosseous extramedullary disease on outcomes of patients with relapsed-refractory multiple myeloma receiving standard-of-care chimeric antigen receptor T-cell therapy. *Blood Cancer J*. 2024;14(1):90. doi:10.1038/s41408-024-01068-w.
34. Moreau P, Mateos MV, Goldschmidt H, et al. Outcomes of patients with extramedullary disease in triple-class exposed relapsed/refractory multiple myeloma from the pooled LocoMMotion and MoMMent studies. *Clin Lymphoma Myeloma Leuk*. 2025;25(9):646–655. doi:10.1016/j.clml.2025.03.014.
35. Afrough A, Dima D, Razzo B, et al. The impact of extramedullary multiple myeloma on treatment outcomes with Teclistamab: U.S. Myeloma Immunotherapy Consortium real world experience. *Transplant Cell Ther*. 2025;31(2):S415–S416. doi:10.1016/j.jtct.2025.01.636.
36. Steinhardt MJ, Schaefers C, Leypoldt LB, et al. Activity of CAR-T cells and bispecific antibodies in multiple myeloma with extramedullary involvement. *Blood Cancer J*. 2025;15(1):126. doi:10.1038/s41408-025-01330-9.
37. Chalopin T, Cellerin E, Demarquette H, et al. Debulking strategy prior to anti-BCMA/CD3 bispecific antibodies in extramedullary and/or high tumor burden RRMM: a retrospective cohort study. Accessed: August 21, 2025. https://www.researchsquare.com/article/rs-6841736/v1; 2025.
38. Sharma R, Masih-Khan E, Vohra H, et al. Debulking chemotherapy abrogates the risk of non-response in multiple myeloma patients with high tumor burden receiving teclistamab. *Clin Lymphoma Myeloma Leuk*. 2025;25(suppl 2):S97–S98. doi:10.1016/S2152-2650(25)03554-2.
39. Usmani SZ, Mateos MV, Ye JC, et al. Phase 2 study of talquetamab + teclistamab in patients with relapsed/refractory multiple myeloma and extramedullary disease: redirecTT-1. *Presented at the 22nd International Myeloma Society (IMS) Annual Meeting*; 2025:PA–060.
40. Reed V, Shah J, Medeiros LJ, et al. Solitary plasmacytomas: outcome and prognostic factors after definitive radiation therapy. *Cancer*. 2011;117(19):4468–4474. doi:10.1002/cncr.26031.
41. Bingham N, Wong D, Zhao J, Khong T, Mithraprabhu S, Spencer A. Poor outcomes in extramedullary multiple myeloma persist despite novel therapies. *Clin Lymphoma Myeloma Leuk*. 2025;25(suppl 2):S313–S314. doi:10.1016/S2152-2650(25)03926-6.
42. Dimopoulos MA, Merlini G, Bridoux F, et al. Management of multiple myeloma-related renal impairment: recommendations from the International Myeloma Working Group. *Lancet Oncol*. 2023;24(7):e293–e311. doi:10.1016/s1470-2045(23)00223-1.
43. Jian Y, Zhou H, Xie W, et al. Impact of dialysis dependence on survival for multiple myeloma with renal impairment: a multicenter study in China. *Am J Cancer Res*. 2023;13(4):1571–1581.
44. Lebreton P, Lachenal F, Bouillie S, et al. Teclistamab for relapsed refractory multiple myeloma patients on dialysis. *Br J Haematol*. 2024;205(5):2077–2079. doi:10.1111/bjh.19772.
45. Dima D, Afrough A, Goel U, et al. Teclistamab (Tec) for patients (pts) with heavily pretreated relapsed/refractory multiple myeloma (RRMM) and renal impairment: a multicenter study from the U.S. Multiple Myeloma Immunotherapy Consortium. *Transplant Cell Ther*. 2025;31(2):S409–S410. doi:10.1016/j.jtct.2025.01.629.
46. Dimopoulos MA, Cohen YC, Perrot A, et al. Current experiences with teclistamab in patients with multiple myeloma and renal impairment. *Expert Rev Hematol*. 2025:1–8. doi:10.1080/17474086.2025.2567296.
47. Touzeau C, Krishnan AY, Moreau P, et al. Efficacy and safety of teclistamab in patients with relapsed/refractory multiple myeloma after BCMA-targeting therapies. *Blood*. 2024;144(23):2375–2388. doi:10.1182/blood.2023023616.
48. Kortüm M, Auner HW, Bassermann F, Driessen C, Einsele H. Onkopedia: multiple myeloma. Accessed: May 19, 2025. https://www.onkopedia.com/de/onkopedia/guidelines/multiples-myelom/@@guideline/html/index.html; 2024.
49. Moreau P, San Miguel J, Sonneveld P, et al. Multiple myeloma: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol*. 2017;28(suppl_4):iv52–iv61. doi:10.1093/annonc/mdx096.
50. Rodriguez-Otero P, Usmani S, Cohen AD, et al. International Myeloma Working Group immunotherapy committee consensus guidelines and recommendations for optimal use of T-cell-engaging bispecific antibodies in multiple myeloma. *Lancet Oncol*. 2024;25(5):e205–e216. doi:10.1016/s1470-2045(24)00043-3.
51. Lund T, Khandanpour C, Anguille S, et al. European expert panel consensus on outpatient administration of teclistamab and talquetamab in patients with multiple myeloma: feasibility, key considerations, and future directions. *Eur J Haematol*. 2025;115(4):358–366. doi:10.1111/ejh.14444.
52. Garfall AL, Banerjee R, Frenzel L, et al. A roadmap to implementing outpatient administration of bispecific antibodies in multiple myeloma. *Front Oncol*. 2025;15:1–8. doi:10.3389/fonc.2025.1630146.
53. Low M, Popat R, Kishore B, et al. Consensus Framework for the optimal delivery of bispecific antibodies for patients with Multiple Myeloma (Prodced by the EMMBRAce Project Group [Equity in Multiple Myeloma Bispecific Research and Access]) Version 1.0. Accessed: August 6, 2025. https://www.ucl.ac.uk/lifesciences-faculty/sites/lifesciences_faculty/files/consensus_framework_for_the_optimal_delivery_of_bispecific_antibodies_for_patients_with_multiple_myeloma_v1_oct_2024.pdf; 2024.
54. Scott SA, Roberts DL, Gupta VA, et al. Feasibility and safety of outpatient model for administration of bispecific antibodies: proceedings from an International Myeloma Society 21st Annual Meeting Oral Abstract. *Clin Lymphoma Myeloma Leuk*. 2025;25:656–660. doi:10.1016/j.clml.2025.04.002.
55. Johnson & Johnson. TECVAYLI® (teclistamab) patient card. Accessed: 2015.
56. Martin TG, Mateos MV, Nooka A, et al. Detailed overview of incidence and management of cytokine release syndrome observed with teclistamab in the MajesTEC-1 study of patients with relapsed/refractory multiple myeloma. *Cancer*. 2023;129(13):2035–2046. doi:10.1002/cncr.34756.
57. Nooka A, Moreau P, Usmani SZ, et al. Teclistamab, a B-cell maturation antigen (BCMA) x CD3 bispecific antibody, in patients with relapsed/refractory multiple myeloma (RRMM): updated efficacy and safety results from MajesTEC-1. *J Clin Oncol*. 2022;40(suppl 16):8007. doi:10.1200/JCO.2022.40.16_suppl.8007.
58. van de Donk NWCJ, Moreau P, Garfall AL, et al. Long-term follow-up from MajesTEC-1 of teclistamab, a BCMA×CD3 bispecific antibody, in patients with relapsed/refractory multiple myeloma. *J Clin Oncol*. 2023;41(suppl 16):8011. doi:10.1200/JCO.2023.41.16_suppl.8011.
59. van de Donk NWCJ, Garfall AL, Benboubker L, et al. Longer-term follow-up of patients receiving prophylactic tocilizumab for the reduction of cytokine release syndrome in the phase 1/2 MajesTEC-1 study of teclistamab in relapsed/refractory multiple myeloma. *J Clin Oncol*. 2024;42(suppl 16):7517. doi:10.1200/JCO.2024.42.16_suppl.7517.
60. Rifkin RM, Schade H, Simmons G, et al. Optec: a phase 2 study to evaluate outpatient step-up administration of teclistamab in patients with relapsed/refractory multiple myeloma (RRMM): updated results. *Blood*. 2024;144(suppl 1):4753–4754. doi:10.1182/blood-2024-207295.
61. Davis JA, Snyder J, Rice M, et al. Dexamethasone for the management of CRS related to teclistamab in patients with relapsed/refractory multiple myeloma. *Blood Cancer J*. 2025;15(1):32. doi:10.1038/s41408-025-01222-y.
62. Korst C, Groen K, Bosman PWC, et al. Prophylactic tocilizumab reduces the incidence of cytokine release syndrome in relapsed/refractory myeloma patients treated with teclistamab: implications for outpatient step-up dosing. *Hemasphere*. 2024;8(7):e132. doi:10.1002/hem3.132.
63. Kannan A, Jeffrey K, Misbah S, Ramasamy K. Practical guidance on the prevention and management of infection in multiple myeloma patients: a case-based approach. *Blood Rev*. 2025;72:101287. doi:10.1016/j.blre.2025.101287.
64. Riedhammer C, Düll J, Kestler C, et al. Dismal prognosis of *Pneumocystis jirovecii* pneumonia in patients with multiple myeloma. *Ann Hematol*. 2024;103(4):1327–1332. doi:10.1007/s00277-023-05586-8.
65. Ludwig H, Terpos E, van de Donk N, et al. Prevention and management of adverse events during treatment with bispecific antibodies and CAR T cells in multiple myeloma: a consensus report of the European Myeloma Network. *Lancet Oncol*. 2023;24(6):e255–e269. doi:10.1016/s1470-2045(23)00159-6.

66. Raje N, Anderson K, Einsele H, et al. Monitoring, prophylaxis, and treatment of infections in patients with MM receiving bispecific antibody therapy: consensus recommendations from an expert panel. *Blood Cancer J*. 2023;13(1):116. doi:10.1038/s41408-023-00879-7.
67. Manier S, Nooka AK, Rodriguez C, et al. MM-192 preliminary recommendations for prevention and management of infections, hypogammaglobulinemia, and neutropenia during treatment with teclistamab based on experience from the MajesTEC-1 Study. *Clin Lymphoma Myeloma and Leuk*. 2023;23(suppl 1):S480–S481. doi:10.1016/S2152-2650(23)01416-7.
68. Einarsdottir S, Sverrisdottir I, Villegas-Scivetti M, et al. Respiratory syncytial virus and other vaccine-preventable infections in multiple myeloma. A population-based study on 8,672 myeloma patients diagnosed 2008-2021 from the Swedish Myeloma Registry. *Haematologica*. 2025;110(1):179–182. doi:10.3324/haematol.2024.285161.
69. Lee WI, Lam L, Bacchi S, et al. Antibiotic prophylaxis in immunosuppressed patients – missed opportunities from trimethoprim-sulfamethoxazole allergy label. *World Allergy Organ J*. 2024;17(1):100856. doi:10.1016/j.waojou.2023.100856.
70. Frerichs KA, Verkleij CPM, Mateos MV, et al. Teclistamab impairs humoral immunity in patients with heavily pretreated myeloma: importance of immunoglobulin supplementation. *Blood Adv*. 2024;8(1):194–206. doi:10.1182/bloodadvances.2023011658.
71. Cheruvalath H, Clennon A, Shrestha A, et al. Effects of intravenous immunoglobulin supplementation (IVIG) on infections in recipients of teclistamab therapy for multiple myeloma (MM): a multi-institutional study. *Blood*. 2024;144(suppl 1):256–257. doi:10.1182/blood-2024-199374.
72. Banerjee R, Mohan M, Rejeski K, et al. IVIG prophylaxis should be initiated following bispecific antibody therapy in multiple myeloma regardless of IgG levels. *Blood Adv*. 2025;9(18):4720–4726. doi:10.1182/bloodadvances.2025016490.
73. Wonnaparhown A, Hilal T, Squire J, Freeman C, Fonseca R. IgG replacement in multiple myeloma. *Blood Cancer J*. 2024;14(1):124. doi:10.1038/s41408-024-01107-6.
74. Ness S. Differentiating characteristics and evaluating intravenous and subcutaneous immunoglobulin. *Am J Manag Care*. 2019;25(6 suppl):S98–104.
75. Jolles S. Hyaluronidase facilitated subcutaneous immunoglobulin in primary immunodeficiency. *Immunotargets Ther*. 2013;2:125–133. doi:10.2147/itt.S31136.
76. Pei C, Blackburn L, Sharma N, et al. Cytomegalovirus reactivation in patients with multiple myeloma treated with teclistamab: risk factors and clinical impact. *Blood*. 2024;144(suppl 1):4717–4718. doi:10.1182/blood-2024-201519.
77. Guo Y, Niu J, Cardé NAQ, et al. Teclistamab dosing in responders: modeling and simulation results from the MajesTEC-1 study in relapsed/refractory multiple myeloma. *Target Oncol*. 2025:651–661. doi:10.1007/s11523-025-01149-1.
78. Guo Y, Niu J, Quijano Cardé NA, et al. Less frequent teclistamab dosing in responders: modeling and simulation data from the Majestec-1 study in relapsed/refractory multiple myeloma. *Blood*. 2024;144(suppl 1):1989. doi:10.1182/blood-2024-200161.
79. Raab MS, Weinhold N, Kortüm KM, et al. Phase 2 study of teclistamab-based induction regimens in patients with transplant-eligible (TE) newly diagnosed multiple myeloma (NDMM): results from the GMMG-HD10/DSMM-XX (MajesTEC-5) trial. *Blood*. 2024;144(suppl 1):493. doi:10.1182/blood-2024-206003%JBlood.
80. Zamagni E, Silzle T, Špička I, et al. Phase 3 study of teclistamab in combination with lenalidomide and teclistamab alone vs lenalidomide alone in newly diagnosed multiple myeloma as maintenance therapy following autologous stem cell transplantation: safety run-in results from the EMN30/MajesTEC-4 trial. *Presented at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition*; 2024:494.
81. Cohen YC, Magen H, Gatt M, et al. Talquetamab plus teclistamab in relapsed or refractory multiple myeloma. *N Engl J Med*. 2025;392(2):138–149. doi:10.1056/NEJMoa2406536.
82. Clinicaltrials.gov. A study of the combination of talquetamab and teclistamab in participants with relapsed or refractory multiple myeloma (RedirecTT-1): NCT04586426. Accessed: May 22, 2025. https://clinicaltrials.gov/study/NCT04586426; 2025.
83. Van de Donk NWCJ, Vega G, Perrot A, et al. First-in-human study of JNJ-79635322 (JNJ-5322), a novel, next-generation trispecific antibody (TsAb), in patients (pts) with relapsed/refractory multiple myeloma (RRMM): initial phase 1 results. *J Clin Oncol*. 2025;43(suppl 16):7505. doi:10.1200/JCO.2025.43.16_suppl.7505.
84. Quach H, Augustson B, Levitz D, et al. TRIgnite—1Study, phase 1, first-in-Human study of ISB 2001: a BCMAxCD38xCD3-targeting trispecific antibody for patients with relapsed/refractory multiple myeloma (RRMM)—dose escalation (DE) results. *Clin Lymphoma Myeloma Leuk*. 2025;25(suppl 2):S23–S24. doi:10.1016/S2152-2650(25)03439-1.
85. Usmani SZ, Garfall AL, van de Donk N, et al. Teclistamab, a B-cell maturation antigen × CD3 bispecific antibody, in patients with relapsed or refractory multiple myeloma (MajesTEC-1): a multicentre, open-label, single-arm, phase 1 study. *Lancet*. 2021;398(10301):665–674. doi:10.1016/s0140-6736(21)01338-6.
86. D'Souza A, Costa LJ, San-Miguel J, et al. Teclistamab, daratumumab, and pomalidomide in patients with relapsed/refractory multiple myeloma: results from the MajesTEC-2 cohort A and TRIMM-2 studies. *Blood*. 2024;144(suppl 1):495–497. doi:10.1182/blood-2024-200181.
87. Raab MS, Weinhold N, Kortüm KM, et al. Phase 2 Study of teclistamab-based induction regimens in patients with transplant-eligible newly diagnosed multiple myeloma: results from the GMMG-HD10/DSMM-XX (MajesTEC-5) trial. *Presented at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition*; 2024:493.
88. Touzeau C, Beksac M, Terpos E, et al. Results from safety run-in cohort 1 of the phase 3 MajesTEC-7 study in patients with transplant ineligible/not intended newly diagnosed multiple myeloma. *Presented at the 2024 American Society of Clinical Oncology (ASCO) Annual Meeting*; 2024:7506.
89. D'Souza A, Costa LJ, San-Miguel J, et al. Teclistamab, daratumumab, and pomalidomide in patients with relapsed/refractory multiple myeloma: results from the MajesTEC-2 Cohort A and TRIMM-2 Studies. *Presented at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition*; 2024:0495.