

# A Practical Guide to Blinatumomab Continuous Infusion for Adult Patients with B-Cell Precursor Acute Lymphoblastic Leukemia

Slide Set Companion to the Clinical Practice Resource

**Presenter**

**Title**

**Institution**



Medical writing support provided by FUSE Health.

This program was made possible through support from Amgen Canada Inc.



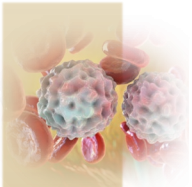
**CANO**  
**ACIO**

Canadian Association of Nurses in Oncology  
Association canadienne des infirmières en oncologie

*This program meets Canadian Association of Nurses in Oncology (CANO) guidelines and is expected to support nurses in their understanding of blinatumomab for acute lymphoblastic leukemia. Endorsement is provided by CANO for a time period of two years, ending July 7, 2027.*

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Expires: July 7, 2027

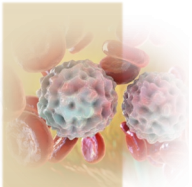


# Presenter

**First Lastname, NP**  
Position, University  
Position, Institution

## Disclosures

- Consultant/advisor -
- Speakers bureau -
- Grants/honoraria -
- Clinical trials -



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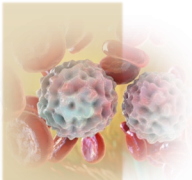
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## Disclosures

- Grants/honoraria: Amgen, Jazz Pharmaceuticals, Pfizer
- Grants/honoraria: Amgen, Janssen
- Consultant/advisor: BMS-Celgene, Sandoz, Takeda
- Grants/honoraria: Amgen, Servier



# Disclosures and Disclaimers

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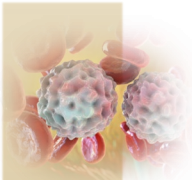
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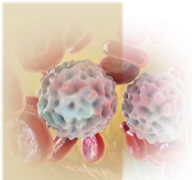
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# Disclosures and Disclaimers

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# Learning Objectives

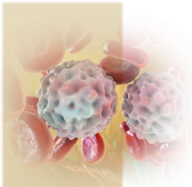
**At the completion of this activity, participants will:**

- Understand the importance of nursing and pharmacy collaboration in order to safely prepare and administer blinatumomab solution for continuous IV infusion
- Take appropriate precautions when initiating a blinatumomab IV infusion and performing IV bag changes
- Implement a patient monitoring strategy that considers common toxicities and less common but serious adverse events associated with blinatumomab therapy

The guidance provided in this program mainly pertains to patients weighing  $\geq 45$  kg.

Please refer to the blinatumomab product monograph for dosing, administration, and toxicity management for patients weighing  $< 45$  kg and pediatric patients.

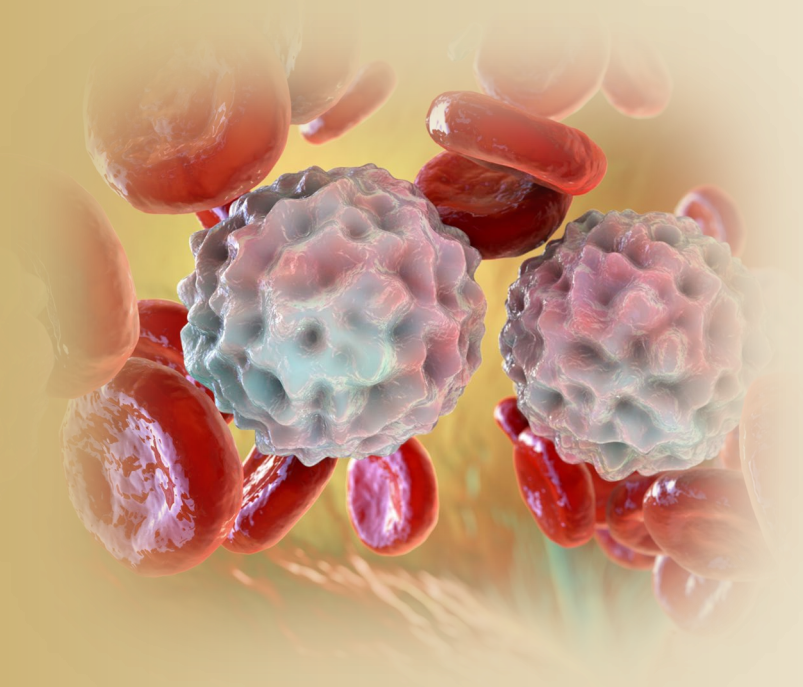
This slide set is a companion to the document entitled **Clinical Practice Resource: A Practical Guide to Blinatumomab Continuous Infusion for Adult Patients with B-Cell Precursor Acute Lymphoblastic Leukemia.**



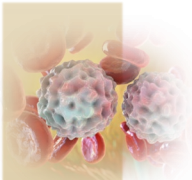
# Program Content

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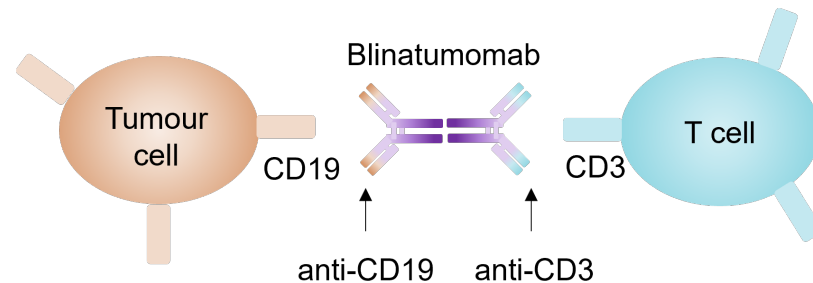


# Blinatumomab in BCP-ALL



# BiTE<sup>®</sup> Technology and Blinatumomab Mechanism of Action

- Blinatumomab is a **bispecific T-cell engager (BiTE<sup>®</sup>)**<sup>1</sup>
  - Recombinant molecule designed to recognize two different cell surface antigens
  - Facilitates binding of T-cells to tumour cells
- Blinatumomab recognizes antigens CD19 and CD3<sup>1</sup>
  - CD19: expressed on B-cells including tumour cells
  - CD3: expressed on T-cells

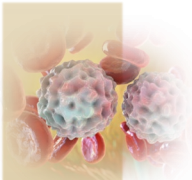


- Binding of CD19+ cells to CD3+ cells causes T-cell-induced lysis of both benign and malignant B-cells<sup>1</sup>
- Blinatumomab has a half-life of 2.20 hours and is therefore rapidly eliminated from the body<sup>2</sup>

ALL, acute lymphoblastic leukemia; BiTE<sup>®</sup>, bispecific T-cell engager; CD3, cluster of differentiation 3; CD19, cluster of differentiation 19.

1. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469. doi:10.1188/16.CJON.466-469.

2. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Blinatumomab in Adult BCP-ALL

## Unmet Need

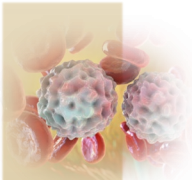
- Conventional treatment with multiple chemotherapeutic agents leads to initial complete remission in most adult patients, but **30–60% of patients with ALL relapse**<sup>1,2</sup>
- Allogeneic HSCT is recommended as a curative approach for many high-risk patients with relapsed or refractory ALL,<sup>1,2</sup> but **detectable MRD+ pre-HSCT is associated with a higher rate of relapse following HSCT**<sup>3</sup>

## Blinatumomab in BCP-ALL

- As a single agent, blinatumomab has demonstrated the ability to achieve<sup>1,4</sup>:
  - Complete remission in patients with relapsed/refractory BCP-ALL
  - MRD negativity in patients with Philadelphia chromosome-negative BCP-ALL in hematological MRD+ CR1 or CR2
- By more specifically targeting tumour cells, blinatumomab has exhibited fewer overall adverse events compared to conventional chemotherapy regimens for relapsed/refractory BCP-ALL<sup>1</sup>
- Recently, the addition of blinatumomab to consolidation chemotherapy after induction and intensification chemotherapy has been shown to improve overall survival in MRD-negative remission of BCP-ALL<sup>5,6</sup>

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CR, complete remission; HSCT, hematopoietic stem cell transplantation; MRD+, minimal residual disease positive.

1. Shi Z, et al. *Hematology*. 2022;27(1):642-652. doi:10.1080/16078454.2022.2074704.
2. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.0000000000000283.
3. Gökbuget N, et al. *Blood*. 2018;131(14):1522-1531. doi:10.1182/blood-2017-08-798322.
4. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469. doi:10.1188/16.CJON.466-469.
5. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
6. Litzow MR, et al. *New Engl. J Med*. 2024;391(4):320-333.

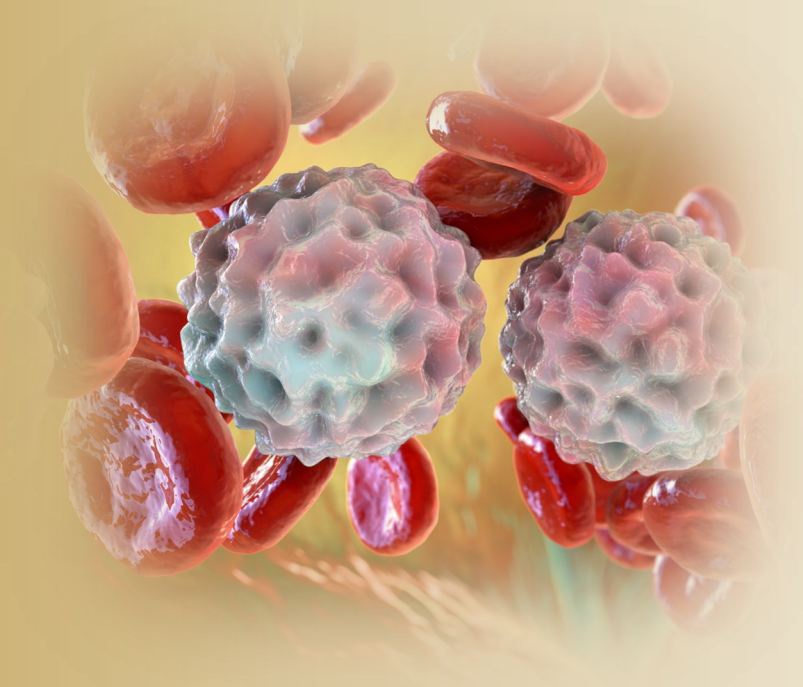


# Blinatumomab Indications for Use in Adult BCP-ALL

	Health Canada Indications <sup>1</sup>	Supporting Trial
<b>Newly Diagnosed BCP-ALL</b>	<ul style="list-style-type: none"> <li>Patients with Philadelphia chromosome-negative CD19 positive BCP-ALL in the consolidation phase of multiphase chemotherapy</li> </ul>	<b>STUDY E1910<sup>2</sup></b> (NCT02003222) STUDY 20129152
<b>MRD+ BCP-ALL</b>	<ul style="list-style-type: none"> <li>Patients with Philadelphia chromosome-negative CD19-positive BCP-ALL in first or second hematologic complete remission with minimal residual disease (MRD) <math>\geq</math> 0.1%. Patients are to be selected for treatment based on detection of MRD as determined by an accredited laboratory using validated assay methods</li> </ul>	<b>BLAST<sup>3</sup></b> (NCT01207388) STUDY MT102-203
<b>Relapsed or Refractory BCP-ALL</b>	<ul style="list-style-type: none"> <li>Adult patients with relapsed or refractory BCP-ALL</li> </ul>	<b>TOWER<sup>4</sup></b> (NCT02013167) STUDY 00103311  <b>ALCANTARA<sup>5</sup></b> (NCT02000427) STUDY 20120216

Blinatumomab is also indicated for pediatric patients with Philadelphia chromosome-negative relapsed or refractory BCP-ALL. Guidance for the treatment of pediatric patients is beyond the scope of this program. BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CD19, cluster of differentiation 19; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. Litzow MR, et al. *N Engl J Med*. 2024;391(4):320-333. doi:10.1056/NEJMoa2312948.
3. Gökbuget N, et al. *Blood*. 2018;131(14):1522-1531. doi:10.1182/blood-2017-08-798322.
4. Dombret H, et al. *Leuk Lymphoma*. 2019;60(9):2214-2222. doi:10.1080/10428194.2019.1576872.
5. Martinelli G, et al. *J Clin Oncol*. 2017;35(16):1795-1802. doi:10.1200/JCO.2016.69.3531.



# Blinatumomab Dosing

# BCP-ALL in Consolidation Phase of Multiphase Chemotherapy: Blinatumomab Administration Schedule

- Blinatumomab is administered as a continuous intravenous infusion, delivered at a constant flow rate using an infusion pump\*
- A single cycle of blinatumomab is **28 days (4 weeks) of continuous infusion** followed by a **14-day (2-week) treatment-free interval**

**Course of Therapy:** Patients may receive 4 cycles of blinatumomab monotherapy incorporated into the consolidation phase of multiphase chemotherapy

<b>Blinatumomab (42 days/cycle)</b>	
<b>4 cycles used intermittently in consolidation, each cycle as follows:</b>	
<b>Days 1–28</b>	<b>Days 29–42</b>
<b>Blinatumomab</b>	—

\* Commonly referred to as a smart pump.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# BCP-ALL in Consolidation Phase of Multiphase Chemotherapy: Co-Medication and Treatment Setting Guidance

	Blinatumomab Cycle: Consolidation (42 days/cycle)
<b>CNS Prophylaxis</b>	<ul style="list-style-type: none"> <li><b>Intrathecal chemotherapy prophylaxis</b> recommended before and during blinatumomab</li> </ul>
<b>Treatment Setting</b>	<ul style="list-style-type: none"> <li>Hospitalization is recommended for the <b>first 3 days of the first cycle</b> and the <b>first 2 days of the second cycle</b></li> <li>For all subsequent cycle starts and reinitiation, HCP supervision or hospitalization is recommended</li> </ul>
<b>Premedication</b>	<ul style="list-style-type: none"> <li><b>Dexamethasone 20 mg IV</b> within 1 hour prior to the first dose of blinatumomab of each cycle</li> </ul>

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CNS, central nervous system; HCP, healthcare professional; IV, intravenously.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# BCP-ALL in Consolidation Phase of Multiphase Chemotherapy: Blinatumomab Dosing

Blinatumomab Cycle: Consolidation (42 days/cycle)	
<b>Blinatumomab Dose: Patient Weight ≥ 45 kg (fixed dose)</b>	<ul style="list-style-type: none"> <li>Days 1–28: <b>28 mcg/day CIV</b></li> </ul>
<b>Treatment-free Interval</b>	<ul style="list-style-type: none"> <li>Days 29–42 (14 days)</li> </ul>
<b>Duration of Interruption</b>	<b>Treatment Interruption Guidance</b>
≥ 4 hours	<ul style="list-style-type: none"> <li>HCP supervision or hospitalization is recommended for re-initiation</li> </ul>
≤ 7 days	<ul style="list-style-type: none"> <li>Continue same cycle to a total of 28 days of infusion (including days before and after dose interruption in that cycle)</li> </ul>
> 7 days	<ul style="list-style-type: none"> <li>Start a new cycle</li> </ul>

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CIV, continuous intravenous infusion; HCP, healthcare professional; IV, intravenous.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# MRD+ BCP-ALL: Blinatumomab Administration Schedule

- Blinatumomab is administered as a continuous intravenous infusion, delivered at a constant flow rate using an infusion pump\*
- A single cycle is **28 days (4 weeks) of continuous infusion** followed by a **14-day (2-week) treatment-free interval**

**Course of Therapy:** Patients may receive 1 cycle of blinatumomab as induction treatment followed by 3 additional cycles of blinatumomab as consolidation treatment

Cycle 1		Cycle 2		Cycle 3		Cycle 4	
Induction		Consolidation		Consolidation		Consolidation	
Days 1–28	Days 29–42	Days 1–28	Days 29–42	Days 1–28	Days 29–42	Days 1–28	Days 29–42
Blinatumomab	–	Blinatumomab	–	Blinatumomab	–	Blinatumomab	–

\* Commonly referred to as a smart pump.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# MRD+ BCP-ALL: Co-Medication and Treatment Setting Guidance

	Cycle 1: Induction (42 days)	Cycle 2: Consolidation (42 days)	Cycle 3-4: Consolidation (42 days/cycle)
<b>CNS Prophylaxis</b>	<ul style="list-style-type: none"> <li><b>Intrathecal chemotherapy prophylaxis</b> recommended before and during blinatumomab</li> </ul>		
<b>Treatment Setting</b>	<ul style="list-style-type: none"> <li>Hospitalization is recommended for the <b>first 3 days of the first cycle</b></li> </ul>	<ul style="list-style-type: none"> <li>Hospitalization is recommended for the <b>first 2 days of the second cycle</b></li> </ul>	<ul style="list-style-type: none"> <li>HCP supervision or hospitalization is recommended for <b>cycle starts</b></li> </ul>
<b>Premedication</b>	<ul style="list-style-type: none"> <li><b>Prednisone 100 mg IV or equivalent</b> (e.g., dexamethasone 16 mg) <b>1 hour prior to the first dose of blinatumomab of each cycle</b></li> </ul>		

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CNS, central nervous system; HCP, healthcare professional; IV, intravenous; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# MRD+ BCP-ALL: Blinatumomab Dosing

	Cycle 1: Induction (42 days)	Cycle 2: Consolidation (42 days)	Cycle 3-4: Consolidation (42 days/cycle)
<b>Blinatumomab Dose: Patient Weight ≥ 45 kg (fixed dose)</b>	<ul style="list-style-type: none"> <li>Days 1–28: <b>28 mcg/day CIV</b></li> </ul>		
<b>Treatment-free Interval</b>	<ul style="list-style-type: none"> <li>Days 29–42 (14 days)</li> </ul>		
<b>Duration of Interruption</b>	<b>Treatment Interruption Guidance</b>		
≥ 4 hours	<ul style="list-style-type: none"> <li>HCP supervision or hospitalization is recommended for re-initiation</li> </ul>		
≤ 7 days	<ul style="list-style-type: none"> <li>Continue same cycle to a total of 28 days of infusion (including days before and after dose interruption in that cycle)</li> </ul>		
> 7 days	<ul style="list-style-type: none"> <li>Start a new cycle</li> </ul>		

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CIV, continuous intravenous infusion; HCP, healthcare professional; IV, intravenous; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# Relapsed or Refractory BCP-ALL: Blinatumomab Administration Schedule

- Blinatumomab is administered as a continuous intravenous infusion, delivered at a constant flow rate using an infusion pump\*
- A single cycle is **28 days (4 weeks) of continuous infusion** followed by a **treatment-free interval** of:
  - **14 days** for induction and consolidation phases
  - **56 days** for maintenance cycles

**Course of Therapy:** Patients may receive 2 cycles of blinatumomab as induction treatment followed by:

- 3 additional cycles of blinatumomab as consolidation treatment, and
- Up to 4 cycles of blinatumomab as maintenance therapy

Cycles 1 and 2		Cycles 3, 4, and 5		Up to 4 Cycles (Cycles 6, 7, 8, and 9)	
Induction		Consolidation		Maintenance	
Days 1–28	Days 29–42	Days 1–28	Days 29–42	Days 1–28	Days 29–84
Blinatumomab	–	Blinatumomab	–	Blinatumomab	–

\* Commonly referred to as a smart pump.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; R/R, relapsed or refractory.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

# Relapsed or Refractory BCP-ALL: Co-Medication and Treatment Setting Guidance

	Cycle 1	Cycle 2	Cycles 3, 4, and 5	Up to 4 Cycles (Cycles 6, 7, 8, and 9)
	Induction	Induction	Consolidation	Maintenance
<b>CNS Prophylaxis<sup>1</sup></b>	<ul style="list-style-type: none"> <li><b>Intrathecal chemotherapy prophylaxis</b> recommended before and during blinatumomab</li> </ul>			
<b>If High Tumour Burden<sup>1*</sup></b>	<ul style="list-style-type: none"> <li>Dexamethasone (not &gt; 24 mg/day) for <b>up to 4 days</b> prior to first dose of blinatumomab</li> </ul>			
<b>Treatment Setting<sup>1</sup></b>	<ul style="list-style-type: none"> <li>Hospitalization recommended for the <b>first 9 days of Cycle 1</b></li> </ul>	<ul style="list-style-type: none"> <li>Hospitalization recommended for the <b>first 2 days of Cycle 2</b></li> </ul>	<ul style="list-style-type: none"> <li>HCP supervision or hospitalization is recommended for <b>cycle starts</b></li> </ul>	
<b>Premedication</b>	<ul style="list-style-type: none"> <li><b>Dexamethasone 20 mg IV 1 hour prior to the first dose of blinatumomab<sup>1</sup></b></li> <li>Consider premedication with <b>dexamethasone prior to dose escalation and re-initiation if treatment was interrupted for ≥ 4 hours<sup>2-4†</sup></b></li> </ul>	<ul style="list-style-type: none"> <li><b>Dexamethasone 20 mg IV 1 hour prior to the first dose of blinatumomab of each cycle<sup>1</sup></b></li> </ul>		

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

\* ≥ 50% leukemic blasts in bone marrow or > 15 x 10<sup>9</sup>/L peripheral blood leukemic blast count. † Recommended in US Prescribing Information, does not appear in Canadian Product Monograph.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CNS, central nervous system; HCP, healthcare professional; IV, intravenous; R/R, relapsed or refractory.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Amgen Inc. Blinatumomab Prescribing Information (US). Published online June 2024. Accessed November 15, 2024. [https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto\\_pi\\_hcp\\_english.pdf](https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto_pi_hcp_english.pdf)

3. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469.

4. Szocho S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246.

# Relapsed or Refractory BCP-ALL: Blinatumomab Dosing

	Cycle 1	Cycle 2	Cycles 3, 4, and 5	Up to 4 Cycles (Cycles 6, 7, 8, and 9)
	Induction	Induction	Consolidation	Maintenance
<b>Blinatumomab Dose: Patient Weight ≥ 45 kg (fixed dose)<sup>1</sup></b>	<ul style="list-style-type: none"> <li>Days 1–7: <b>9 mcg/day</b></li> <li>Days 8–28: <b>28 mcg/day</b></li> </ul>	<ul style="list-style-type: none"> <li>Days 1–28: <b>28 mcg/day</b></li> </ul>	<ul style="list-style-type: none"> <li>Days 1–28: <b>28 mcg/day</b></li> </ul>	<ul style="list-style-type: none"> <li>Days 1–28: <b>28 mcg/day</b></li> </ul>
<b>Treatment-free Interval<sup>1</sup></b>	<ul style="list-style-type: none"> <li>Days 29–42 (14 days)</li> </ul>	<ul style="list-style-type: none"> <li>Days 29–42 (14 days)</li> </ul>	<ul style="list-style-type: none"> <li>Days 29–42 (14 days)</li> </ul>	<ul style="list-style-type: none"> <li>Days 29–84 (<b>56 days</b>)</li> </ul>

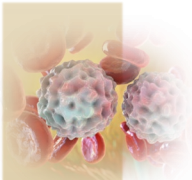
Duration of Interruption	Treatment Interruption Guidance
≥ 4 hours	<ul style="list-style-type: none"> <li>HCP supervision or hospitalization is recommended for re-initiation<sup>1</sup></li> <li>Consider premedication with dexamethasone (20 mg IV or PO) prior to re-initiation<sup>2-4*</sup></li> </ul>
≤ 7 days	<ul style="list-style-type: none"> <li>Continue same cycle to a total of 28 days of infusion (including days before and after dose interruption in that cycle)<sup>1</sup></li> </ul>
> 7 days	<ul style="list-style-type: none"> <li>Start a new cycle<sup>1</sup></li> </ul>

Refer to the blinatumomab product monograph for patients weighing < 45 kg.

\* Recommended in US Prescribing Information,<sup>2</sup> does not appear in Canadian Product Monograph.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; CNS, central nervous system; HCP, healthcare professional; IV, intravenous; R/R, relapsed or refractory.

- Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
- Amgen Inc. Blinatumomab Prescribing Information (US). Published online June 2024. Accessed November 15, 2024. [https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto\\_pi\\_hcp\\_english.pdf](https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto_pi_hcp_english.pdf)
- DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469.
- Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246.



# Drug Interaction Guidance

## Immunization<sup>1</sup>

- The safety of live viral vaccines during or after blinatumomab has not been studied
- **Vaccination with live vaccines is not recommended** within the 2 weeks prior to initiating blinatumomab or during therapy. Live virus vaccines can be administered when B lymphocytes are within normal range following the last cycle of blinatumomab

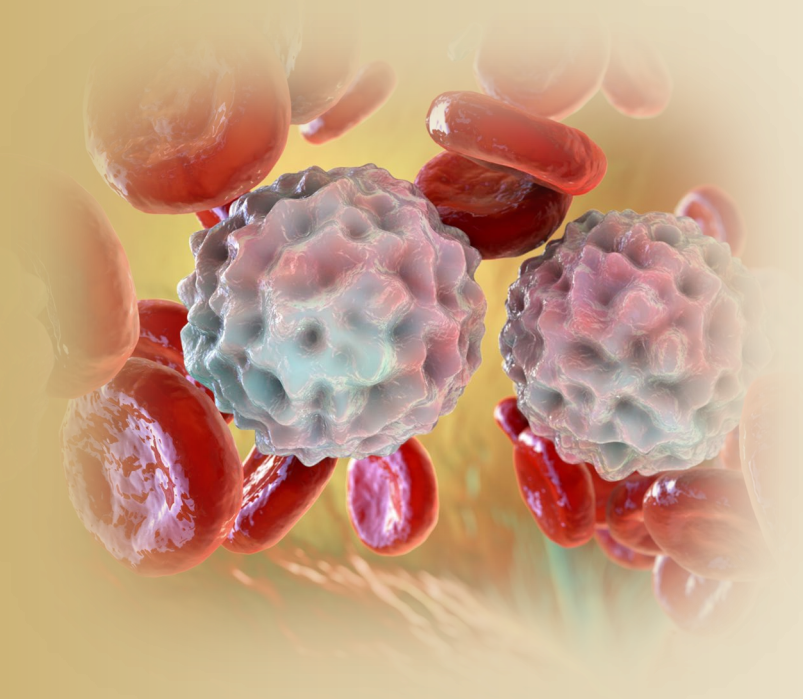
## Drug-Drug Interactions

- No formal drug-drug interaction studies have been conducted with blinatumomab<sup>1</sup>
- Blinatumomab treatment-induced transient release of cytokines may suppress CYP450 enzymes<sup>1</sup>
- The highest risk for drug-drug interaction is within the first 9 days of cycle 1 and the first 2 days of cycle 2 in patients receiving concomitant CYP450 substrates, particularly those with a narrow therapeutic index (e.g., warfarin and cyclosporine)<sup>1</sup>
- Avoid NSAIDs if possible as they may contribute to endothelial stress<sup>2</sup>

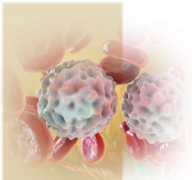
CYP450, cytochrome P450; NSAID, non-steroidal anti-inflammatory drug.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.



# Administration of Blinatumomab



# Treatment Overview

- Blinatumomab is delivered as a 28-day continuous IV infusion<sup>1</sup>



## Hospitalization<sup>2,3</sup>

Hospitalization is required initially for the first two cycles to monitor and manage toxicities

- Once tolerability is established, clinically stable patients may be transitioned to the outpatient setting with frequent follow up with their healthcare team



## Timing of Infusion

Due to the risk for serious toxicities during the initial hours/days of infusion, treatment cycles should be initiated in the hospital during daytime hours<sup>1,3</sup>

- The timing of blinatumomab infusion initiation on day 1 of a cycle should consider<sup>3</sup>:
  - When there are sufficient resources to monitor and address any toxicities or questions
  - The timing for outpatient administration, given the requirement for precise timing of IV bag changes



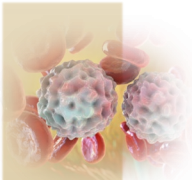
## Outpatient Setting

Minimum weekly clinic visits are advised, ensuring a knowledgeable healthcare team member is available at all times<sup>2,4</sup>

- Some centres perform twice-weekly bag changes with patient assessment and weekly blood work

IV, intravenous.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. Szoce S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.
3. Oranges K, et al. *Pediatric Blood & Cancer*. 2020;67(9):e28541. doi:10.1002/pbc.28541.
4. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.



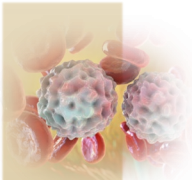
# Infusion Rates by Duration and Dose for Patients Weighing $\geq 45$ kg

- Blinatumomab IV bags may be prepared for continuous infusion over 24 hours, 48 hours, 72 hours, 96 hours, or 7 days
  - For infusion durations  $\leq 96$  hours, the blinatumomab solution is prepared using **preservative-free 0.9% sodium chloride**
  - For infusion durations of **7 days**, the blinatumomab solution is prepared with **bacteriostatic 0.9% sodium chloride** (containing **0.9% benzyl alcohol**)

Infusion Duration (per IV bag)	Dose	Infusion Rate
24 hours	9 mcg/day	10 mL/hour
	28 mcg/day	10 mL/hour
48 hours	9 mcg/day	5 mL/hour
	28 mcg/day	5 mL/hour
72 hours	9 mcg/day	3.3 mL/hour
	28 mcg/day	3.3 mL/hour
96 hours	9 mcg/day	2.5 mL/hour
	28 mcg/day	2.5 mL/hour
7 days	28 mcg/day	0.6 mL/hour

See blinatumomab product monograph for infusion rates for patients  $< 45$  kg. IV, intravenous.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Equipment and Storage Requirements

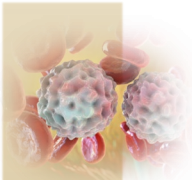
- Blinatumomab is incompatible with DEHP<sup>1</sup>
- Do not use an in-line filter with a 7-day infusion bag<sup>1</sup>

Ports and IV Catheters <sup>2</sup>	Infusion Bags and Tubing <sup>1</sup>	Filter <sup>1</sup>	Infusion Pump*	Storage and Stability <sup>1</sup>
<ul style="list-style-type: none"><li>• Infuse through a <b>double-lumen central line</b> (e.g., PICC or tunneled CVAD) to ensure continuous infusion and access for additional IV medications and laboratory draws</li><li>• For patients with an implanted port, peripherally draw laboratory samples to avoid interruption of therapy</li></ul>	<p><b>Infusion bags:</b></p> <ul style="list-style-type: none"><li>• Polyolefin, <b>DEHP-free</b> PVC, or EVA infusion bags</li></ul> <p><b>Infusion tubing:</b></p> <ul style="list-style-type: none"><li>• Polyolefin, <b>DEHP-free</b> PVC, or EVA IV tubing sets</li><li>• Ensure IV tubing is compatible with infusion pump</li></ul>	<p><b>24-hr, 48-hr, 72-hr, and 96-hr infusions:</b></p> <ul style="list-style-type: none"><li>• Use a sterile, non-pyrogenic, low protein-binding 0.2 or 0.22 micron in-line filter</li></ul> <p><b>7-day infusion bags:</b></p> <ul style="list-style-type: none"><li>• <b>Do not use an in-line filter</b></li></ul>	<ul style="list-style-type: none"><li>• Use an approved infusion pump<sup>3</sup></li><li>• Infusion pump* should<ul style="list-style-type: none"><li>▪ Be <b>programmable</b>, lockable, non-elastomeric<sup>1</sup></li><li>▪ Have an <b>alarm</b><sup>1</sup> (visual and auditory)<sup>3</sup></li></ul></li><li>• Ensure infusion pump* is compatible with IV tubing<sup>1</sup></li></ul>	<ul style="list-style-type: none"><li>• Store IV tubing and bag at <b>2°C to 8°C if not used immediately</b></li><li>• Do not freeze</li><li>• Prepared infusion bags do not need to be protected from ambient lighting</li><li>• Refer to clinical resource for maximum storage time of prepared blinatumomab infusion bag</li></ul>

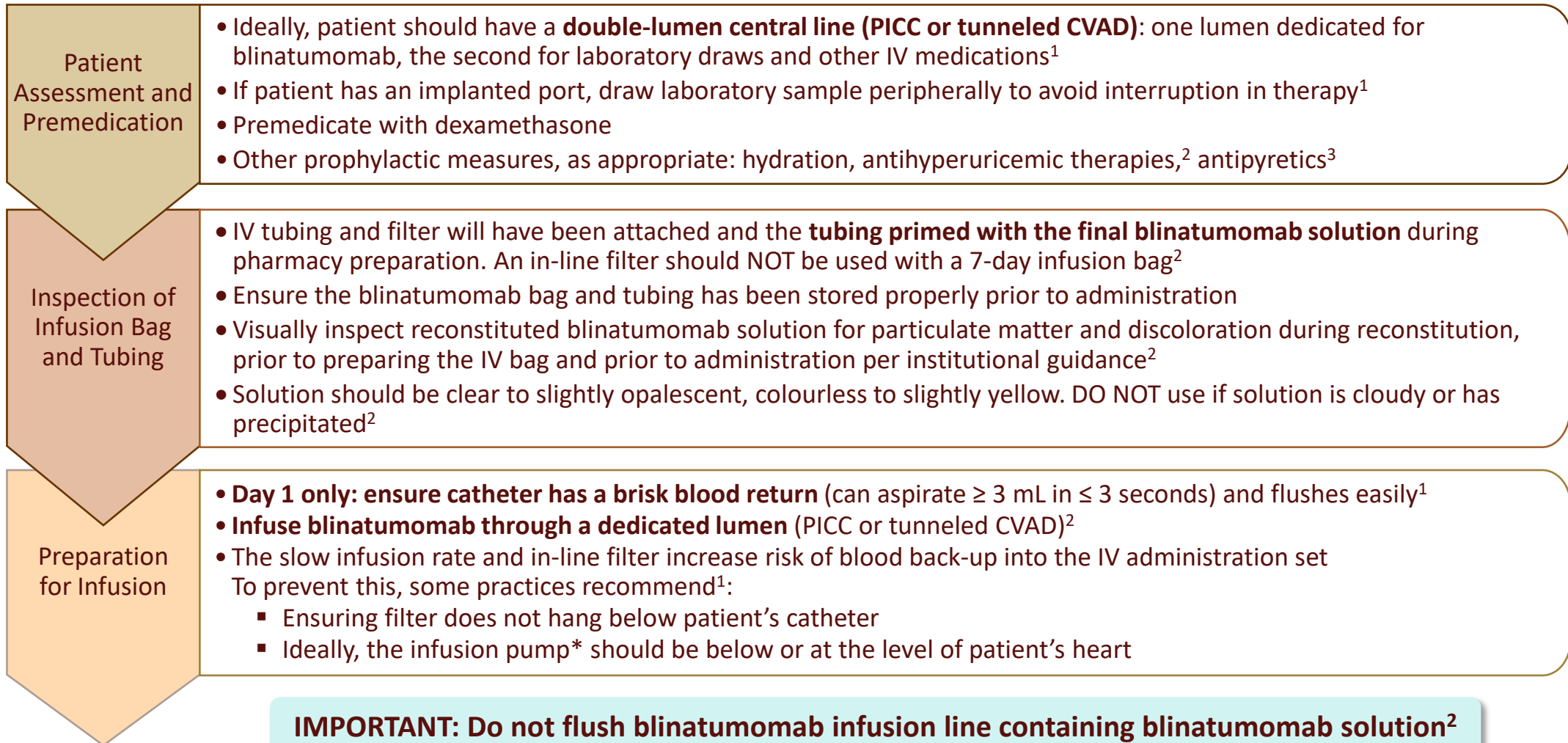
\* Commonly referred to as a smart pump.

CVAD, central venous access device; DEHP, di-ethylhexyl phthalate; EVA, ethyl vinyl acetate; IV, intravenous; PICC, peripherally inserted central catheter; PVC, polyvinyl chloride.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. Szoce S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.0000000000000283.
3. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.



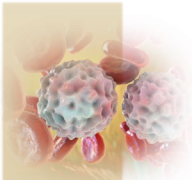
# Administration Guidance



\* Commonly referred to as a smart pump.

CVAD, central venous access device; IV, intravenous; PICC, peripherally inserted central catheter.

1. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.
2. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
3. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.



# Administration Guidance

## Infusion Bag Changes

- Do not flush blinatumomab infusion line containing blinatumomab solution during infusion bag change<sup>1</sup>
- Flushing when changing bags or at completion of infusion can result in excess dosage and complications thereof<sup>1</sup>
- Change infusion bag at the same time each day, according to the chosen infusion duration, independent of the remaining volume<sup>2</sup>
- When administering with a multi-lumen venous catheter, infuse blinatumomab through a dedicated lumen<sup>1</sup>

**Follow institutional policies/guidelines for maintaining catheter patency and addressing catheter occlusion, provided flushing of blinatumomab does not occur.**

### Maintaining Catheter Patency (*Data on file, Amgen 2016*)

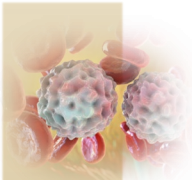
- Follow institutional policy, provided there is no flushing of blinatumomab
- Steps include: disconnect blinatumomab IV bag; withdraw blood through line to clear line of blinatumomab (blood volume not specified); flush with saline per institutional practice

### Catheter Occlusion

- This guidance is informed by the 2019 CVAA Occlusion Management Guideline (OMG) for CVADs<sup>3</sup> and expert opinion
- The CVAA OMG for CVADs is not specific to blinatumomab. Follow your institutional policy provided there is no flushing of blinatumomab into the patient
- Notify appropriate clinical teams per institutional protocol (e.g., CVAD team, PICC nurse), with the goal of keeping treatment interruption to <4 hours
- Note: CVAD salvage is preferred over CVAD removal<sup>3</sup>

### Guidance for Thrombotic Occlusions, Adapted for Blinatumomab

- Stop blinatumomab infusion and disconnect it from the line
- Withdraw blinatumomab from the line and aspirate for blood return to assess line patency (residual amounts of blinatumomab must be aspirated from the catheter system to avoid bolus administration before flushing the catheter system)<sup>1</sup>
- If no blood return, a 0.9% sodium chloride infusion may be used at same rate as the blinatumomab infusion until blinatumomab cleared from catheter, prior to flushing; follow institutional policy
- If no blood return and full occlusion, administer thrombolytic (e.g., Cathflo®) per CVAA OMG or institutional policy, preferably using the stopcock method (expert opinion: stopcock method preferred for blinatumomab to prevent inadvertent flushing of blinatumomab into catheter)
- If possible, maintain blinatumomab continuity via another lumen (if multi-lumen catheter) or another device (e.g., peripheral IV if single lumen catheter) to avoid dose interruption while managing occlusions



# Administration Guidance

## Infusion Interruption

- In hospital: pausing infusion for < 15-30 minutes can allow for patient to shower, blood drawing, or port reaccessing<sup>1</sup>
- Outpatient/home setting: infusion should never be paused (except for port reaccessing)<sup>1</sup>
- If the infusion interruption lasts  $\geq$  4 hours, hospitalization and dexamethasone may be necessary. Always speak with the physician before re-initiating blinatumomab infusion<sup>2</sup>
- If blinatumomab must be stopped for an acute problem, infusion bag can be moved from central line to peripheral IV, but a newly prepared infusion bag is required to move from peripheral IV back to central line<sup>1</sup>

## Discontinuation of Blinatumomab

Before flushing the catheter system, residual amounts of blinatumomab must be aspirated from the catheter system to avoid bolus administration<sup>3</sup>

**Discontinuation Procedure** (*guidance from University of Maryland Medical Centre*)<sup>2</sup>:

- Disconnect and aspirate 5 mL of blood from lumen to remove residual drug
- After aspiration, the lumen should be safe to flush
- Adequately flush catheter with 20 mL of 0.9% sodium chloride
- If flushing is difficult or if sluggish blood return is observed, consider use of clearing agent to prevent future occlusion (to be discussed with physician)

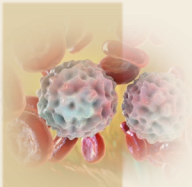
**IMPORTANT: Do not flush blinatumomab infusion line containing blinatumomab solution<sup>3</sup>**

IV, intravenous.

1. Oranges K, et al. *Pediatric Blood & Cancer*. 2020;67(9):e28541. doi:10.1002/pbc.28541.

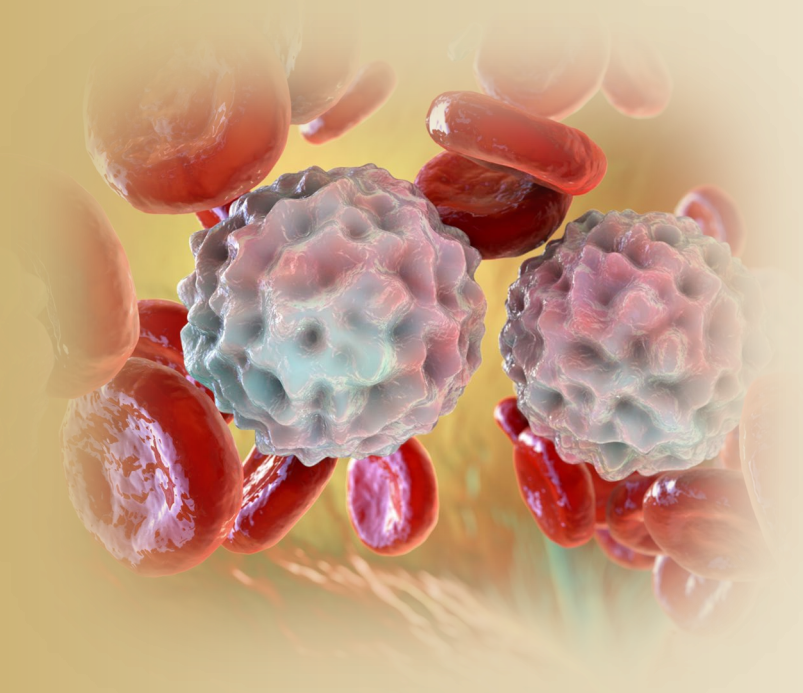
2. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.0000000000000283.

3. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

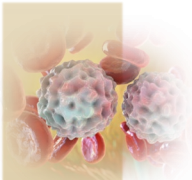


## Discussion

- Do you have an institutional policy/protocol for maintaining IV catheter patency that ensures blinatumomab solution is not flushed during catheter care?
  - If yes, how is the nursing staff educated on this protocol?
  - If no, how would you go about establishing a protocol?



# Safety Profile: Overview



# Baseline Assessment of Candidates for Blinatumomab

- Comprehensive laboratory testing is required prior to initiation of treatment<sup>1</sup>
- Ensure patient can manage and self-monitor at home with appropriate caregiver/home support for outpatient component of therapy

## Suggested Parameters for Assessment at Baseline

Patient Assessment/Physical Examination	Standard Laboratory Tests	Other Tests/Evaluations
<ul style="list-style-type: none"> <li>• Neurological exam and history of neurologic events including ICANS<sup>2,3</sup></li> <li>• Medication history               <ul style="list-style-type: none"> <li>• Review vaccination history<sup>2</sup></li> <li>• Assess for drug interactions (i.e., drugs with narrow therapeutic window)<sup>2</sup></li> <li>• Assess for drugs which may cause liver enzyme elevation<sup>2</sup></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CBC with differential<sup>3</sup></li> <li>• Liver function: ALT, AST, GGT, total blood bilirubin<sup>2,3</sup></li> <li>• Renal function<sup>2</sup></li> <li>• Electrolytes<sup>3</sup></li> <li>• Pregnancy testing is recommended prior to treatment initiation in women of childbearing potential</li> </ul>	<ul style="list-style-type: none"> <li>• Bone marrow blasts<sup>2</sup></li> <li>• Peripheral blast count<sup>2</sup></li> <li>• Immunophenotyping: CD19 expression<sup>2</sup></li> <li>• Cytogenetic analysis (detect abnormalities)               <ul style="list-style-type: none"> <li>▪ Identify patients at risk for AML lineage switch<sup>2</sup></li> </ul> </li> </ul>

ALT, alanine aminotransferase; AML, acute myeloid leukemia; AST, aspartate aminotransferase; CBC, complete blood count; CD19, cluster of differentiation 10; GGT, gamma-glutamyl transferase; ICANS, immune effector cell-associated neurotoxicity syndrome.

1. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469. doi:10.1188/16.CJON.466-469.
2. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
3. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.

# Other Patient Considerations Prior to Start of Blinatumomab



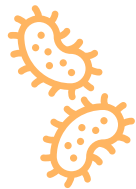
## Pregnancy and Lactation

- It is not known if blinatumomab can cause fetal harm or if it is present in human milk<sup>1</sup>
- Advise patients of childbearing potential to use effective contraception and discontinue nursing during and for a minimum of 48 hours after blinatumomab therapy<sup>1,2</sup>
- Regular pregnancy testing may be considered



## Patients ≥ 65 Years of Age<sup>1</sup>

- Elderly patients experienced a higher rate of neurologic events including cognitive disorder, encephalopathy, and confusion



## Serious Infection

- Patients > 65 years of age are at increased risk of infection<sup>1,3</sup>
- There has been limited experience using blinatumomab in patients with active infections<sup>1</sup>



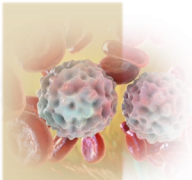
## Down Syndrome<sup>1</sup>

- Patients with Down syndrome may have a higher risk of seizures with blinatumomab therapy
- Consider seizure prophylaxis prior to initiation of blinatumomab for these patients

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.

3. Oncology Drug Reference Sheet: Blinatumomab. ONS Voice. Accessed November 15, 2024. <https://voice.ons.org/news-and-views/oncology-drug-reference-sheet-blinatumomab>.



# Hospital Visit and Readmission Guidance

- For patients receiving blinatumomab in an outpatient setting:

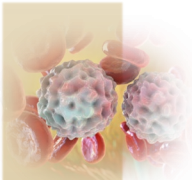
Home healthcare should include weekly hospital visits<sup>1</sup>

Reasons for readmission may include<sup>2</sup>:

- Infections
- Fever
- Drug-related toxicity requiring in-patient monitoring and management

If blinatumomab infusion has been interrupted for  $\geq 4$  hours, supervision by an HCP or hospital readmission is recommended<sup>3</sup>

1. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.
2. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469. doi:10.1188/16.CJON.466-469.
3. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Most Common Adverse Reactions: BCP-ALL in the Consolidation Phase

- TABLE: Common adverse reactions associated with standard of care chemotherapy plus blinatumomab therapy (any grade occurring in  $\geq 15\%$ )
  - Patients with **newly diagnosed Philadelphia chromosome negative BCP-ALL** (Study E1910: N=147)

**Toxicities occurring in:**

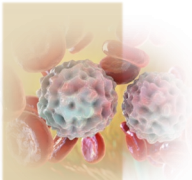
- > 50% patients
- 21–50% patients
- $\leq 20\%$  patients

Toxicity	Any Grade*	Grade $\geq 3$ *
Neutropenia	78%	71%
Thrombocytopenia	69%	51%
Anemia	54%	23%
Headache	41%	5%
Leukopenia	37%	34%
Infection – pathogen unspecified	30%	26%
Nausea	27%	4%
Diarrhea	25%	3%
Lymphopenia	25%	24%
Musculoskeletal pain	21%	5%
Tremor	20%	3%
Febrile neutropenia	18%	18%
Abdominal pain	17%	3%
Liver function test abnormal	16%	9%
Cytokine release syndrome (CRS)	15%	4%
Fatigue	15%	3%

\* Percentages have been rounded.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Most Common Adverse Reactions: MRD+ BCP-ALL

- TABLE: Common TEAEs associated with blinatumomab therapy (any grade occurring in  $\geq 15\%$ )
  - Patients with **MRD+ BCP-ALL** (2 single-arm studies: N=137)

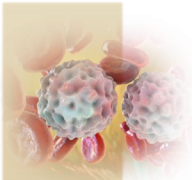
### Toxicities occurring in:

- > 50% patients
- 21–50% patients
- $\leq 20\%$  patients

Toxicity	Any Grade	Grade $\geq 3$
Pyrexia	91%	7%
Infusion-related reaction	77%	5%
Infection	39%	8%
Headache	39%	4%
Tremor	31%	4%
Chills	28%	0%
Decreased immunoglobulins	18%	5%
Insomnia	18%	<1%
Rash	16%	<1%
Neutropenia	15%	15%

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; MRD+, minimal residual disease positive; TEAE, treatment-emergent adverse event.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Most Common Adverse Reactions: Relapsed or Refractory BCP-ALL

- TABLE: Common TEAEs associated with blinatumomab therapy (any grade occurring in  $\geq 15\%$ )
  - Patients with **Relapsed or Refractory BCP-ALL** (TOWER study: N=267)

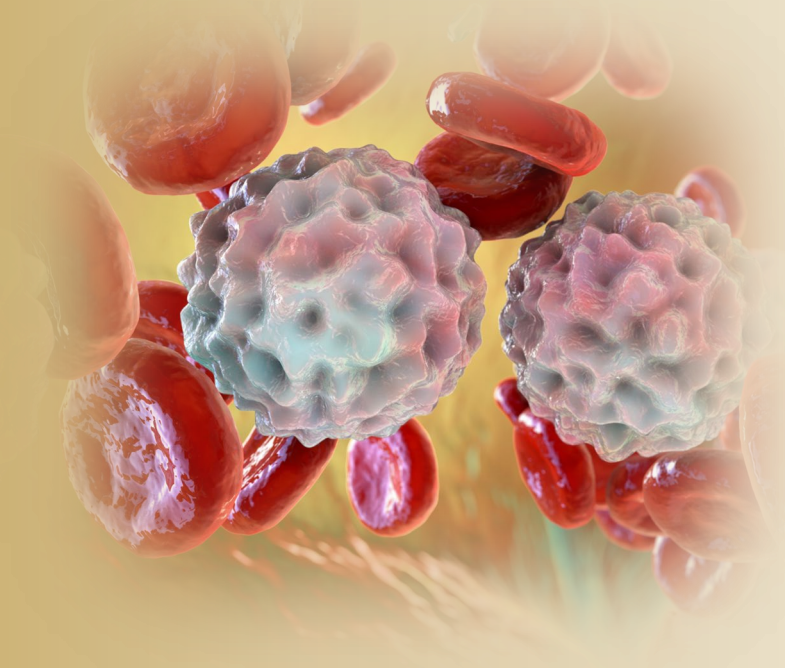
**Toxicities occurring in:**

- > 50% patients
- 21–50% patients
- $\leq 20\%$  patients

Toxicity	Any Grade	Grade $\geq 3$
Pyrexia	60%	7%
Infection	43%	24%
Infusion-related reactions	34%	3%
Headache	29%	<1%
Anemia	27%	21%
Febrile neutropenia	24%	21%
Thrombocytopenia	24%	19%
Neutropenia	23%	21%
Bacterial infectious disorders	21%	10%
Edema	17%	1%
Hepatic enzymes increased	17%	10%
Viral infectious disorders	16%	3%
Cough	15%	0%

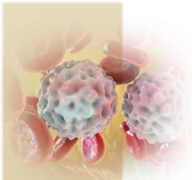
BCP-ALL, B-cell precursor acute lymphoblastic leukemia; TEAE, treatment-emergent adverse event.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Adverse Reaction Monitoring and Management

Guidance for Selected Toxicities



# Cytokine Release Syndrome

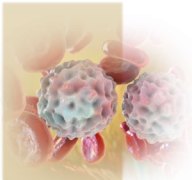


## Description

- **Systemic inflammatory response**; median time to onset of CRS in clinical trials was 2 days<sup>1</sup>
- Most often presents as flu-like symptoms including fever, myalgia, arthralgia, headache, and tachycardia<sup>2</sup>
- Serious adverse events that may be associated with CRS include asthenia, pyrexia, headache, hypotension, elevation of liver enzymes (AST and ALT), total bilirubin increased, nausea, tachycardia, respiratory distress,<sup>1,3</sup> and hypoxia<sup>5</sup>
- Severe and fatal CRS has occurred in patients receiving blinatumomab<sup>1</sup>
- CRS has been commonly associated with CLS and DIC<sup>1</sup>
- In the context of CRS, hemophagocytic lymphohistiocytosis (HLH)/MAS has been uncommonly reported<sup>1</sup>
- **Infusion reactions** include hypotension, hypertension, fever, myalgia, tachypnea, face swelling and rash<sup>4</sup>

ALT, alanine aminotransferase; AST, aspartate aminotransferase; CLS, capillary leak syndrome; CRS, cytokine release syndrome; DIC, disseminated intravascular coagulation; MAS, macrophage activation syndrome.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. Shimabukuro-Vornhagen A, et al. *J Immunother Cancer*. 2018;6:56.
3. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.
4. DePadova S, et al. *Clinical Journal of Oncology Nursing*. 2016;20(5):466-469. doi:10.1188/16.CJON.466-469.
5. Frey NV, et al. *Hematology Am Soc Hematol Educ Program*. 2016;2016(1):567-572. doi:10.1182/asheducation-2016.1.567.



# Cytokine Release Syndrome



	Frequency <sup>1</sup>					
	BCP-ALL in the Consolidation Phase of Multiphase Chemotherapy (STUDY E1910, N=147)		MRD+ BCP-ALL (2 Single-arm studies, N=137)		Relapsed/Refractory BCP-ALL (TOWER STUDY, N=267)	
	Any	Grade ≥ 3	Any	Grade ≥ 3	Any	Grade ≥ 3
<b>Cytokine Release Syndrome</b>	15%*	4%*	Not reported	Not reported	14%	3%
<b>Infusion-related Reactions</b>	Not reported	Not reported	77%	5%	34%	3%

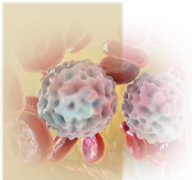
Toxicities occurring in:



\* Percentages have been rounded.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# Cytokine Release Syndrome: Recommended Clinical Monitoring

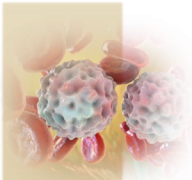


## Clinical Assessment Considering Syndromes and Conditions Below

	Cycle 1	Cycle 2	Cycle 3 and Beyond
<b>Infusion Reactions<sup>1</sup></b>	✓ Observe closely during first infusion of cycle	✓ Observe closely during first infusion of cycle	✓
<b>Cytokine Release Syndrome (CRS)</b> <ul style="list-style-type: none"> <li>• Headache, pyrexia, hypotension, asthenia, nausea<sup>1</sup></li> <li>• Total bilirubin increased, liver enzymes increased<sup>1</sup></li> <li>• Hypoxia<sup>2</sup></li> </ul>	✓ (Median onset 2 days) <sup>1</sup>	✓	✓
<b>Disseminated Intravascular Coagulation (DIC)</b> <ul style="list-style-type: none"> <li>• Blood in urine or stool, bleeding near wound sites or from mouth, gums, or nose, bruising<sup>3</sup></li> <li>• Chest pain, warmth, redness, pain and swelling of leg<sup>3</sup></li> <li>• Increased INR, decreased fibrinogen<sup>4</sup></li> </ul>	✓	✓	✓
<b>Capillary Leak Syndrome (CLS)</b> <ul style="list-style-type: none"> <li>• Edema, hypotension<sup>5</sup></li> <li>• Elevated hematocrit<sup>5</sup></li> </ul>	✓	✓	✓

INR, international normalized ratio.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF); 2. Frey NV, et al. *Hematology Am Soc Hematol Educ Program*. 2016;2016(1):567-572. doi:10.1182/asheducation-2016.1.567; 3. National Institute of Health (NIH). Blood Clotting Disorders - Disseminated Intravascular Coagulation (DIC). Accessed November 15, 2024. <https://www.nhlbi.nih.gov/health/disseminated-intravascular-coagulation#What-are-the-symptoms-of-DIC?>; 4. Levi M, et al. *British Journal of Haematology*. 2009;145(1):24-33. doi:10.1111/j.1365-2141.2009.07600.x; 5. Izzedine H, et al. *Kidney Int Rep*. 2022;7(5):945-953. doi:10.1016/j.ekir.2022.02.014.



# Cytokine Release Syndrome: Proactive Measures



- Accidental bolus administration of blinatumomab can cause CRS. To prevent this<sup>1</sup>:
  - Infusion should run through a dedicated lumen on a central line
- The infusion pump (commonly referred to as a smart pump) should be checked by two healthcare professionals (e.g., registered nurses) when programmed to ensure correct infusion rate\*

## Premedications

- Steroids are recommended prior to blinatumomab infusion; refer to slides [14](#), [17](#), and [20](#) for details

## Standing Orders

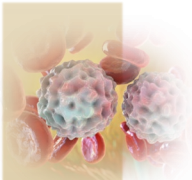
- Consider standing orders for as-needed dexamethasone and tocilizumab per institutional CRS guidelines for prompt treatment of CRS<sup>1</sup>

## Monitoring

- Closely observe for infusion reactions, especially first infusion of cycles 1-2<sup>2</sup>
- Monitor liver enzymes (AST, ALT, GGT) and total bilirubin prior to start of and during treatment<sup>2</sup>
- Monitor patients for signs and symptoms of CLS and DIC<sup>2-4</sup>

\* Expert opinion. ALT, alanine aminotransferase; AST, aspartate aminotransferase; CLS, capillary leak syndrome; CRS, cytokine release syndrome; DIC, disseminated intravascular coagulation.

1. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.;
2. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
3. Izzedine H, et al. *Kidney Int Rep*. 2022;7(5):945-953. doi:10.1016/j.ekir.2022.02.014.
4. National Institute of Health (NIH). Blood Clotting Disorders - Disseminated Intravascular Coagulation (DIC). Accessed November 15, 2024. <https://www.nhlbi.nih.gov/health/disseminated-intravascular-coagulation#What-are-the-symptoms-of-DIC?>.



# Cytokine Release Syndrome: Toxicity Management

For patients  $\geq 45$  kg\*:

## Any Grade

- Provide vigilant supportive care<sup>1,2</sup>
- Assess for tumour lysis<sup>1</sup>
- Investigate cause of fever (e.g., blood and urine cultures, chest imaging), provide broad-spectrum antibiotics until infection is ruled out, and assess for febrile neutropenia<sup>1</sup>
- Consider daily monitoring of CRP to identify and monitor CRS<sup>1†</sup>

## Tocilizumab (IL-6 inhibitor)

- If no improvement following drug cessation and steroid treatment, consider tocilizumab per institutional CRS guidelines<sup>5</sup>
- Avoid tocilizumab in patients with serious CNS toxicities<sup>1</sup>

## Grade 2

- Consider interrupting blinatumomab until  $\leq$  Grade 1 (mild)<sup>3,4</sup>
- Consider corticosteroid per institutional guidelines

## Grade 3 (Severe)

- Interrupt blinatumomab until  $\leq$  Grade 1 (mild)<sup>5</sup>
- Treat with dexamethasone 8 mg (PO or IV) every 8 hours for up to 3 days; then taper over 4 days<sup>6</sup>
- Once resolved, restart blinatumomab at 9 mcg/day; escalate to 28 mcg/day after 7 days if the toxicity does not recur<sup>5,6</sup>

## Grade 4 (Life-threatening)

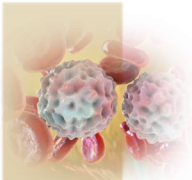
- Discontinue blinatumomab permanently<sup>5</sup>
- Treat with dexamethasone 8 mg (PO or IV) every 8 hours for up to 3 days; then taper over 4 days<sup>6‡</sup>

This guidance primarily reflects recommendations from the Product Monograph and US Prescribing Information. Additionally, BC Cancer and Cancer Care Ontario (CCO) provide recommendations on CRS management; however, they are not specific to blinatumomab, which is notable for its short half-life.

\* See blinatumomab product monograph for toxicity management guidance for patients  $< 45$  kg. † Expert Opinion. ‡ Recommended in US Prescribing Information, not Health Canada-approved.

CNS, central nervous system; CRP, C-reactive protein; CRS, cytokine release syndrome; IL-6, interleukin-6; IV, intravenous; PO, oral administration.


1. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283. 2. Canada's Drug Agency. Anticytokine Therapy and Corticosteroids for Cytokine Release Syndrome and for Neurotoxicity Following T-Cell Engager or CAR T-Cell Therapy. 2024;4(5). doi:10.51731/cjht.2024.884. 3. BC Cancer. Protocol for Cytokine Release Syndrome Management. Published online January 1, 2025. Accessed January 23, 2025. [http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCCRS\\_Protocol.pdf](http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCCRS_Protocol.pdf). 4. National Cancer Institute. Common Terminology Criteria for Adverse Events (CTCAE) Version 4.0. Published online June 14, 2020:80. 5. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF); 6. Amgen Inc. Blinatumomab Prescribing Information (US). Published online June 2024. Accessed November 15, 2024. [https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto\\_pi\\_hcp\\_english.pdf](https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto_pi_hcp_english.pdf). 7. Jain T, et al. *Ther Adv Hematol*. 2020;11:2040620719899897. doi:10.1177/2040620719899897.



# Cytokine Release Syndrome: Patient Education



- Educate patients to report signs and symptoms of:



## CRS and Infusion Reactions<sup>1</sup>

- Fever
- Weakness/tiredness
- Headache
- Dizziness
- Low blood pressure
- Vomiting
- Nausea
- Chills
- Face swelling
- Skin rash
- Trouble breathing/wheezing

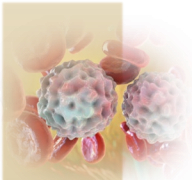
## CLS and DIC

- |   |  |   |
|---|--|---|
| <p><b>CLS<sup>2</sup></b></p> <ul style="list-style-type: none"> <li>• Trouble breathing</li> <li>• Muscle aches</li> <li>• Abdominal pain</li> <li>• Increased thirst</li> </ul> | <p><b>DIC<sup>3</sup></b></p> <ul style="list-style-type: none"> <li>• Blood in urine or stool</li> <li>• Bleeding near wound sites or from mouth, gums or nose</li> <li>• Bruising</li> </ul> | <ul style="list-style-type: none"> <li>• Chest pain</li> <li>• Warmth, redness, pain and swelling of leg</li> </ul> |
|---|--|---|

- Remind patients to carry a drug alert card with them at all times

CLS, capillary leak syndrome; CRS, cytokine release syndrome; DIC, disseminated intravascular coagulation.

1. Amgen Inc. Blinatumomab Prescribing Information (US). Published online June 2024. Accessed November 15, 2024. [https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto\\_pi\\_hcp\\_english.pdf](https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto_pi_hcp_english.pdf)
2. Izzedine H, et al. *Kidney Int Rep.* 2022;7(5):945-953. doi:10.1016/j.ekir.2022.02.014
3. National Institute of Health (NIH). Blood Clotting Disorders - Disseminated Intravascular Coagulation (DIC). Accessed November 15, 2024. <https://www.nhlbi.nih.gov/health/disseminated-intravascular-coagulation#What-are-the-symptoms-of-DIC?>.



# Neurologic Events including Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS)



## Description

### General Neurologic Events

- Neurologic toxicities including ICANS that can be serious or life-threatening have been observed in patients receiving blinatumomab<sup>1</sup>
- Neurologic AEs (any grade) occurred in ~50% of adult patients; median time to onset was within first 2 weeks and majority of events resolved<sup>1</sup>
- The incidence of signs and symptoms consistent with ICANS in clinical trials was 7.5%. The onset of ICANS can be concurrent with CRS, following resolution of CRS, or in the absence of CRS<sup>1</sup>
- Elderly patients ( $\geq 65$  years of age) experienced a higher rate of neurologic AEs<sup>1</sup>
- Patients with Down syndrome may have a higher risk of seizures with blinatumomab therapy<sup>1</sup>
- There is limited experience with blinatumomab in patients with active ALL in the CNS or a history of neurologic events<sup>1</sup>
- Prior neurological events have been associated with a higher risk of neurological toxicity<sup>2</sup>

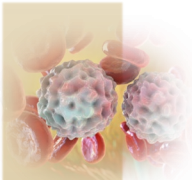
### Leukoencephalopathy<sup>1</sup>

- Cranial MRI changes indicative of leukoencephalopathy have been observed in patients receiving blinatumomab
  - Especially in patients with prior cranial irradiation and anti-leukemic chemotherapy
  - Clinical significance of cranial MRI changes is unknown

AE, adverse event; ALL, acute lymphoblastic leukemia, CNS, central nervous system; ICANS, immune effector cell-associated neurotoxicity syndrome; MRI, magnetic resonance imaging.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Jain T, et al. *Ther Adv Hematol*. 2020;11:2040620719899897. doi:10.1177/2040620719899897.



# Neurologic Events including ICANS



## Frequency<sup>1</sup>

	BCP-ALL in the Consolidation Phase of Multiphase Chemotherapy (STUDY E1910, N=147)		MRD+ BCP-ALL (2 Single-arm studies, N=137)		Relapsed/Refractory BCP-ALL (TOWER STUDY, N=267)	
	Any	Grade ≥ 3	Any	Grade ≥ 3	Any	Grade ≥ 3
Headache*	41% <sup>†</sup>	5% <sup>†</sup>	39%	4%	29%	<1%
Tremor*	20% <sup>†</sup>	3% <sup>†</sup>	31%	4%	10%	<1%
Aphasia*	Not reported	Not reported	12%	<1%	1%	<1%
Dizziness*	Not reported	Not reported	10%	<1%	7%	<1%
Encephalopathy*	Not reported	Not reported	10%	4%	1%	1%
Seizure*	Not reported	Not reported	Not reported <sup>‡</sup>	Not reported <sup>‡</sup>	2%	1%

### Toxicities occurring in:



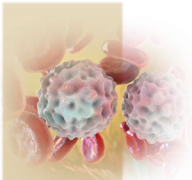
\* Events may represent immune effector cell-associated neurotoxicity syndrome (ICANS).

† Percentages have been rounded.

‡ Seizure (any grade) was reported in 3% of subjects in the BLAST study.

BCP-ALL, B-cell precursor acute lymphoblastic leukemia; MRD+, minimal residual disease positive.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).




# Neurologic Events including ICANS: Recommended Clinical Monitoring



## Clinical Assessment Considering Syndromes and Conditions Below

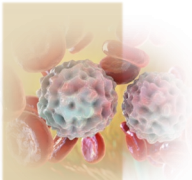
Neurologic Events including ICANS	Cycle 1	Cycle 2	Cycle 3 and Beyond
<ul style="list-style-type: none"> <li>Headache, tremor, encephalopathy, dizziness, convulsions, difficulty communicating, speech disorders, confusion, disorientation, altered consciousness, disturbances in coordination or balance, reduced pain or touch sensation, paresthesia, seizure activity<sup>1</sup></li> </ul>	<p style="text-align: center;">✓ (Median time to first event within first 2 weeks)<sup>1</sup></p>	<p style="text-align: center;">✓</p>	<p style="text-align: center;">✓</p>
<ul style="list-style-type: none"> <li>Speech clarity, cognition/mentation, handwriting<sup>2,3</sup></li> </ul>	<p>Assess once per shift if inpatient<sup>2</sup> and once per clinic visit if outpatient* If ICANS symptoms are present at any grade, obtain an immune effector cell-associated encephalopathy (ICE) score and repeat every 8 hours or more frequently as indicated<sup>4</sup></p>		

 **Consider storing a signature log in patient’s chart:**  
Monitor for changes in patient’s ability to hand-write a pre-specified statement (compared to baseline)<sup>2,3</sup>

\* Expert Opinion.

ICANS, immune effector cell-associated neurotoxicity syndrome; ICE, immune effector cell-associated encephalopathy.

- Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
- Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.
- Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.
- BC Cancer. Protocol for Immune Effector Cell-Associated Neurotoxicity Syndrome Management. Published online December 1, 2024. [http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCICANS\\_Protocol.pdf](http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCICANS_Protocol.pdf).



# Neurologic Events including ICANS: Proactive Measures



- Perform a neurological examination prior to initiating blinatumomab and clinically monitor for neurologic signs and symptoms, including ICANS<sup>1</sup>
  - Neurologic events may include headache, tremor, encephalopathy, dizziness, convulsions, speech disorders, confusion, disorientation, altered consciousness, disturbances in coordination or balance, seizure activity
- Given the potential for progressive multifocal leukoencephalopathy (PML), monitor patients for signs and symptoms
- If ICANS symptoms are present at any grade, obtain an immune effector cell-associated encephalopathy (ICE) score and repeat every 8 hours or more frequently as indicated<sup>2</sup>
- Patients with Down syndrome may have a higher risk of seizures with blinatumomab therapy; consider seizure prophylaxis prior to initiation of blinatumomab in these patients<sup>1</sup>

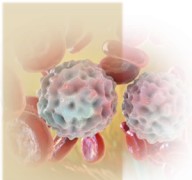
## Assessments

- Assess the following at least once per shift if inpatient,<sup>2</sup> and every clinic visit if outpatient,\* during blinatumomab therapy:
  - Speech clarity changes
  - Cognition and/or mentation changes
- Consider storing signature log in patient's chart to monitor for changes in patient's ability to hand-write a pre-specified statement (compared to baseline)<sup>3,4</sup>

\* Expert Opinion.

ICANS, immune effector cell-associated neurotoxicity syndrome; ICE, immune effector cell-associated encephalopathy; PML, progressive multifocal leukoencephalopathy.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. BC Cancer. Protocol for Immune Effector Cell-Associated Neurotoxicity Syndrome Management. Published online December 1, 2024. [http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCICANS\\_Protocol.pdf](http://www.bccancer.bc.ca/chemotherapy-protocols-site/Documents/Supportive%20Care/SCICANS_Protocol.pdf).
3. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.
4. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.



# Neurologic Events including ICANS: Toxicity Management

For patients  $\geq 45$  kg\*:

## Seizure

- If > 1 seizure occurs, permanently discontinue blinatumomab<sup>1</sup>
- Consider appropriate secondary prophylaxis or supportive treatment (e.g., anti-epileptics for seizures)<sup>1,2</sup>

## Leukoencephalopathy

- If suspected, consider consultation with a neurologist, CSF examination and brain MRI<sup>1</sup>
- If confirmed, discontinue blinatumomab<sup>3</sup>

## Treatment Options for Severe Symptoms (e.g., encephalopathy, aphasia)<sup>2</sup>:

- Steroids (dexamethasone)<sup>2,4</sup>

## Grade 2 ICANS<sup>1</sup>

- Consider administering corticosteroids and/or performing other actions as clinically indicated (e.g., neurology imaging/consult<sup>†</sup>)

## Grade 3 Neurologic Events including ICANS<sup>1</sup>

- Interrupt until  $\leq$  Grade 1 and for  $\geq 3$  days
- Restart at 9 mcg/day; escalate to 28 mcg/day after 7 days if no recurrence
  - Re-initiation: premedicate with dexamethasone (up to 24 mg) with a 4-day taper
- Secondary prophylaxis: consider appropriate anticonvulsant medication
- Discontinue permanently if:
  - Toxicity occurred at 9 mcg/day, or
  - Toxicity takes > 7 days to resolve
- If ICANS, administer corticosteroids and manage according to current practice guidelines

## Grade 4 Neurologic Events including ICANS<sup>1</sup>

- Discontinue blinatumomab permanently
- If ICANS, administer corticosteroids and manage according to current practice guidelines

\* See blinatumomab product monograph for toxicity management guidance for patients < 45 kg. † Expert Opinion.

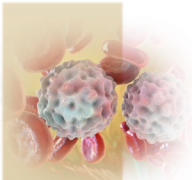
CSF, cerebral spinal fluid; ICANS, immune effector cell-associated neurotoxicity syndrome; MRI, magnetic resonance imaging.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Jain T, et al. *Ther Adv Hematol*. 2020;11:2040620719899897. doi:10.1177/2040620719899897.

3. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.

4. Szoch S, et al. *Journal of Infusion Nursing*. 2018;41(4):241-246. doi:10.1097/NAN.000000000000283.



# Neurologic Events including ICANS: Patient Education

- Advise patients to self-monitor for signs and symptoms of:



## Neurological Problems<sup>1,2</sup>

- Difficulty communicating
- Skin tingling
- Seizure
- Tremors
- Difficulty remembering
- Difficulty thinking/processing thoughts

## PML<sup>3</sup>

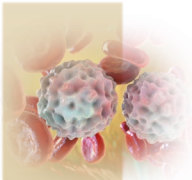
- Progressive weakness and speech
- Visual or personality changes



**Advise patients to refrain from driving and engaging in hazardous occupations/activities while blinatumomab is being administered<sup>1</sup>**

ICANS, immune effector cell-associated neurotoxicity syndrome; PML, progressive multifocal leukoencephalopathy.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).
2. Jain T, et al. *Ther Adv Hematol*. 2020;11:2040620719899897. doi:10.1177/2040620719899897.
3. National Institute of Neurological Disorders and Stroke. Progressive Multifocal Leukoencephalopathy. Accessed November 15, 2024. <https://www.ninds.nih.gov/health-information/disorders/progressive-multifocal-leukoencephalopathy>.



# Hemophagocytic Lymphohistiocytosis (HLH)/Immune Effector Cell-Associated Hemophagocytic Lymphohistiocytosis-like Syndrome (IEC-HS)

## Description

- HLH/IEC-HS is a rare, life-threatening syndrome characterized by **excessive immune activation and dysregulated cytokine production**, leading to multisystem inflammation and organ dysfunction
- It should be considered when the presentation of **CRS is atypical or prolonged**

## Recommended Clinical Monitoring

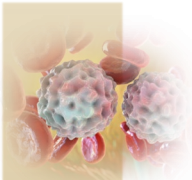
	Cycle 1	Cycle 2	Cycle 3 and Beyond
<b>Hemophagocytic Lymphohistiocytosis (HLH)/Immune Effector Cell-Associated Hemophagocytic Lymphohistiocytosis-like Syndrome (IEC-HS)</b> Fever, hyperferritinemia, hepato- and/or splenomegaly, coagulopathy with hypofibrinogenemia, cytopenias, hemophagocytosis and transaminitis	✓	✓	✓

## Toxicity Management

- For suspected HLH/IEC-HS, **blinatumomab must be interrupted for diagnostic workup**, including evaluation for alternative causes of HLH such as infections, malignancies, and autoimmune diseases
- Treatment should be **guided by institutional or published guidelines** and may require either **temporary interruption or discontinuation of blinatumomab**

## Patient Education

Self-monitor for signs and symptoms: fever, enlarged liver and/or spleen, easy bruising and bleeding, low blood cell counts, high liver enzymes



# Monitor for Additional Relevant Adverse Reactions

## Proactive Measures:

### Tumour Lysis Syndrome

- Prophylactic measures, especially if high tumour burden or higher leukocytosis:
  - Leukoreduction with steroids prior to initiating blinatumomab
  - IV hydration
  - Antihyperuricemic therapies (e.g., allopurinol or rasburicase)
- Monitor closely for TLS signs and symptoms, renal function, electrolytes, and fluid balance in the **first 48 hours following the first infusion**<sup>1,2</sup>; consider monitoring uric acid levels as clinically indicated

### Pancreatitis

- Routinely assess for signs and symptoms

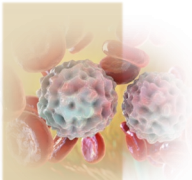
### Neutropenia/ serious infection

- Monitor laboratory parameters (including WBC, ANC) during blinatumomab infusion
- Monitor for infection signs and symptoms
- Assess for device-related infection
- Manage as appropriate

ANC, absolute neutrophil count; IV, intravenous; TLS, tumour lysis syndrome; WBC white blood cell count.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.



# Management of Selected Adverse Reactions

## Toxicity Management (Patient $\geq$ 45 kg)\*:

**Tumour Lysis Syndrome**

### Grade 3 (Severe)

- Interrupt blinatumomab until  $\leq$  Grade 1 (mild)<sup>1</sup>
- Restart at 9 mcg/day and escalate to 28 mcg/day after 7 days if toxicity does not recur<sup>1</sup>
- If toxicity takes  $>$  14 days to resolve, discontinue blinatumomab permanently<sup>1</sup>

**Pancreatitis**

### Grade 4 (Life-threatening)

- Consider permanent discontinuation of blinatumomab<sup>1</sup>

**Neutropenia/  
Serious Infection**

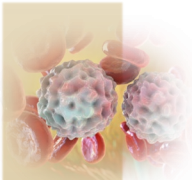


- If febrile neutropenia is suspected, perform infectious work up. Manage with broad-spectrum antibiotics and intensive care support as necessary<sup>2</sup>

\* See blinatumomab product monograph for toxicity management guidance for patients  $<$  45 kg.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Alberta Health Services. Clinical Practice Guideline LYHE-005 – Version 3: Acute Lymphoblastic Leukemia in Adults. Published online 2023. Accessed November 15, 2024.



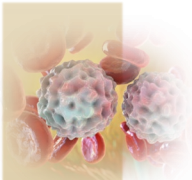
# Management of Hepatic Enzyme Elevations

## Increased Hepatic Enzymes

- **Majority observed within the first week** of initiating treatment and **did not require treatment interruption** or discontinuation
- Monitor ALT, AST, GGT and total blood bilirubin prior to start and during blinatumomab therapy, especially for patients receiving other drugs known to be associated with increased liver enzymes
- Interrupt treatment if transaminases rise  $> 5 \times \text{ULN}$  or if bilirubin rises  $> 3 \times \text{ULN}$

ALT, alanine aminotransferase; AST, aspartate aminotransferase; GGT, gamma-glutamyl transferase; IV, intravenous; ULN, upper limit of normal.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).



# General Dose Modification Guidance

## Grade 3 and Grade 4 Adverse Reactions

### Grade 3 (Severe) Adverse Reactions (Patients $\geq$ 45 kg\*)

- Interrupt blinatumomab until  $\leq$  Grade 1 (mild)
- Restart blinatumomab at 9 mcg/day; escalate to 28 mcg/day after 7 days if the toxicity does not recur
- If toxicity takes  $>$  14 days to resolve, discontinue blinatumomab permanently

### Grade 4 (Life-threatening) Adverse Reactions (Patients $\geq$ 45 kg\*)

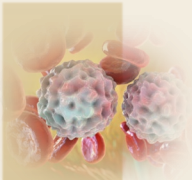
- Consider discontinuing blinatumomab permanently



- If blinatumomab is interrupted due to an adverse event for<sup>1</sup>:
  - **$\leq$  7 days:** Continue the same cycle to a total of 28 days of infusion, inclusive of days before and after the interruption
  - **$>$  7 days:** Start a new cycle

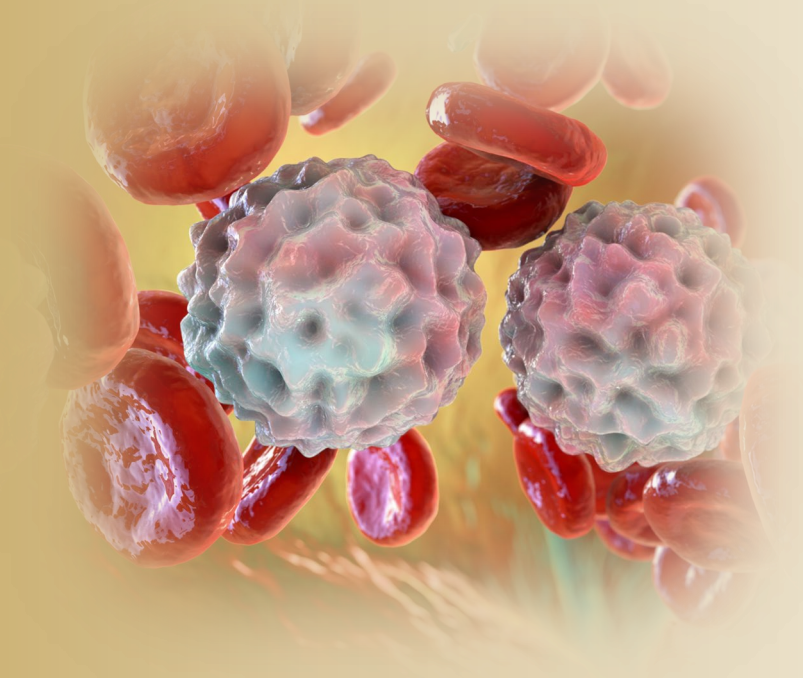
\* See blinatumomab product monograph for guidance for patients  $<$  45 kg.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

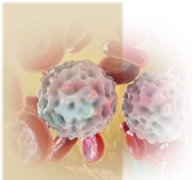


## Discussion: Adverse Reaction Management

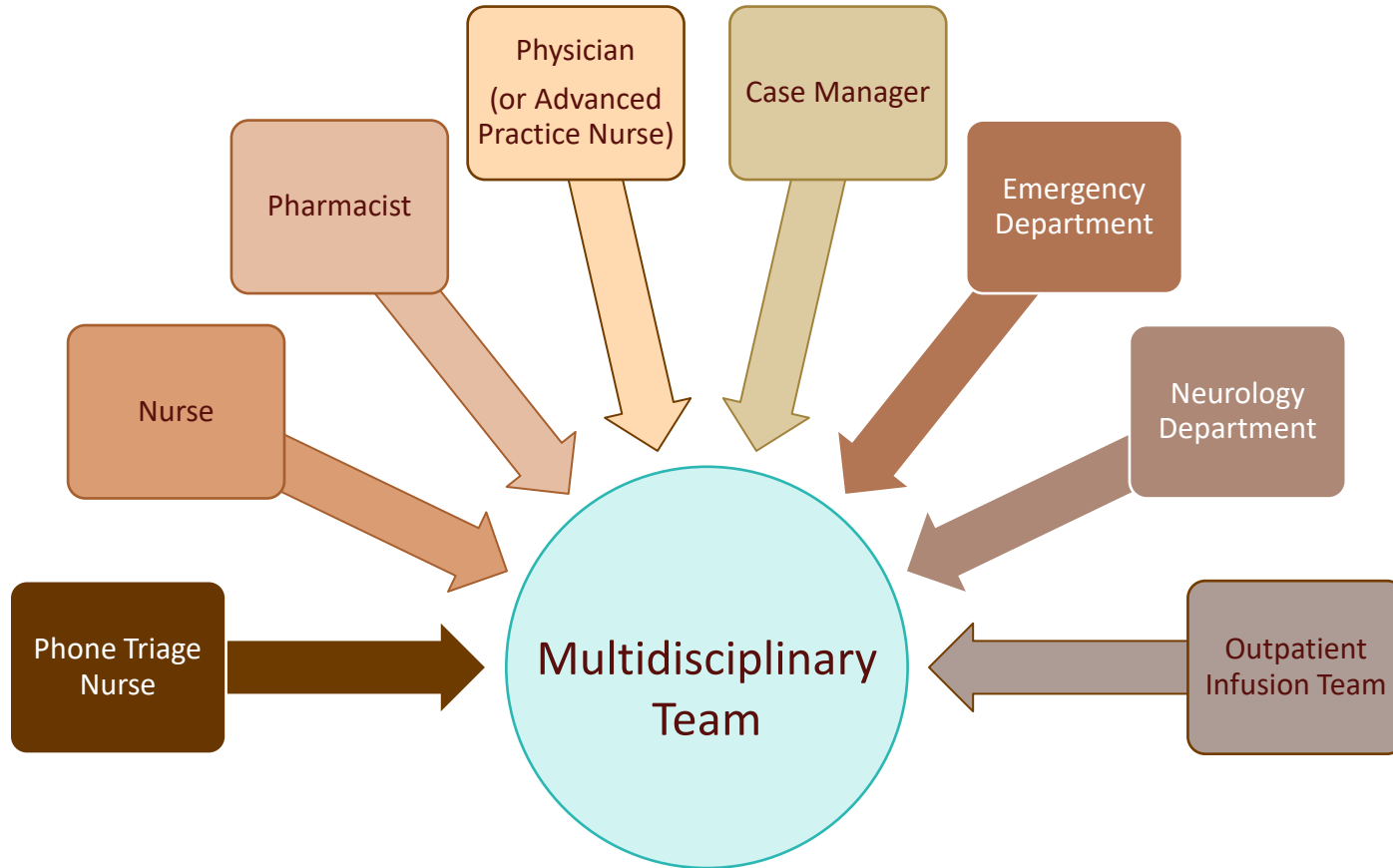
- Reflecting on your experience with blinatumomab therapy, what are the key learnings you would pass on to your colleagues regarding toxicity monitoring and management?
- What standing orders has your institution established for prompt treatment of CRS related to bispecific antibody therapy?



# Multidisciplinary Communication and Patient Education

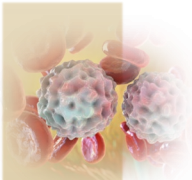


# Multidisciplinary Communication



Multidisciplinary communication is essential to:

- Ensure safe delivery of blinatumomab
- Facilitate proactive monitoring and management of toxicities
- Enable patients to have the opportunity to benefit from blinatumomab therapy

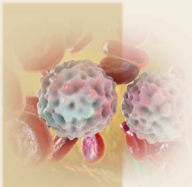


# Patient Education Checklist



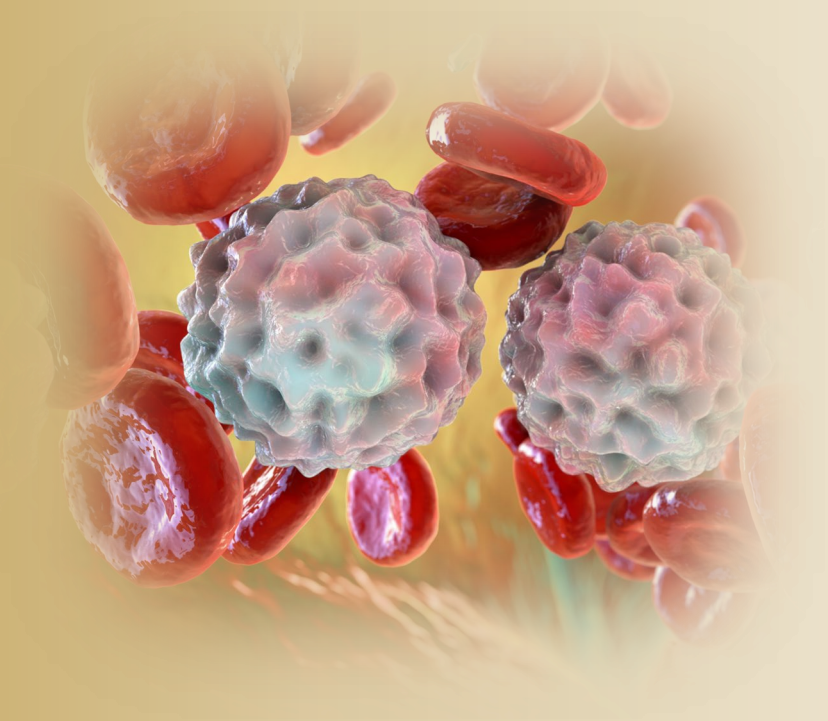
- ✓ Type of treatment and treatment goal
- ✓ How blinatumomab is administered
- ✓ Care of catheter/infusion site
- ✓ Care of infusion pump\* (including any troubleshooting guidelines)
- ✓ Signs and symptoms of serious side effects and importance of reporting these to the healthcare team
- ✓ Other medications
- ✓ Fertility, pregnancy, and breastfeeding warnings (for patients of childbearing potential)
- ✓ Available social support services

\* Commonly referred to as a smart pump.

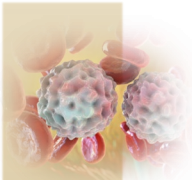


## Discussion: Communication

- Based on your experience, in what situations has team collaboration and communication been most important when caring for a patient receiving blinatumomab?
- Which education points are most important to emphasize to patients?
- What resources do you use to support patient education?

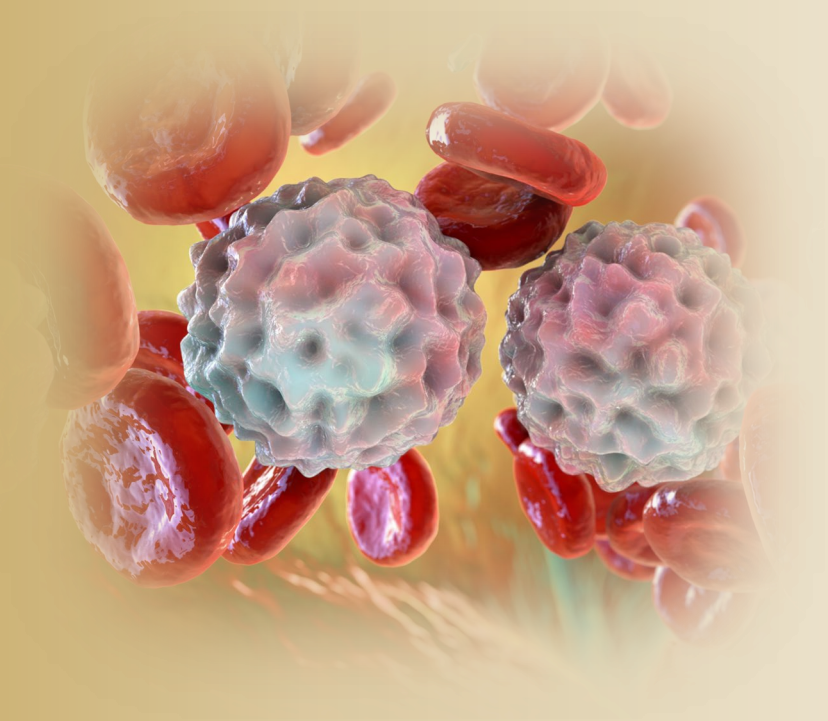


# Summary

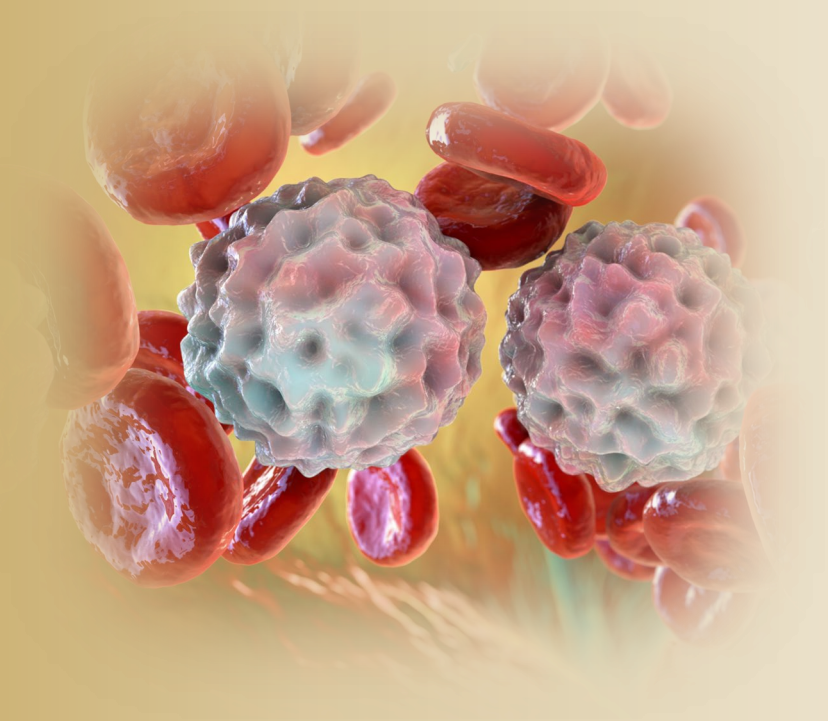


## Key Takeaways

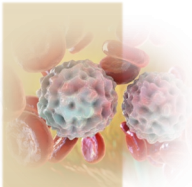
- Blinatumomab is administered in both inpatient and outpatient settings as a 28-day continuous IV infusion followed by a treatment-free interval
  - Blinatumomab monotherapy may be incorporated in the consolidation phase of multiphase chemotherapy
- When planning a treatment cycle, it is important to consider the optimal day of the week and time of day for the IV bag changes by staff familiar with blinatumomab therapy
- Caution must be exercised to avoid flushing infusion lines containing blinatumomab solution (nurses should follow a protocol to maintain catheter patency that considers this precaution)
- Proactive monitoring and management of toxicities including CRS and neurologic events can help mitigate these adverse effects
- Multidisciplinary collaboration is essential for optimal delivery of blinatumomab therapy



# Thank You



# Appendix



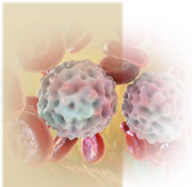
# Recommended Clinical Monitoring during Blinatumomab Treatment Course

## Clinical Assessment Considering Syndromes and Conditions Below

	Cycle 1	Cycle 2	Cycle 3 and Beyond
<b>Tumour Lysis Syndrome</b> <ul style="list-style-type: none"><li>• Monitor for signs and symptoms including renal function and fluid balance<sup>1,2</sup></li><li>• Monitor blood levels of potassium, uric acid, phosphorus, calcium, creatinine<sup>1</sup></li></ul>	✓ Closely monitor in first 48 hours	As clinically indicated	As clinically indicated
<b>Infection Signs and Symptoms<sup>1</sup></b>	✓	✓	✓
<b>Pancreatitis</b> <ul style="list-style-type: none"><li>• Abdominal pain/tenderness, nausea, vomiting<sup>1</sup></li></ul>	✓	✓	✓

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.



# Recommended Clinical Monitoring during Blinatumomab Treatment Course

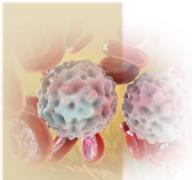
## Lab Tests

	Cycle 1	Cycle 2	Cycle 3 and Beyond
<b>CBC<sup>1</sup> (with differential; including WBC, ANC, hematocrit, INR, fibrinogen)<sup>2</sup></b>	✓	✓	Once weekly* and as clinically indicated
<b>Liver function (ALT, AST, GGT, total bilirubin)<sup>1,3</sup></b>	✓	✓	Once weekly* and as clinically indicated
<b>Renal function (creatinine)<sup>1</sup></b>	✓	✓	Once weekly* and as clinically indicated
<b>Calcium<sup>3</sup></b>	✓	As clinically indicated	Once weekly* and as clinically indicated
<b>Potassium<sup>3</sup></b>	✓	As clinically indicated	Once weekly* and as clinically indicated
<b>Phosphorus<sup>3</sup></b>	✓	As clinically indicated	Once weekly* and as clinically indicated
<b>Uric acid<sup>3</sup></b>	✓	As clinically indicated	Once weekly* and as clinically indicated

\* Expert Opinion.

ALT, alanine aminotransferase; ANC, absolute neutrophil count; AST, aspartate aminotransferase; CBC, complete blood count; GGT, gamma-glutamyl transferase; INR, international normalized ratio; WBC, white blood cell count.

1. Cancer Care Ontario. Drug Monograph: blinatumomab. CCO Formulary. Published October 2024. Accessed November 15, 2024. <https://www.cancercareontario.ca/en/drugformulary/drugs/monograph/44426>.
2. Levi M, et al. *British Journal of Haematology*. 2009;145(1):24-33. doi:10.1111/j.1365-2141.2009.07600.x.
3. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

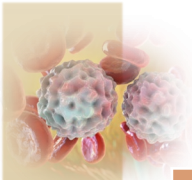


# Adverse Reactions: CTCAE Grade\*

	CTCAE Grade <sup>1</sup>	1	2	3	4
Cytokine Release Syndrome	Cytokine release syndrome	Mild reaction; infusion interruption not indicated; intervention not indicated	Therapy or infusion interruption indicated but responds promptly to symptomatic treatment (e.g., antihistamines, NSAIDs, narcotics, IV fluids); prophylactic medications indicated for ≤ 24 hrs	Prolonged (e.g., not rapidly responsive to symptomatic medication and/or brief interruption of infusion); recurrence of symptoms following initial improvement; hospitalization indicated for clinical sequelae (e.g., renal impairment, pulmonary infiltrates)	Life-threatening consequences; pressor or ventilatory support indicated
	Infusion related reaction	Mild transient reaction; infusion interruption not indicated; intervention not indicated	Therapy or infusion interruption indicated but responds promptly to symptomatic treatment (e.g., antihistamines, NSAIDs, narcotics, IV fluids); prophylactic medications indicated for ≤ 24 hrs	Prolonged (e.g., not rapidly responsive to symptomatic medication and/or brief interruption of infusion); recurrence of symptoms following initial improvement; hospitalization indicated for clinical sequelae	Life-threatening consequences; urgent intervention indicated
Neurologic Events	Headache	Mild pain	Moderate pain; limiting instrumental ADL	Severe pain; limiting self care ADL	-
	Tremor	Mild symptoms	Moderate symptoms; limiting instrumental ADL	Severe symptoms; limiting self care ADL	-
	Dysphasia (aphasia)	Awareness of receptive or expressive characteristics; not impairing ability to communicate	Moderate receptive or expressive characteristics; impairing ability to communicate spontaneously	Severe receptive or expressive characteristics; impairing ability to read, write or communicate intelligibly	-
	Dizziness	Mild unsteadiness or sensation of movement	Moderate unsteadiness or sensation of movement; limiting instrumental ADL	Severe unsteadiness or sensation of movement; limiting self care ADL	-
	Encephalopathy	Mild symptoms	Moderate symptoms; limiting instrumental ADL	Severe symptoms; limiting self care ADL	Life-threatening consequences; urgent intervention indicated
	Seizure	Brief partial seizure; no loss of consciousness	Brief generalized seizure	Multiple seizures despite medical intervention	Life-threatening; prolonged repetitive seizures

\* Version 4.0. ADL, activities of daily living; CTCAE, common terminology criteria for adverse events; IV, intravenous; NSAID, non-steroid anti-inflammatory drug.

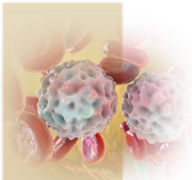
1. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>.



# Adverse Reactions: CTCAE Grade\*

	CTCAE Grade <sup>1</sup>	1	2	3	4
<b>Tumour Lysis Syndrome</b>	Tumour lysis syndrome	-	-	Present	Life-threatening consequences; urgent intervention indicated
<b>Pancreatitis</b>	Pancreatitis	-	Enzyme elevation or radiologic findings only	Severe pain; vomiting; medical intervention indicated (e.g., analgesia, nutritional support)	Life-threatening consequences; urgent intervention indicated
<b>Neutropenia/ Serious Infection</b>	Febrile neutropenia	-	-	ANC <1000/mm <sup>3</sup> with a single temperature of >38.3 degrees C (101 degrees F) or a sustained temperature of ≥38 degrees C (100.4 degrees F) for more than one hour	Life-threatening consequences; urgent intervention indicated
	Neutrophil count decreased	<LLN - 1500/mm <sup>3</sup> ; <LLN - 1.5 x 10 <sup>9</sup> /L	<1500 - 1000/mm <sup>3</sup> ; <1.5 - 1.0 x 10 <sup>9</sup> /L	<1000 - 500/mm <sup>3</sup> ; <1.0 - 0.5 x 10 <sup>9</sup> /L	<500/mm <sup>3</sup> ; <0.5 x 10 <sup>9</sup> /L
<b>HLH<sup>†</sup></b>	Secondary hemophagocytic lymphohistiocytosis	Asymptomatic or mild symptoms; requiring clinical and/or diagnostic evaluation; intervention not indicated	Moderate symptoms; intervention indicated (e.g., immunosuppressive agents)	Severe or medically significant but not immediately life threatening; hospitalization or prolongation of existing hospitalization indicated	Life-threatening consequences; urgent intervention indicated

\* Version 4.0. † Version 6.0. No dedicated grading exists for immune effector cell-associated hemphagocytic lymphohistiocytosis (IEC-HS). ANC, absolute neutrophil count; CTCAE, common terminology criteria for adverse events; HLH, hemophagocytic lymphohistiocytosis; LLN, lower limit of normal. 1. Southwest Oncology Group. Manual for Blinatumomab Outpatient Administration S1318 Version 1a. Published online August 12, 2015. Accessed November 15, 2024. <https://www.swog.org/sites/default/files/docs/2017-10/S1318Manual.pdf>; 2. CTCAE v6.0 (MedDRA 28.0). Published only July 22, 2025. Accessed March 17, 2026. <https://dctd.cancer.gov/research/ctep-trials/for-sites/adverse-events/ctcae-v6.pdf>.



# Monitor for Additional Relevant Adverse Reactions

## Descriptions:

### Tumour Lysis Syndrome

- Caused by release of cellular components into the blood following the breakdown of many dying cancer cells
- Severe, life-threatening or fatal TLS has occurred in patients receiving blinatumomab<sup>1</sup>
- A higher incidence of TLS was reported in clinical studies for patients with moderate renal impairment (CrCl 30 to < 60 mL/min) compared to patients with mild impairment or normal renal function<sup>1</sup>

### Pancreatitis

- Severe, life-threatening, or fatal pancreatitis has occurred in patients receiving blinatumomab in clinical trials and the post-market setting<sup>1</sup>
- Signs and symptoms of pancreatitis: upper abdominal pain accompanied with vomiting, nausea, or abdominal tenderness<sup>1</sup>
- High-dose steroid therapy may contribute to the risk of pancreatitis<sup>1</sup>

### Neutropenia/ serious infection

#### Neutropenia and Febrile Neutropenia

- Life-threatening cases of neutropenia have occurred in patients receiving blinatumomab<sup>1</sup>

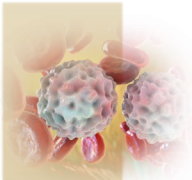
#### Serious Infection

- There is limited experience with blinatumomab in patients with active uncontrolled infections<sup>1</sup>
- Patients ≥ 65 years of age are at increased risk of infection<sup>1,2</sup>
- Serious and/or fatal infections have included: sepsis and septic shock, bacteremia, pneumonia, lung infection, opportunistic infections, catheter site infections<sup>1</sup>

CrCl, creatinine clearance; TLS, tumour lysis syndrome.

1. Amgen Canada Inc. BLINCYTO (blinatumomab for injection) Product Monograph. February 27, 2026. [https://pdf.hres.ca/dpd\\_pm/00083697.PDF](https://pdf.hres.ca/dpd_pm/00083697.PDF).

2. Oncology Drug Reference Sheet: Blinatumomab. ONS Voice. Accessed November 15, 2024. <https://voice.ons.org/news-and-views/oncology-drug-reference-sheet-blinatumomab>.



# Safe Handling of Blinatumomab: Safety Data Sheet

Globally Harmonized System (GHS) Classification: Not classified

## Personal Protective Equipment

Choice of protection should be based on the job activity and potential for exposure to the eyes and face, skin, and inhalation.



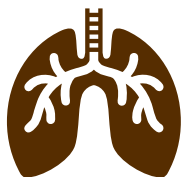
### Eyes/Face Protection

- Choice of protection should be based on the job activity and potential for exposure to the eyes/face
- Wear safety glasses with side shields chemical splash goggles, or safety glasses with side shields and a full-face shield



### Skin Protection

- Use gloves or other appropriate personal protective equipment if skin contact is possible
- Wear lab coat or other protective over garment if splashing is possible

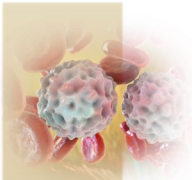


### Respiratory Protection

- When possible, handle material in enclosed processes or containers
- If it is properly handled with effective local exhaust ventilation or containment, respiratory protection may not be needed

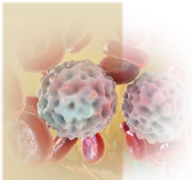
**Wash hands, face and other potentially exposed areas after handling material (especially before eating, drinking or smoking). Clean protective equipment thoroughly after each use.**

1. Amgen Inc. BLINCYTO® Safety Data Sheet. Published online February 11, 2022. Accessed November 15, 2024. [https://www.msds.amgen.com/-/media/Themes/Amgen/msds-amgen-com/msds-amgen-com/documents/blincyto\\_safety\\_data\\_sheet.PDF](https://www.msds.amgen.com/-/media/Themes/Amgen/msds-amgen-com/msds-amgen-com/documents/blincyto_safety_data_sheet.PDF)



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3. Amgen Inc. Blinatumomab Prescribing Information (US). Published online June 2024. Accessed November 15, 2024. [https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto\\_pi\\_hcp\\_english.pdf](https://www.pi.amgen.com/-/media/Project/Amgen/Repository/pi-amgen-com/Blincyto/blincyto_pi_hcp_english.pdf)
4. Amgen Inc. BLINCYTO® Safety Data Sheet. Published online February 11, 2022. Accessed November 15, 2024. [https://www.msds.amgen.com/-/media/Themes/Amgen/msds-amgen-com/msds-amgen-com/documents/blincyto\\_safety\\_data\\_sheet.PDF](https://www.msds.amgen.com/-/media/Themes/Amgen/msds-amgen-com/msds-amgen-com/documents/blincyto_safety_data_sheet.PDF)
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