

Assessing Your Patients With Acute GVHD

A helpful guide for grading and staging



STAGING: ASSESS ORGAN SEVERITY IN SKIN^{1,2}

Stage	Skin Assessment / Maculopapular Rash
0	No rash
1	Rash <25% of BSA
2	Rash 25-50% of BSA
3	Rash >50% of BSA
4	Generalized erythroderma (MAGIC criteria: >50% BSA) with bullous formation (MAGIC criteria: includes desquamation >5% BSA)

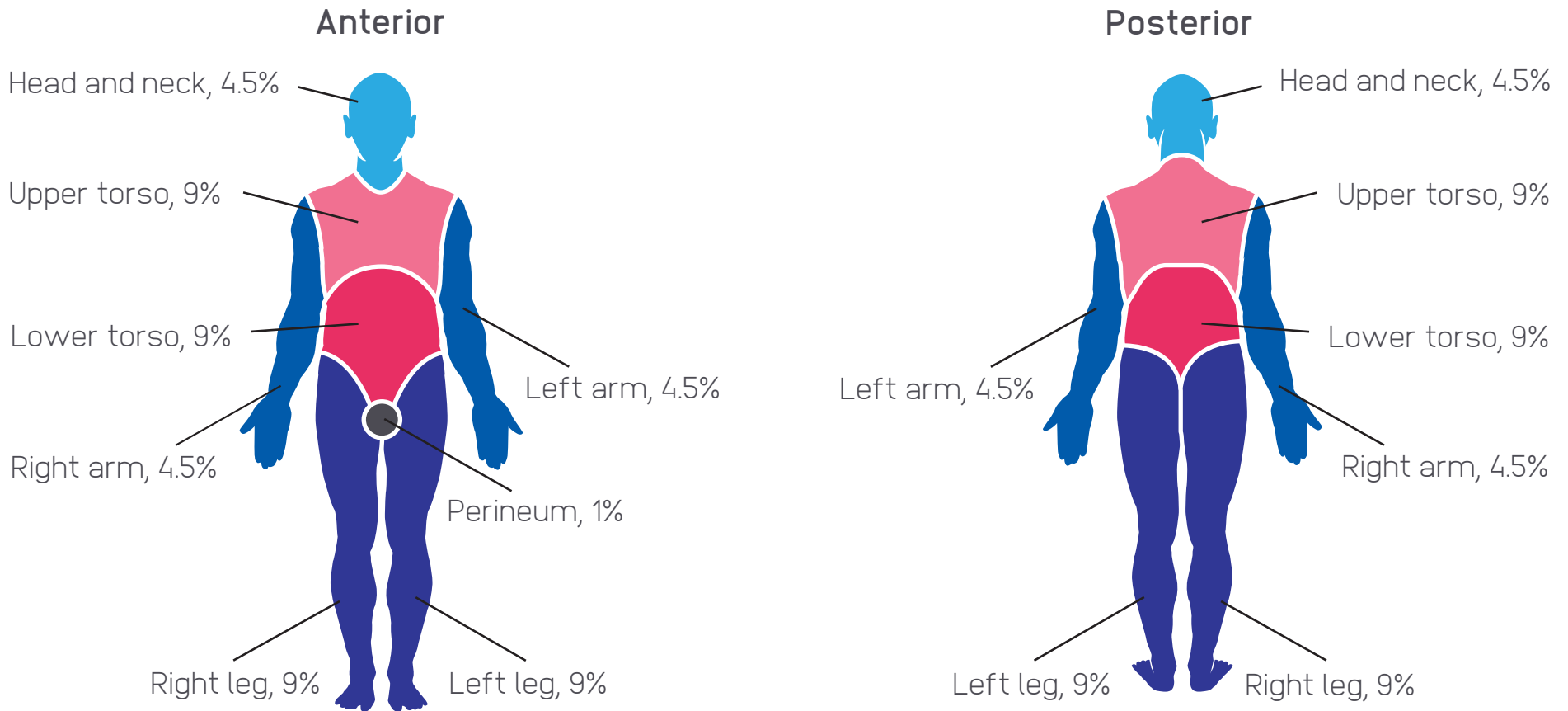
BSA can be estimated by the 'Rule of Nines' or burn chart³

BSA, body surface area; GVHD, graft-versus-host disease; MAGIC, Mount Sinai Acute GVHD International Consortium.

1. Schoemans HM, et al. *Bone Marrow Transplant*. 2018;53(11):1401-1415. **2.** Chao, NJ. Clinical manifestations, diagnosis, and grading of acute graft-versus-host disease. Uptodate.com. <https://www.uptodate.com/contents/clinical-manifestations-diagnosis-and-grading-of-acute-graft-versus-host-disease>. Updated July 03, 2019. Accessed May 21, 2020. **3.** CIBMTR manual. Q131-233: Acute Graft vs. Host Disease (GVHD) <https://www.cibmtr.org/manuals/fim/1/en/topic/f2100-q131-233>. Updated March 06, 2020. Accessed May 21, 2020.

USING THE RULE OF NINES TO ESTIMATE EXTENT OF RASH

Rule of Nines^{1,2}



1. Moore RA, et al. StatPearls: Rule of Nines. (NCBI bookshelf). <https://www.ncbi.nlm.nih.gov/books/NBK513287/>. Updated February 19, 2020. Accessed May 21, 2020.

2. CIBMTR manual. Q131-233: Acute Graft vs. Host Disease (GVHD) <https://www.cibmtr.org/manuals/fim/1/en/topic/f2100-q131-233>. Updated March 06, 2020. Accessed May 21, 2020.

STAGING: ASSESS ORGAN SEVERITY IN LIVER^{1,2}

Stage	Total Serum Bilirubin
0	<34 $\mu\text{mol/L}$ (<2 mg/dL)
1	34-50 $\mu\text{mol/L}$ (2-3 mg/dL)
2	51-102 $\mu\text{mol/L}$ (3.1-6 mg/dL)
3	103-255 $\mu\text{mol/L}$ (6.1-15 mg/dL)
4	>255 $\mu\text{mol/L}$ (>15 mg/dL)

GVHD, graft-versus-host disease.

1. Schoemans HM, et al. *Bone Marrow Transplant*. 2018;53(11):1401-1415. **2.** Chao, NJ. Clinical manifestations, diagnosis, and grading of acute graft-versus-host disease. Uptodate.com. <https://www.uptodate.com/contents/clinical-manifestations-diagnosis-and-grading-of-acute-graft-versus-host-disease>. Updated July 03, 2019. Accessed May 21, 2020.

STAGING: ASSESS ORGAN SEVERITY IN UPPER GI TRACT

Stage	Upper GI Assessment
0	No persistent nausea and no histologic evidence of GVHD in stomach or duodenum (MAGIC criteria: no or intermittent anorexia or nausea or vomiting)
1	Persistent nausea with histologic evidence of GVHD in stomach or duodenum (MAGIC criteria: persistent anorexia or nausea or vomiting)

Per MAGIC criteria, to be suggestive of GVHD, anorexia should be accompanied by weight loss and nausea should last ≥ 3 days or be accompanied by ≥ 2 vomiting episodes per day for ≥ 2 days

GI, gastrointestinal; GVHD, graft-versus-host disease; MAGIC, Mount Sinai Acute GVHD International Consortium.

Schoemans HM, et al. *Bone Marrow Transplant*. 2018;53(11):1401-1415.

STAGING: ASSESS ORGAN SEVERITY IN LOWER GI TRACT^{1,2}

Stage	Volume/Episode of Diarrhea
0	<500 mL/day (MAGIC criteria: <500 mL/day or <3 episodes/day for adults and <10 mL/kg/day or <4 episodes/day for children)
1	>500 mL/day (MAGIC criteria: 500-999 mL/day or 3-4 episodes/day for adults and 10-19.9 mL/kg/day or 4-6 episodes/day for children)
2	>1000 mL/day (MAGIC criteria: 1000-1500 mL/day or 5-7 episodes/day for adults and 20-30 mL/kg/day or 7-10 episodes/day for children)
3	>1500 mL/day (MAGIC criteria: >1500 mL/day or >7 episodes/day for adults and >30 mL/kg/day or >10 episodes/day for children)
4	>2000 mL/day; severe abdominal pain with/without ileus (MAGIC criteria: severe abdominal pain with or without ileus or grossly bloody stools regardless of stool volume)

Per MAGIC criteria, one episode of diarrhea is considered to be about 200 mL for an adult and 3 mL/kg for a child (<50 kg)

GI, gastrointestinal; GVHD, graft-versus-host disease; MAGIC, Mount Sinai Acute GVHD International Consortium.

1. Schoemans HM, et al. *Bone Marrow Transplant*. 2018;53(11):1401-1415. 2. Chao, NJ. Clinical manifestations, diagnosis, and grading of acute graft-versus-host disease. Uptodate.com. <https://www.uptodate.com/contents/clinical-manifestations-diagnosis-and-grading-of-acute-graft-versus-host-disease>. Updated July 03, 2019. Accessed May 21, 2020.

GRADING: MODIFIED GLUCKSBERG, IBMTR, OR MAGIC SYSTEMS¹⁻³

	Skin Stage	Liver Stage	Gut Stage	
			Upper GI	Lower GI
Modified Glucksberg Grading		and/or	and/or	
I—Mild	Stage 1-2	None	None	
II—Moderate	Stage 3	Stage 1	Stage 1	
III—Severe	—	Stage 2-3	Stage 2-4	
IV—Life threatening	Stage 4	Stage 4	—	
IBMTR Grading		and/or	and/or	
A—Mild	Stage 1	None	None	
B—Moderate	Stage 2	Stage 1 or 2	Stage 1 or 2	
C—Severe	Stage 3	Stage 3	Stage 3	
D—Life threatening	Stage 4	Stage 4	Stage 4	
MAGIC Guidelines		and/or	and/or	
I—Mild	Stage 1-2	None	None	
II—Moderate	Stage 3	Stage 1	Stage 1	Stage 1
III—Severe ^a	Stage 0-3 ^a	Stage 2-3	Stage 0-1 ^a	Stage 2-3
IV—Life threatening	Stage 4	Stage 4	Stage 0-1	Stage 4

^a MAGIC criteria for Grade III: stage 2-3 liver and/or stage 2-3 lower GI with stage 0-3 skin and/or stage 0-1 upper GI.

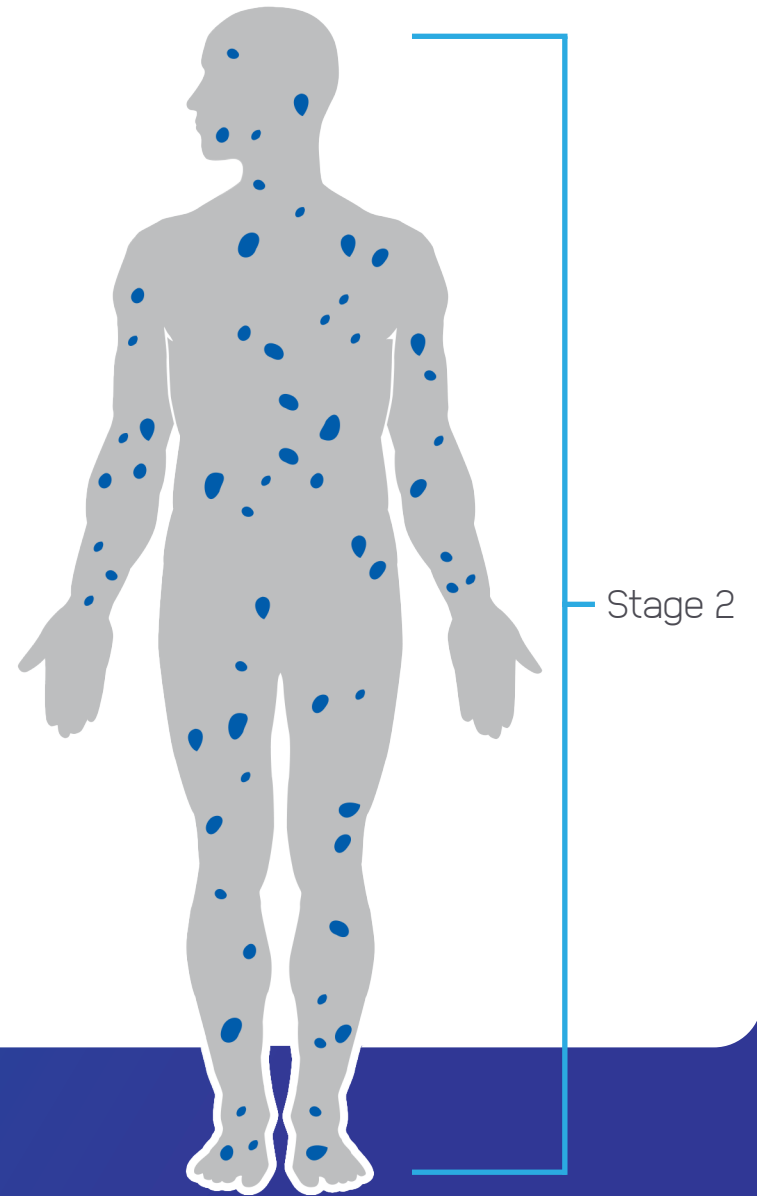
Typically, overall aGVHD grade depends on highest grade in individual organ staging¹

GI, gastrointestinal; IBMTR, International Bone Marrow Transplantation Registry; MAGIC, Mount Sinai Acute GVHD International Consortium.

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EXAMPLE 1: HOW WOULD YOU GRADE THIS CASE?

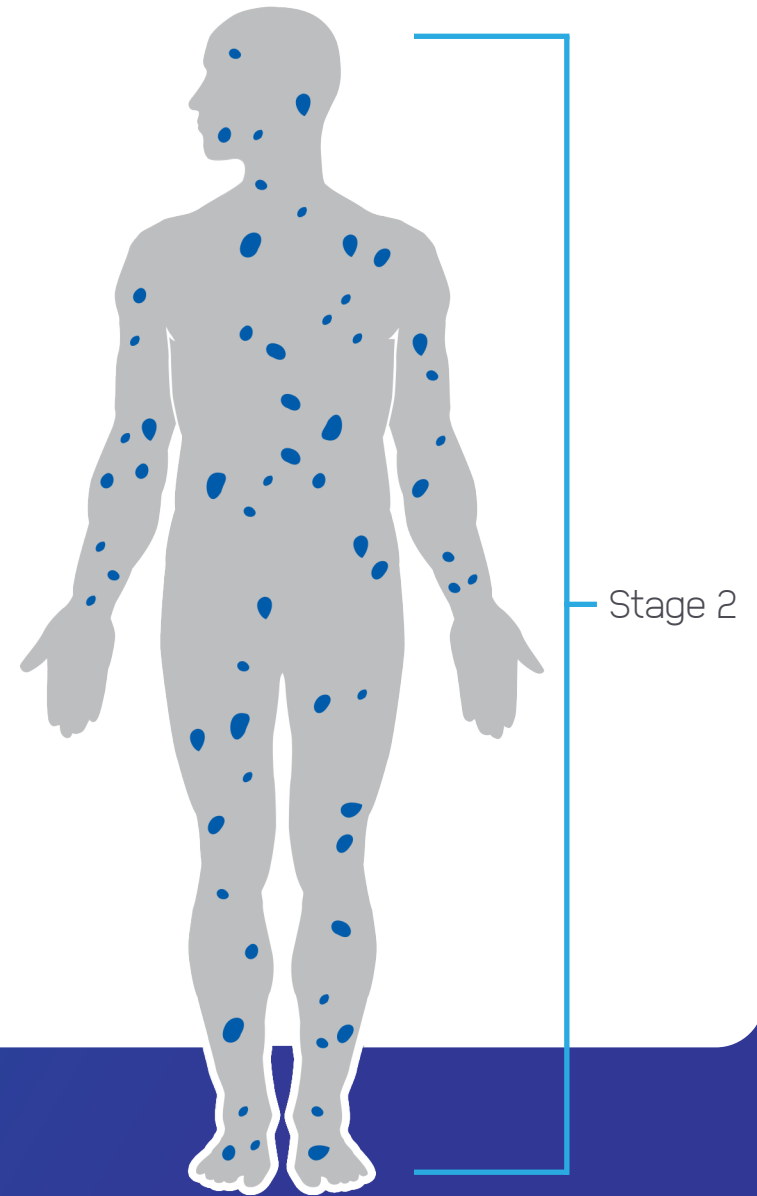
Organ	aGVHD Manifestation
Skin	Stage 2
Liver	None
GI	None



aGVHD, acute graft-versus-host disease; GI, gastrointestinal.

CORRECT GRADING

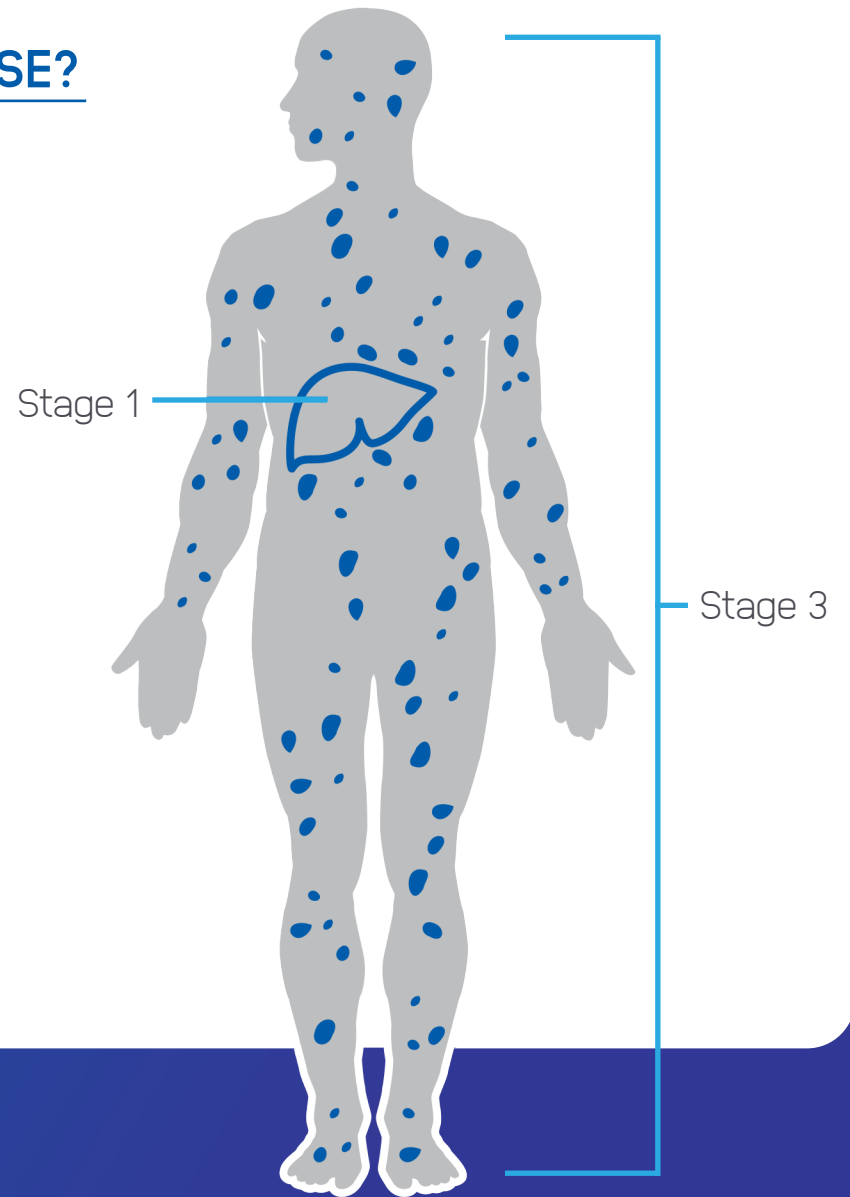
Grade I (mild) by modified Glucksberg
Grade B (moderate) by IBMTR
Grade I (mild) by MAGIC



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MAGIC, Mount Sinai Acute GVHD International Consortium.

EXAMPLE 2: HOW WOULD YOU GRADE THIS CASE?

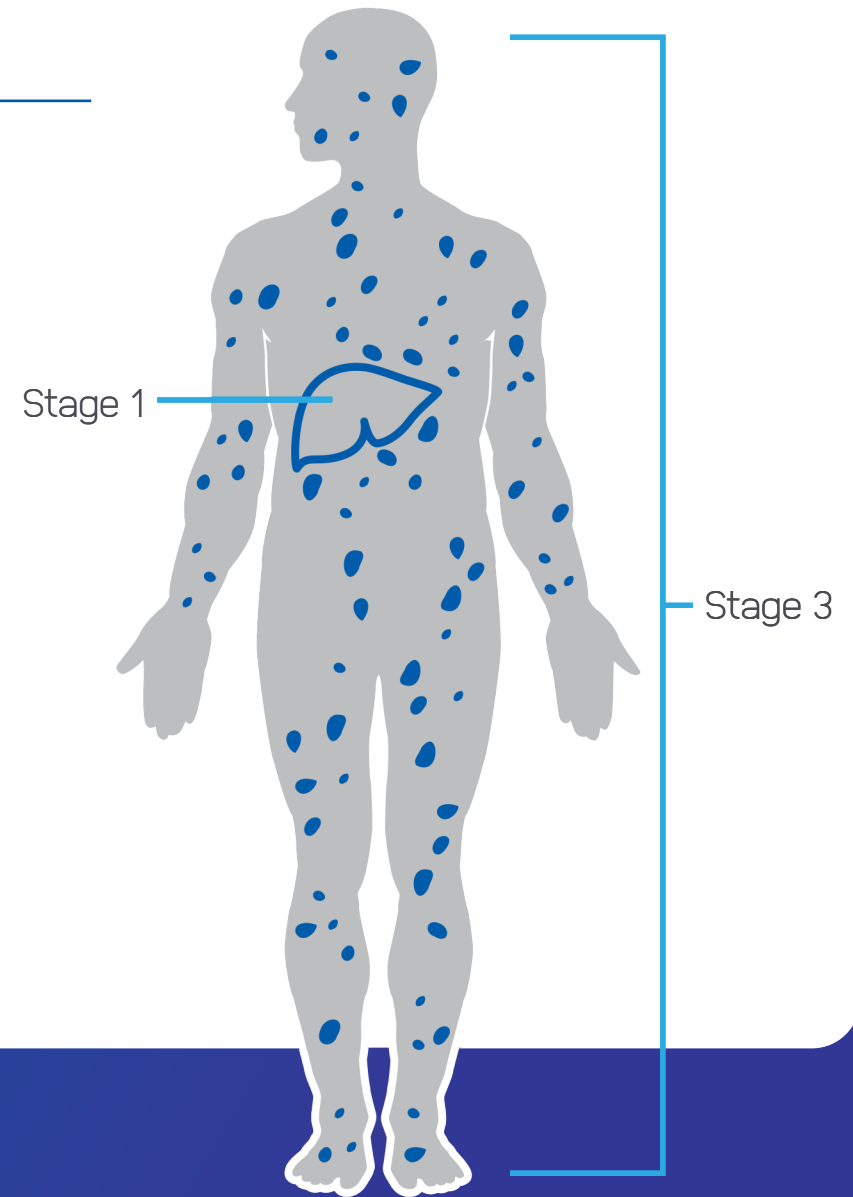
Organ	aGVHD Manifestation
Skin	Stage 3
Liver	Stage 1
GI	None



aGVHD, acute graft-versus-host disease; GI, gastrointestinal.

CORRECT GRADING

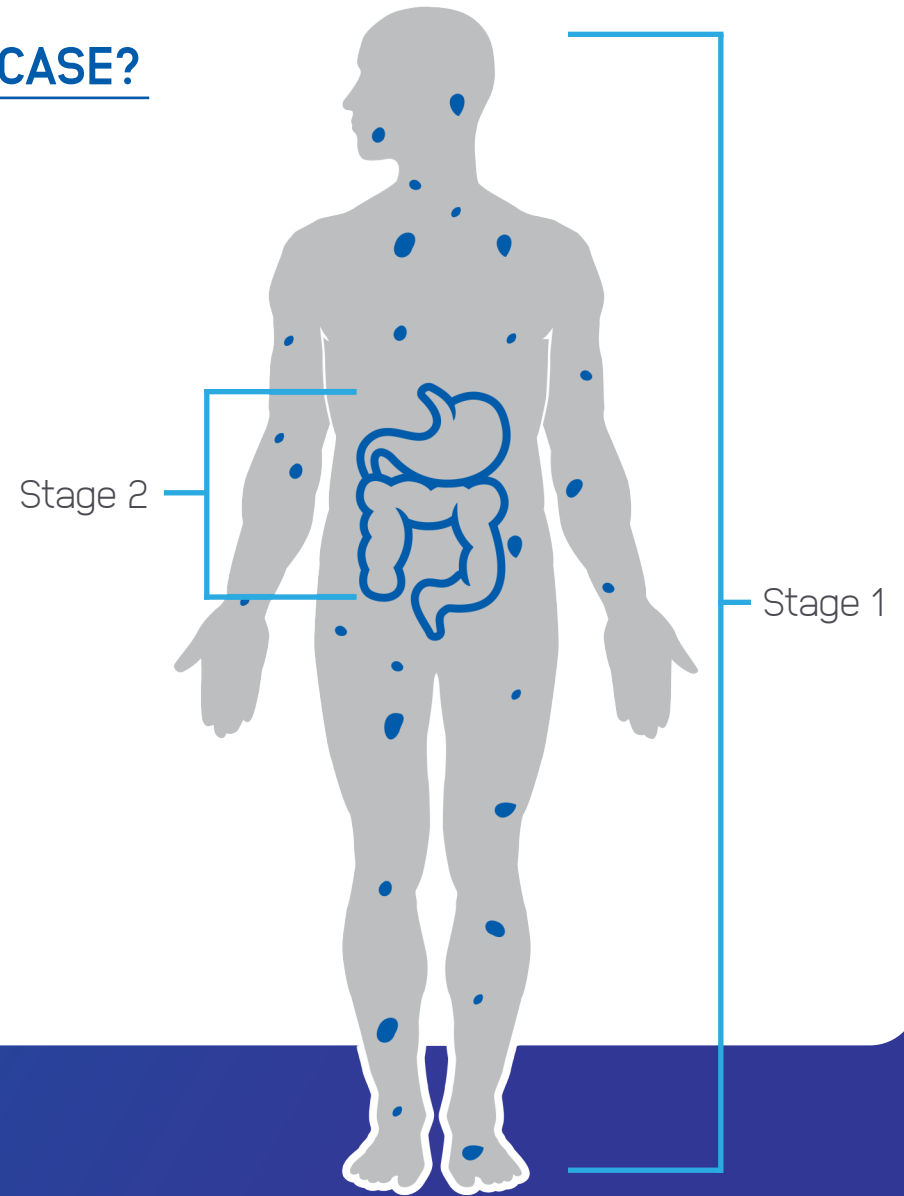
Grade II (moderate) by modified Glucksberg
Grade C (severe) by IBMTR
Grade II (moderate) by MAGIC



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EXAMPLE 3: HOW WOULD YOU GRADE THIS CASE?

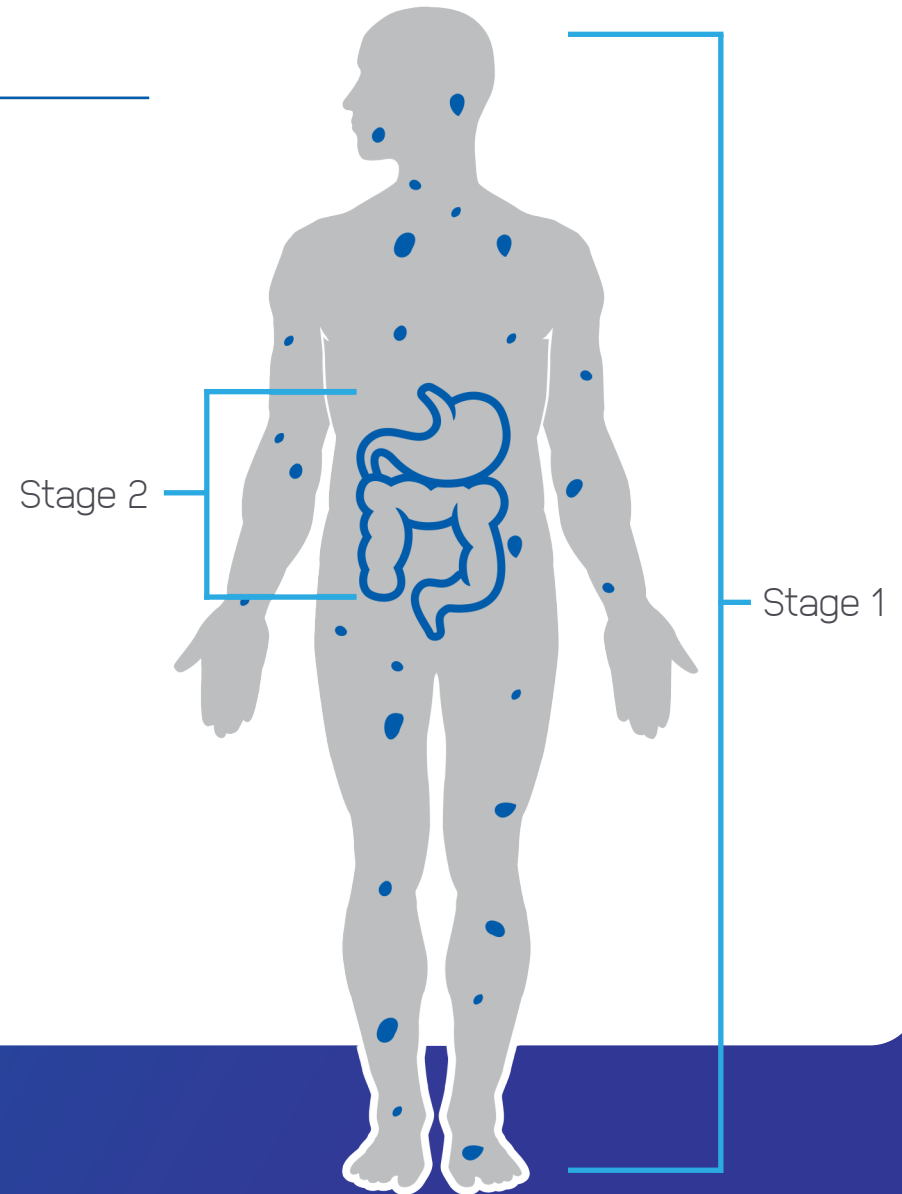
Organ	aGVHD Manifestation
Skin	Stage 1
Liver	None
GI	Stage 2



aGVHD, acute graft-versus-host disease; GI, gastrointestinal.

CORRECT GRADING

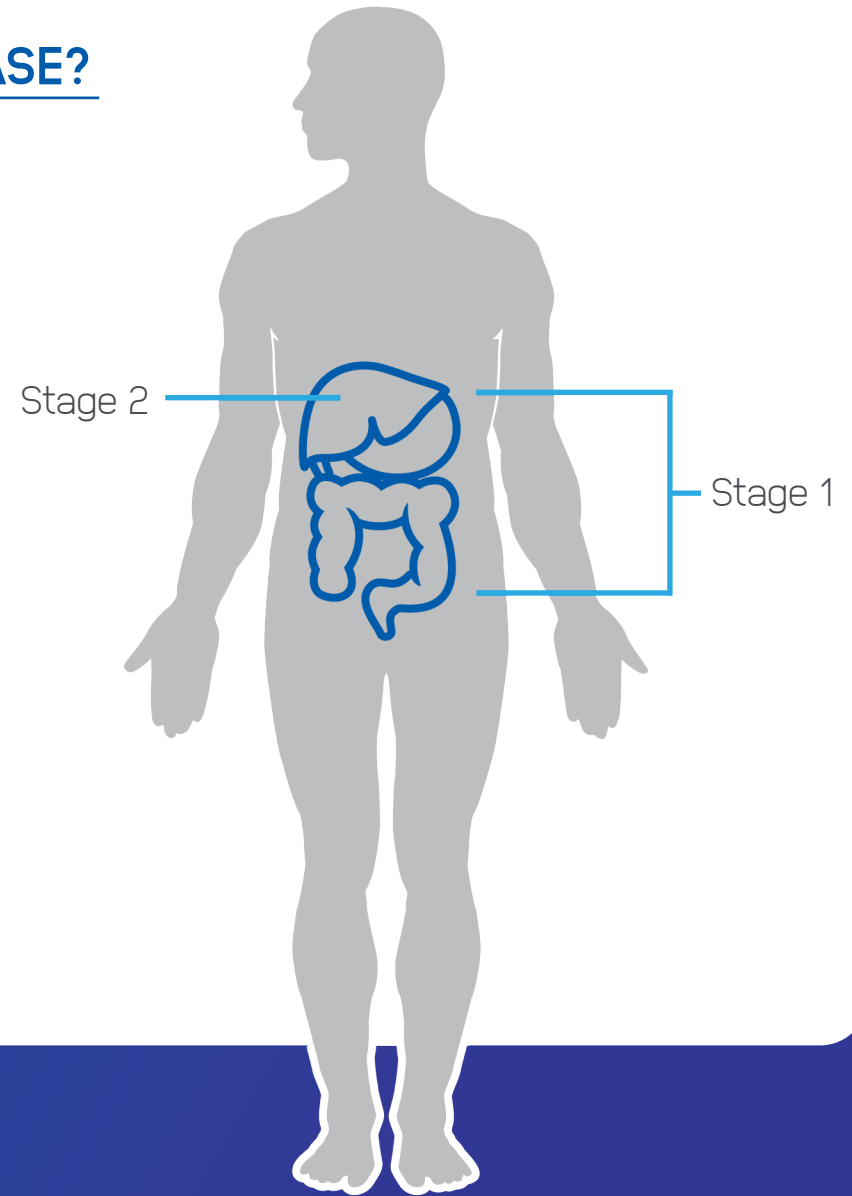
Grade III (severe) by modified Glucksberg
Grade B (moderate) by IBMTR
Grade III (severe) by MAGIC



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EXAMPLE 4: HOW WOULD YOU GRADE THIS CASE?

Organ	aGVHD Manifestation
Skin	None
Liver	Stage 2
GI	Stage 1



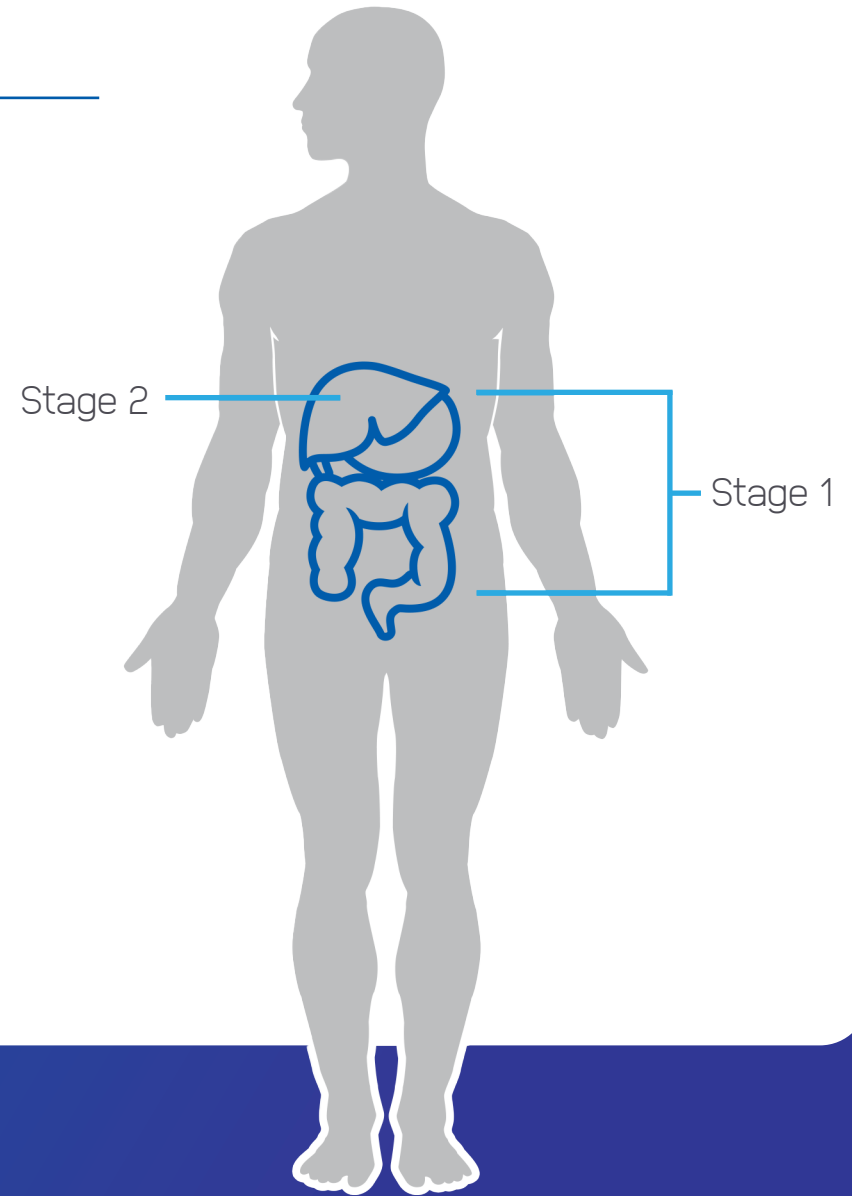
aGVHD, acute graft-versus-host disease; GI, gastrointestinal.

CORRECT GRADING

Grade III (severe) by modified Glucksberg

Grade B (moderate) by IBMTR

Grade III (severe) by MAGIC



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