

The burden of blood transfusions associated with lower-risk myelodysplastic syndromes: findings from a survey of healthcare professionals in Brazil, Germany, and Japan

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Introduction

- Myelodysplastic syndromes (MDS) are within a rare group of bone marrow failure disorders characterized by dysplasia, ineffective hematopoiesis leading to anemia, and a variable risk of progression to acute myeloid leukemia (AML)<sup>1</sup>
- Most patients with MDS have lower-risk (LR) MDS, classified as being Very low, Low, or Intermediate risk by the Revised International Prognostic Scoring System (IPSS-R)<sup>2</sup>
- According to the IPSS-R, MDS is classified as LR-MDS when the risk of progression to AML is low, along with other risk factors<sup>3</sup>
- Anemia is the most common cytopenia in LR-MDS, seen in ~ 90% of patients, and is primarily managed by repeated blood transfusions<sup>4</sup>
- However, regular blood transfusions are associated with challenges, such as blood collection, pre-transfusion tests, and post-transfusion treatment, including iron chelation therapy (ICT)<sup>4</sup>
- Blood transfusions cause significant clinical, health-related quality of life, and economic burden for patients with MDS<sup>5</sup>
- The healthcare resource utilization and economic burden associated with blood transfusions to treat patients with MDS are underestimated
- The present study examined these in 3 countries – Germany, Japan, and Brazil – to capture wide geographic variation

Objective

- To assess the burden associated with blood transfusions among healthcare providers (HCPs), caregivers, and patients with LR-MDS in Germany, Japan, and Brazil

Methods

- This study was based on a pragmatic literature review (PLR) followed by an online, multicountry, cross-sectional survey that aimed to address literature gaps identified by the PLR
- Survey respondents were HCPs: hematologists, primary care physicians, hematology nurses, pharmacists, blood-unit administrators, or procurement managers
- The participating HCPs were required to be involved in the management, treatment, and care of ≥ 3 patients with LR-MDS and ≥ 2 patients with LR-MDS undergoing transfusions within the study period, from August 17, 2023 to September 21, 2023
- Information was collected on HCP, patient, and caregiver time required; adverse events (AEs) associated with transfusions; and blood-supply shortages
- All analyses were descriptive in nature, and no statistical comparison or imputation of missing data was performed
- Categorical variables are presented as count and percentage; continuous variables are presented as mean ± standard deviation or median with interquartile range (IQR)

Results

- In total, there were 60, 66, and 55 respondents in Germany, Japan, and Brazil, respectively, and most were hematologists (Figure 1)

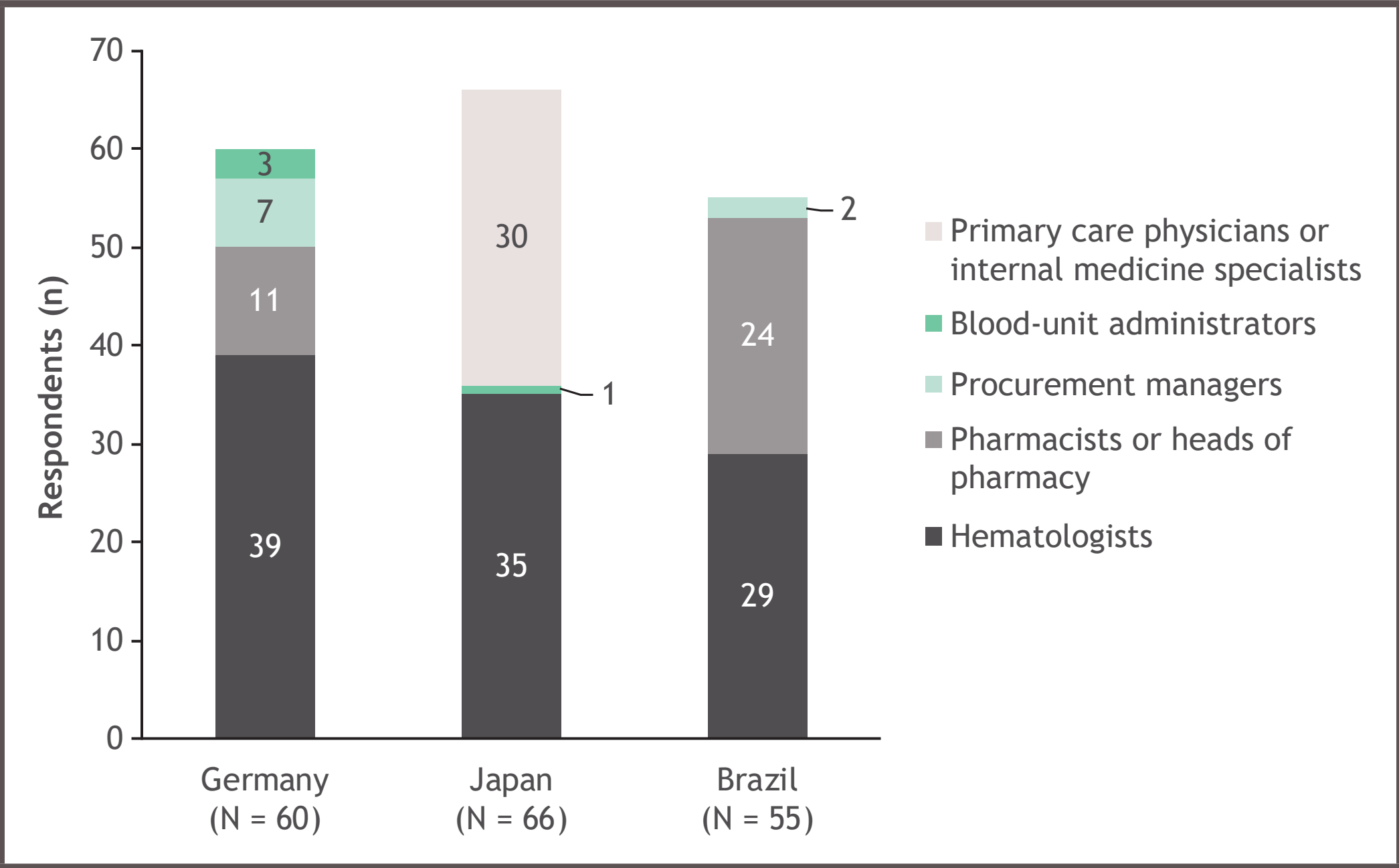
HCP involvement

- Blood transfusions were reported to be monitored mostly by nurses (80.5% of respondents in Germany, 87.1% in Japan, and 89.7% in Brazil) by respondents who were permitted to select multiple answers, resulting in total percentages exceeding 100% (Figure 2)
- According to respondents, HCPs spent a median of 40 minutes in Germany, 3 hours and 15 minutes (195 minutes) in Japan, and 1 hour and 45 minutes (105 minutes) in Brazil, per patient and per transfusion (encompassing the total time pre-, during, and post-transfusion) (Figure 2)

Patient time

- Based on HCP responses, patients with LR-MDS spent a median of 4 hours and 20 minutes (260 minutes) in Germany, 4 hours (241 minutes) in Japan, and 5 hours and 30 minutes (330 minutes) in Brazil, per transfusion (Figure 3)

Figure 1. Profile of survey respondents by role and per country



Caregiver involvement

- 37.5%, 60.0%, and 80.0% of HCPs in Germany, Japan, and Brazil, respectively, reported that patients were accompanied by caregivers during transfusions (Figure 4)

Donor and HCP time spent on blood donation

- Blood donors spent a median of 2 hours (120 minutes) in Germany, 1 hour and 30 minutes (90 minutes) in Japan, and 1 hour and 12.5 minutes (72.5 minutes) in Brazil
- For each blood donation, HCPs spent a median of 28.5 minutes in Germany, 35 minutes in Brazil, and 40 minutes in Japan

AEs due to blood donation

- Across all countries, respondents reported that a median of 5% of blood donations led to AEs
- Hypotension was the most common AE observed during blood donation, accounting for 56.5% of AEs in Germany, 66.5% in Japan, and 60.0% in Brazil

AEs due to blood transfusion

- Per respondents, a median of 5% of blood transfusions led to AEs in Germany and Japan, and a median of 12.5% in Brazil
- Respondents said allergic reactions were the most frequent AEs resulting from transfusions (Figure 5)

Blood shortages

- Within the past year, 46.6% (n = 27) of respondents in Germany, 24.6% (n = 32) in Japan, and 58.2% (n = 15) in Brazil reported delays in treatment because of blood-supply shortages (Figure 6)

Figure 2. HCPs responsible for monitoring transfusions and time spent pre-, during, and post-transfusion

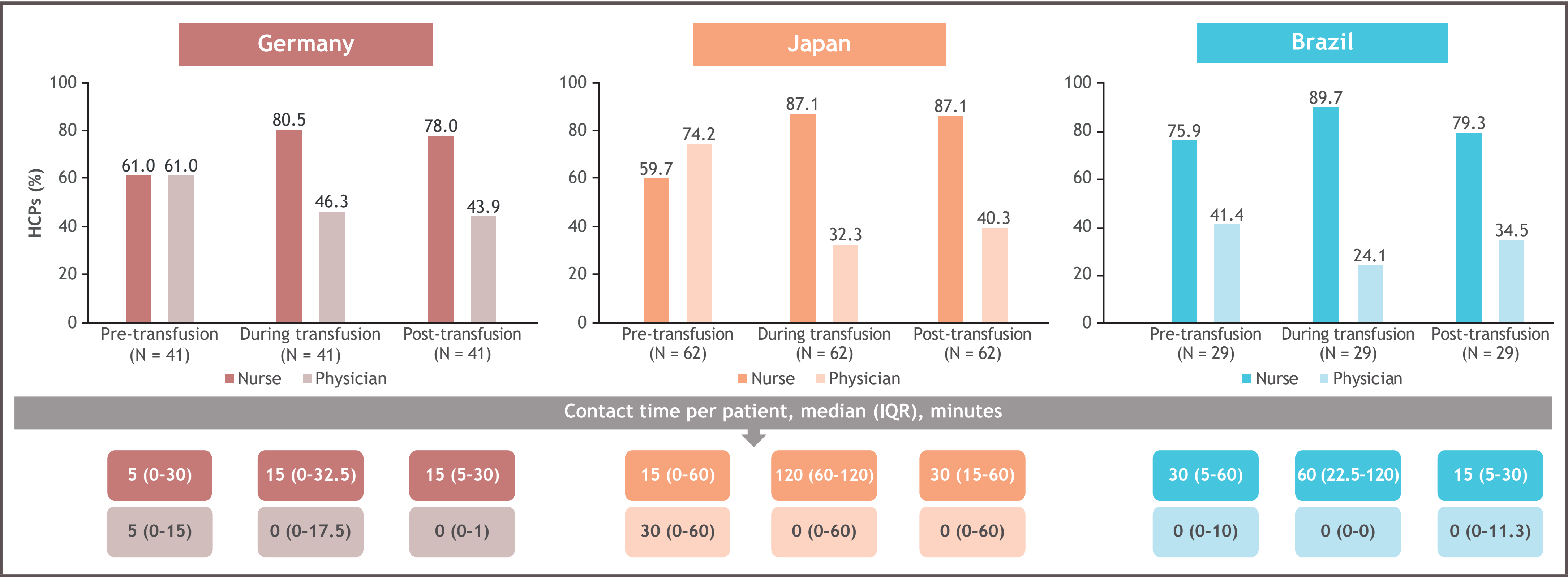


Figure 3. Patient time spent on blood transfusion

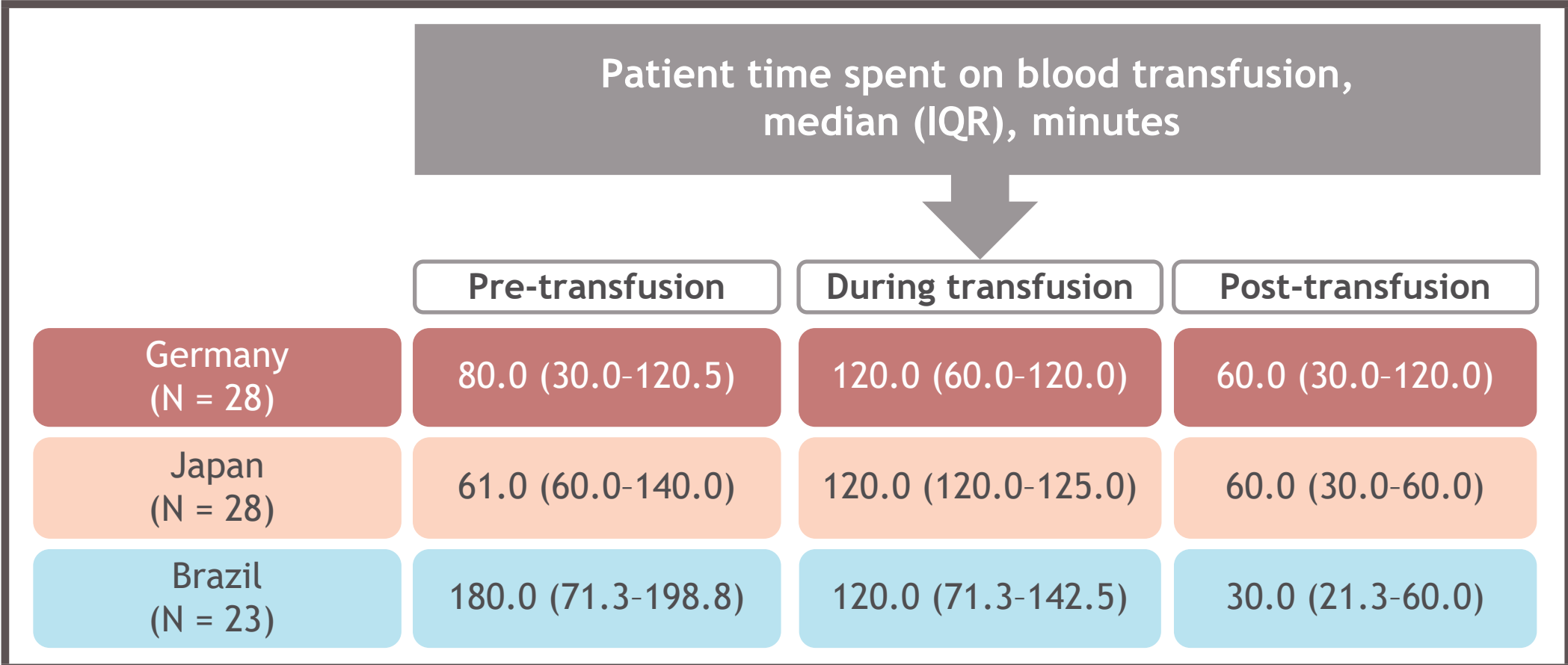


Figure 4. Patients accompanied by caregivers, reported by HCPs

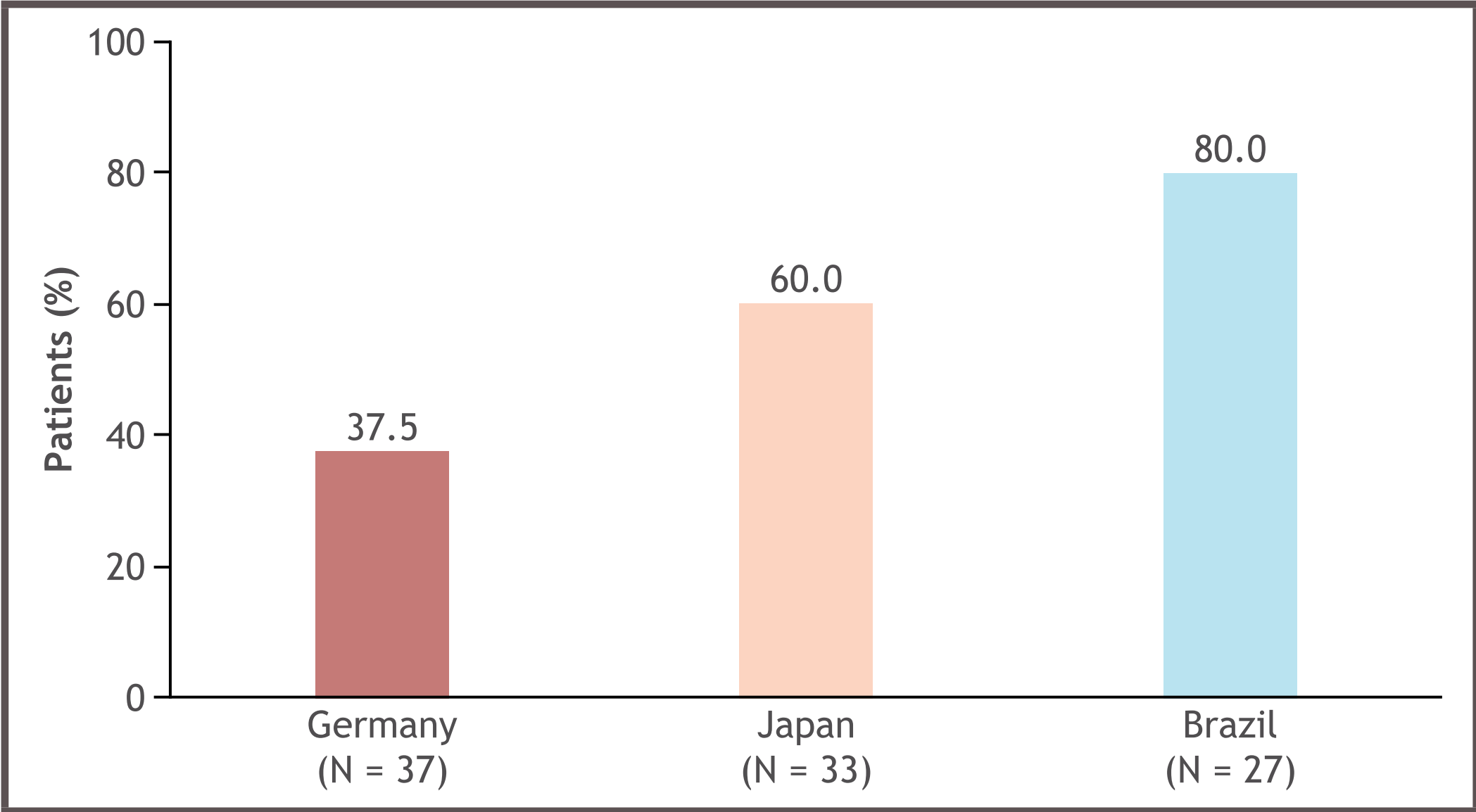


Figure 5. AEs due to transfusion, reported by HCPs

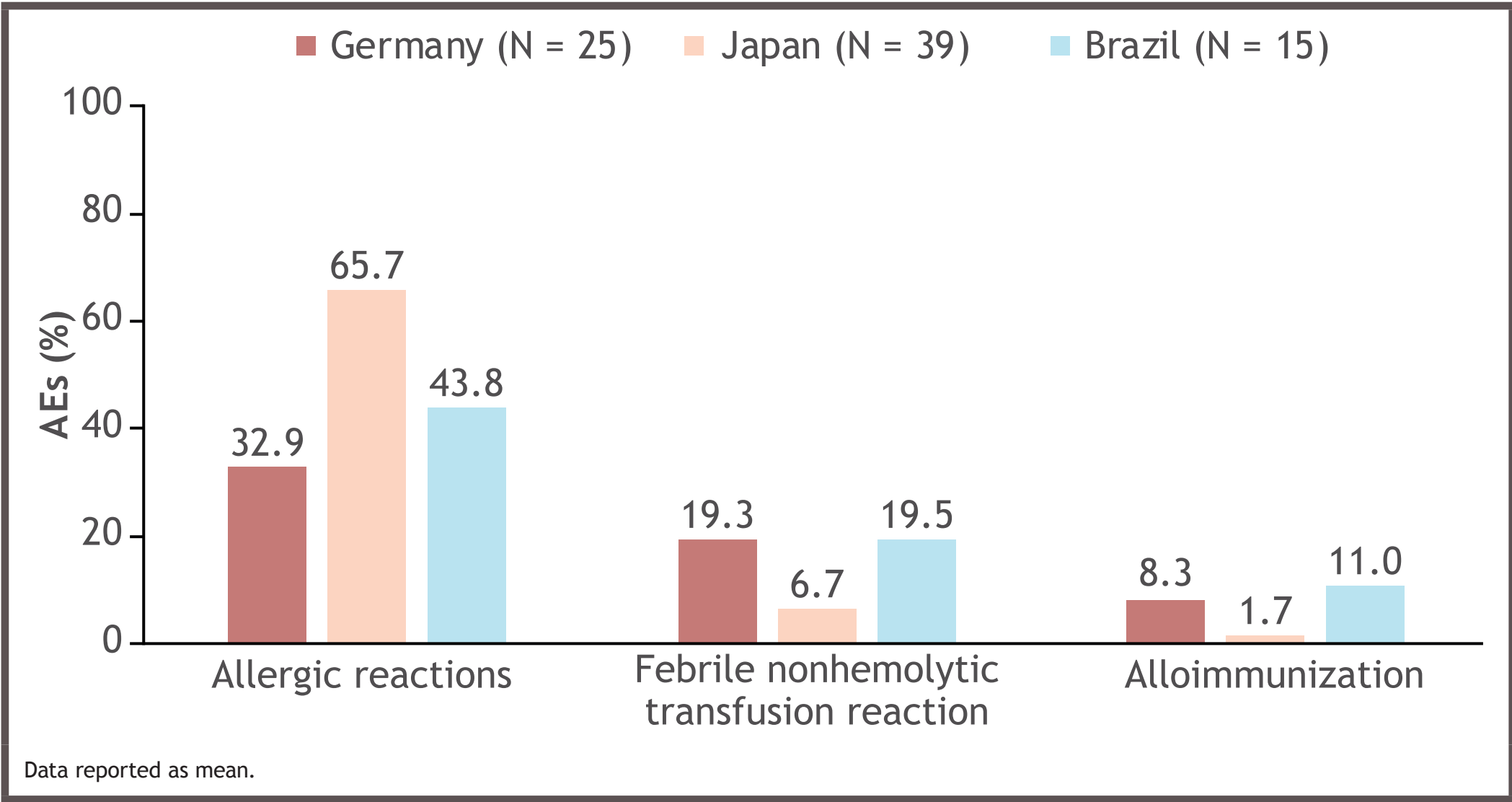
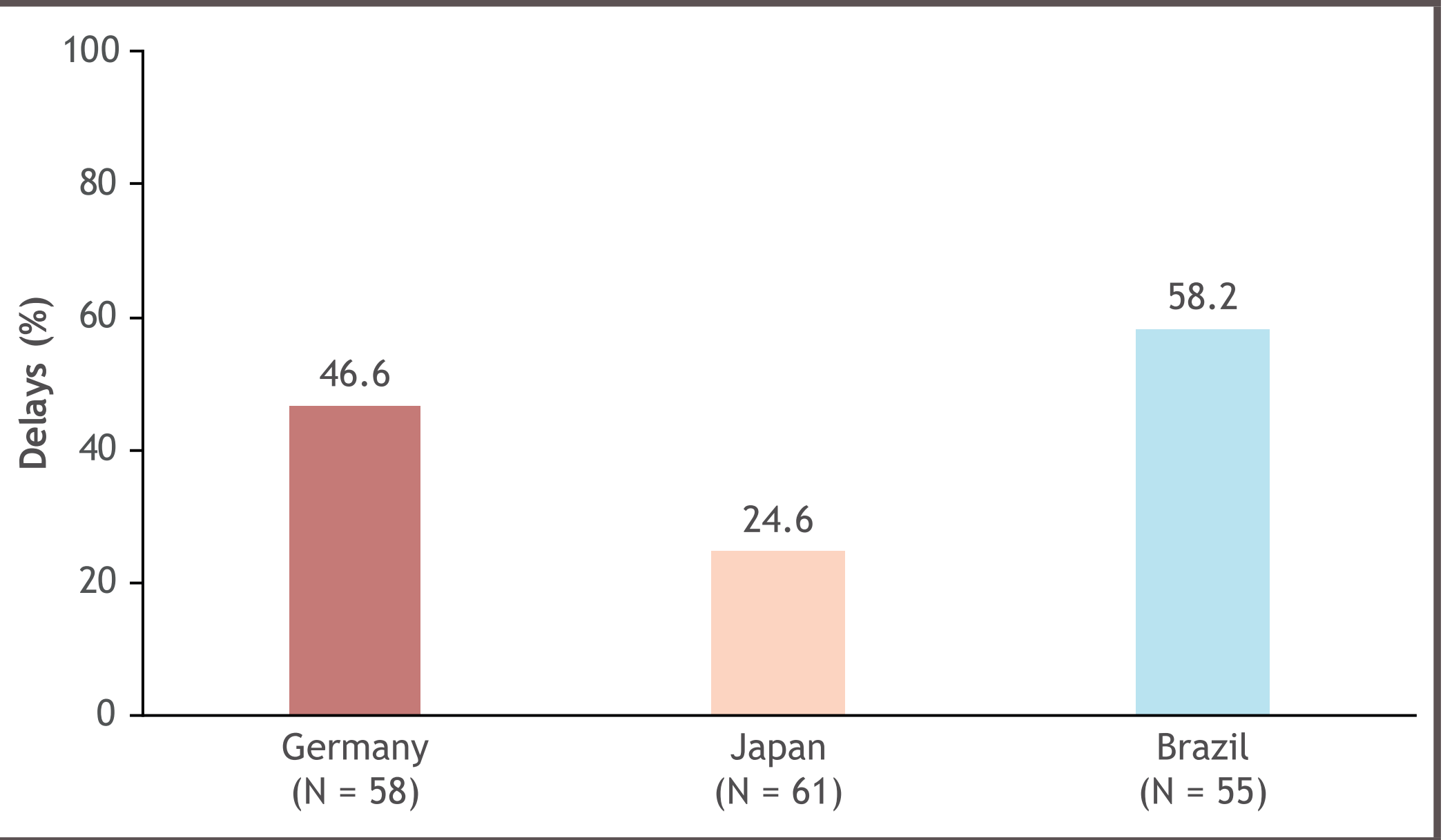


Figure 6. Delays due to blood-supply shortages in the past year, reported by HCPs



- 10% (n = 24) of transfusions in Brazil were affected by blood-supply shortages, while 5% (n = 37) in Germany, and 5% (n = 50) in Japan were affected
- Among patients who experienced delays due to blood-supply shortages, respondents reported a median delay of 2 days in all 3 countries, with an IQR of 1.0-5.0 (Germany), 0.0-3.0 (Japan), and 2.0-5.0 (Brazil)

Limitations

- Due to the small sample size for some of the survey responses, the ability to draw conclusions on some aspects of transfusion, blood collection, and ICT practices may have been limited
- Selection bias may have occurred as eligible HCPs were limited to those with a valid email address and willing to take online surveys
- Based on input from a small number of HCPs, findings may not be generalizable at the national level, and HCPs who chose to participate in the survey may not fully represent all HCPs in the area covered
- Results may be affected by missing data, misunderstanding of survey questions, and recall bias, but potentially mitigated by asking respondents to provide data over a period of 12 months

Conclusions

- Blood transfusions for LR-MDS place a significant time burden on HCPs, blood donors, patients, and their caregivers in Germany, Japan, and Brazil
- Transfusion delays due to blood-supply shortages were commonly reported in all 3 countries
- The findings of this study highlight the need for alternative interventions that could reduce transfusion burden in patients with LR-MDS

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Disclosures

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