

90-Day Readmissions After Hematopoietic Stem Cell Transplantation: A Nationwide Comparative Analysis of Oncologic and Non-Oncologic Indications

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INTRODUCTION

A stem cell transplant (HSCT) can cure many blood cancers and some serious non-cancer blood and immune diseases. But many patients end up back in hospital soon after going home, most often because of infections, graft-versus-host disease, or organ damage.

Patients transplanted for cancer differ from those transplanted for other diseases in how sick they are beforehand and how their immune system recovers. Whether their readmission risk also differs has not been studied in a large national dataset.

Most earlier studies came from single hospitals or looked at one transplant type only.

AIM

To find out how often patients return to hospital within 90 days of a stem cell transplant, and what predicts it — comparing transplants done for **cancer (oncologic)** with those done for **non-cancer disease (non-oncologic)** across the United States.

METHODS

- **Data:** the 2022 Nationwide Readmissions Database, which tracks hospital stays across the US.
- **Patients:** adults (18+) who had a stem cell transplant, grouped by whether the transplant was for cancer or a non-cancer disease.
- We left out October–December admissions so every patient had a full 90 days of follow-up.
- **Main outcome:** any hospital readmission within 90 days of discharge.
- **Analysis:** survey-weighted multivariable logistic regression to find independent predictors, reported as adjusted odds ratios (aOR) with 95% confidence intervals. Stata/MP 19.5; P<0.05 counted as significant.

CONCLUSIONS

- **Patients transplanted for non-cancer disease were more than twice as likely to return to hospital within 90 days (26.2% vs. 11.4%).**
- Infections and low blood counts caused most readmissions in both groups. CMV infection stood out after non-cancer transplants — closer virus monitoring and preventive antivirals may help.
- Heart, kidney, and liver disease, depression, and living in a low-income area raised readmission risk after cancer transplants. High-volume transplant centers had fewer readmissions.
- Follow-up care matched to the reason for transplant may keep more patients out of hospital. This needs testing in prospective studies.

RESULTS

Who we studied. Of 19,880 transplant admissions in 2022, 2,992 met our criteria (2,740 cancer; 252 non-cancer). Deaths during the transplant stay were similar (2.3% vs. 2.1%). 2,923 patients went home, and 370 (12.7%) were back in hospital within 90 days.

Why they were transplanted. Solid tumors (26.7%), myeloid leukemia (16.4%), and non-follicular lymphoma (15.6%) led the cancer group. Immune deficiencies made up 76.3% of non-cancer transplants (Fig. 2).

Why they came back. Low white cells (8.5%), sepsis (7.2%), and fever (5.2%) led the cancer group, followed by *C. difficile* gut infection and mouth sores. In the non-cancer group, low white cells (15.6%) and CMV infection (12.5%) topped the list (Fig. 3).

The return visits. Readmitted cancer patients carried more chronic disease than at the transplant stay, but their return stays were shorter (7 vs. 22 days) and far cheaper (\$111,626 vs. \$348,666; P<0.001). Non-cancer readmissions were mostly men (85.0% vs. 47.3% at the first stay; P<0.001).

What predicted readmission. Past heart bypass surgery, heart failure, chronic liver or kidney disease, depression, and living in a low-income area all raised the odds in the cancer group. Weekend discharge and larger transplant centers lowered them. In the non-cancer group, male sex and 6+ procedures during the transplant stay raised the odds (Fig. 4).

Figure 1. Who was in the study and what happened

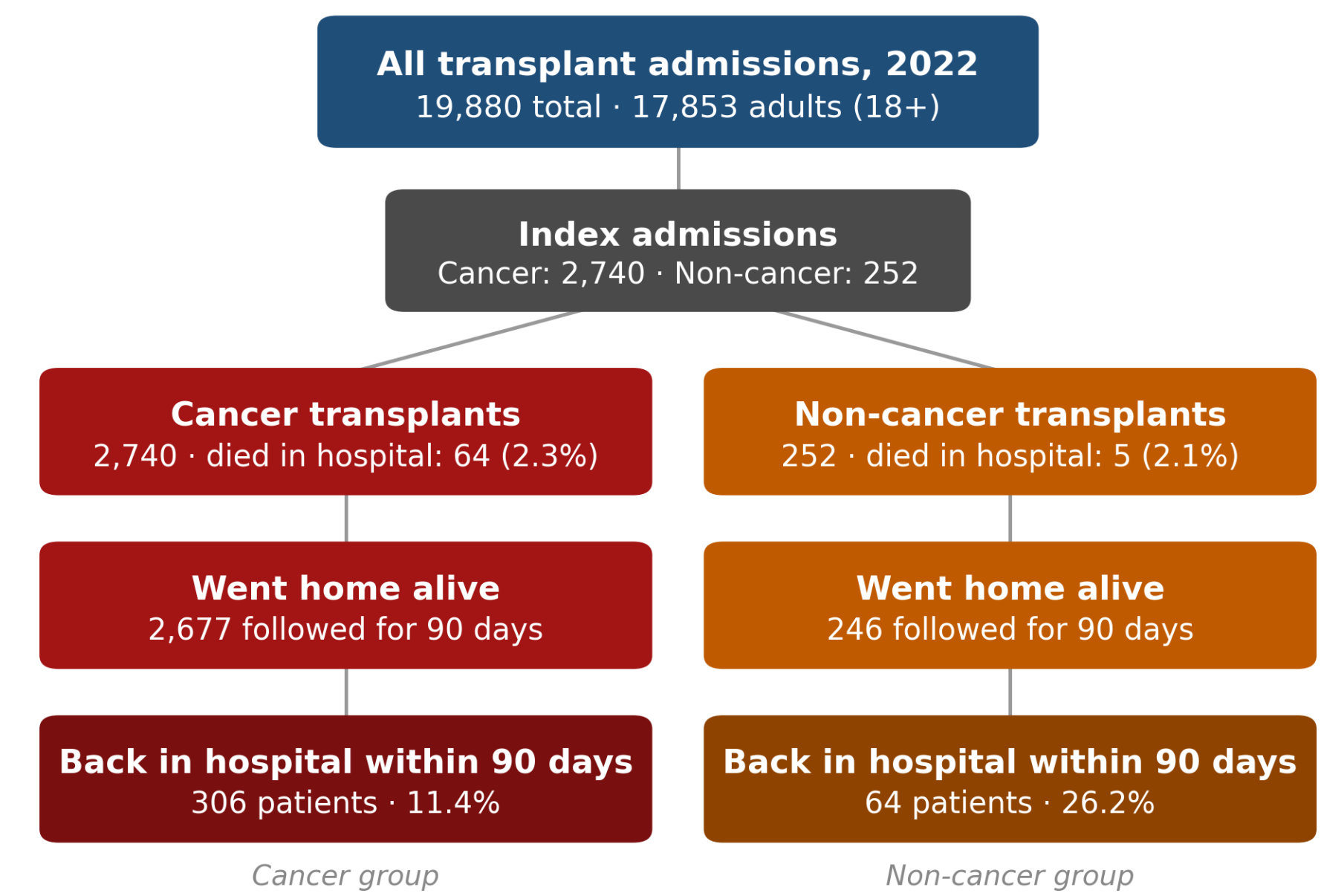


Figure 2. Why patients had a transplant

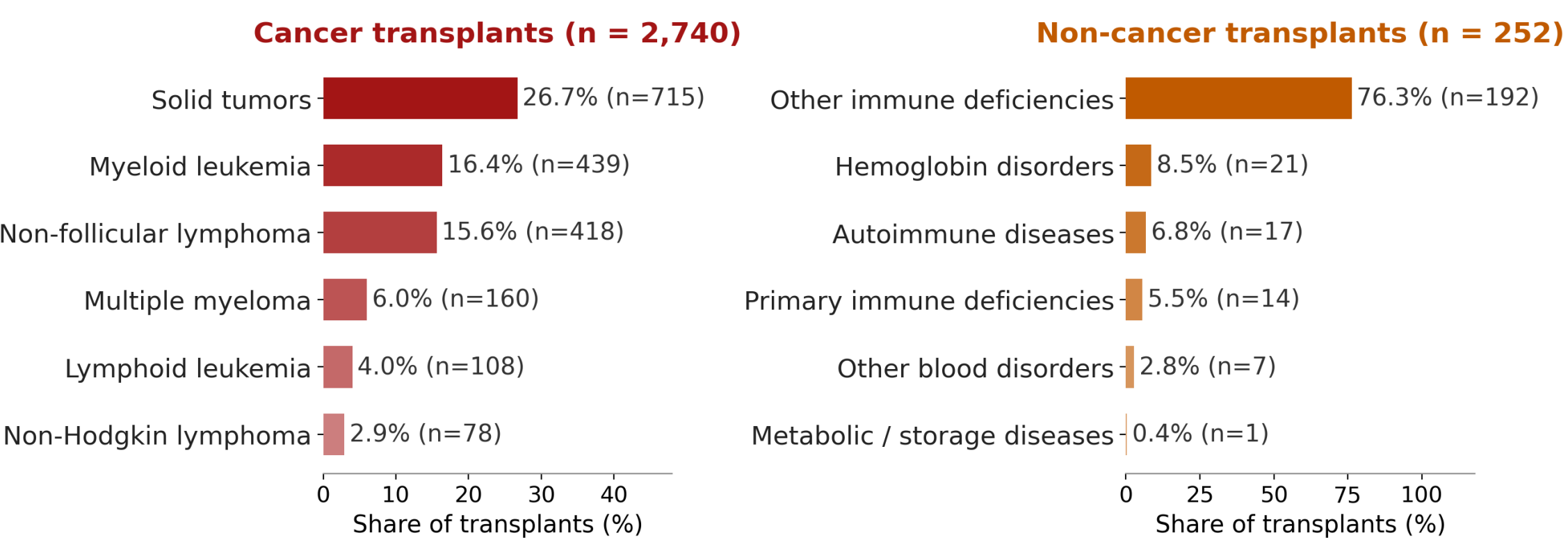


Figure 4. What raised or lowered the odds of coming back

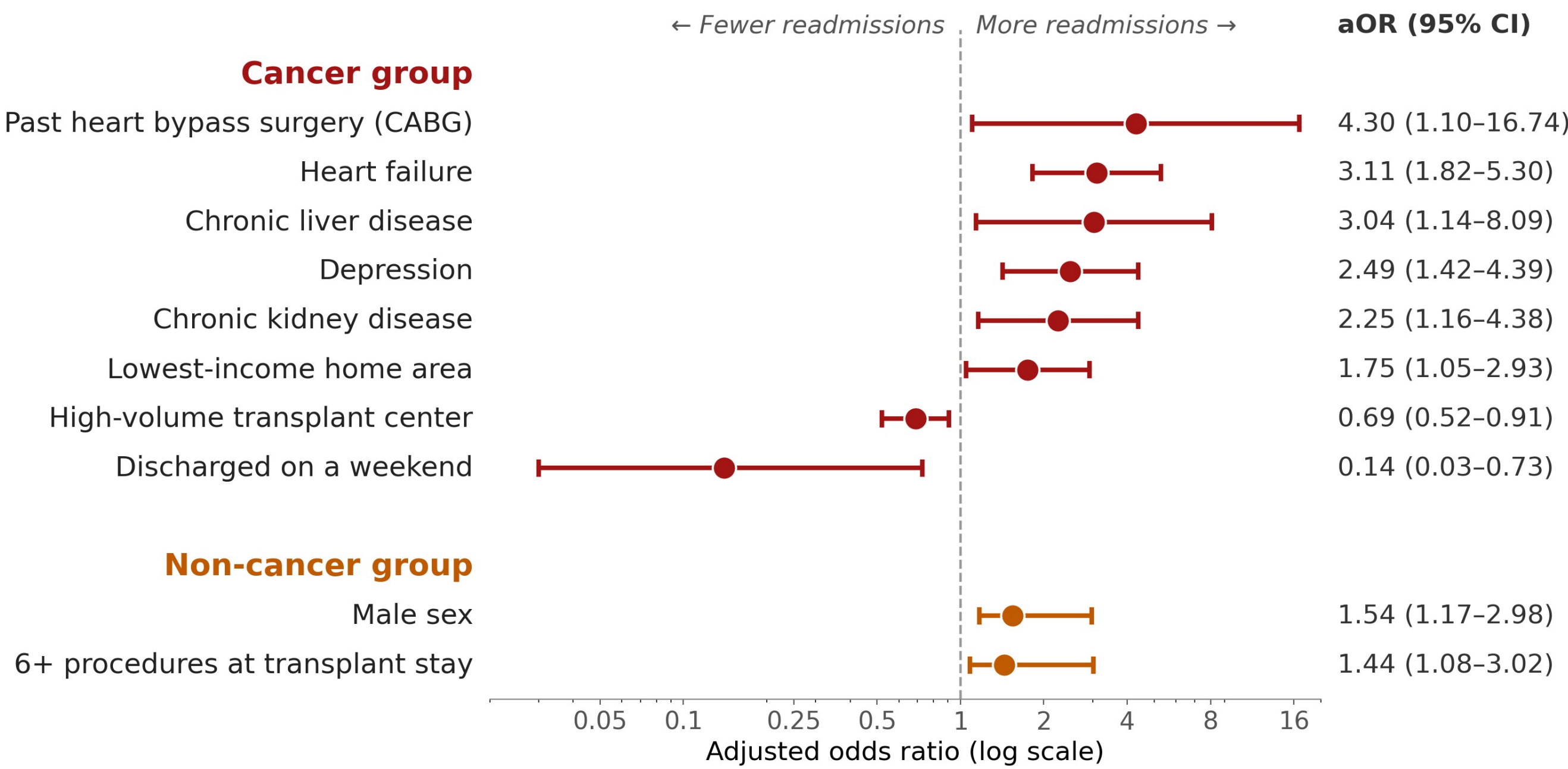
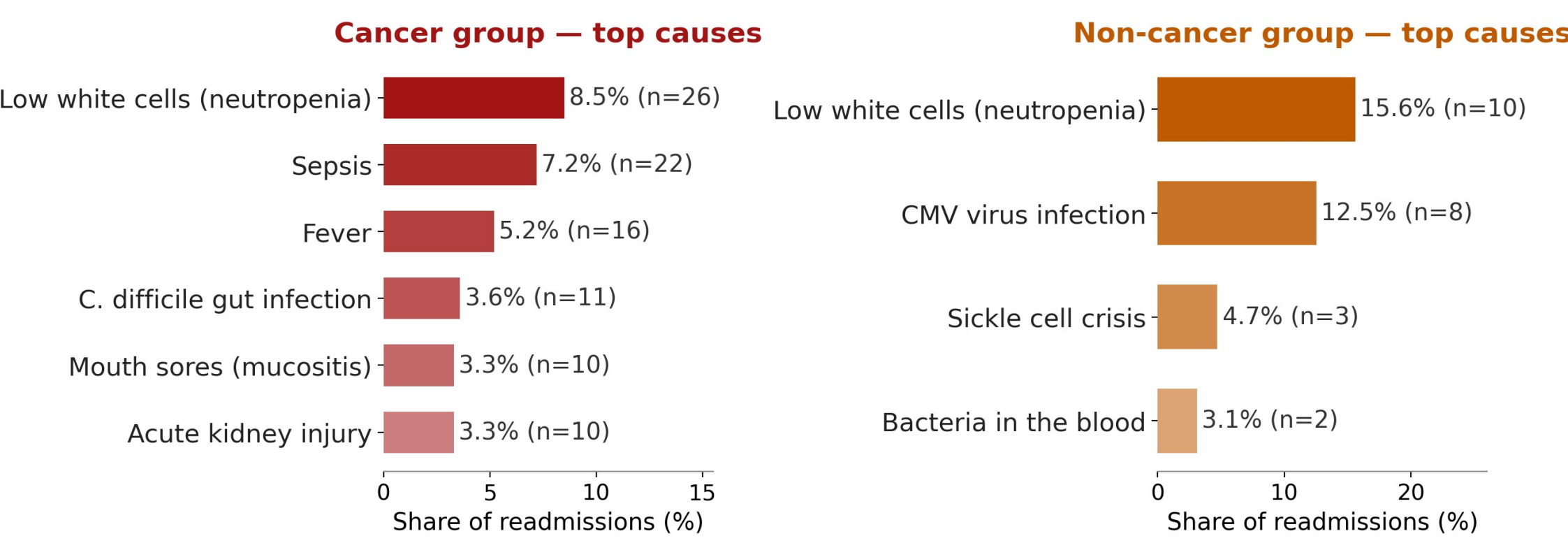


Figure 3. Top reasons for returning to hospital



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