

# Patterns and Outcomes with Salvage Treatment for Hodgkin Lymphoma (HL) in the Modern Era: A Real-World Analysis from the Community Oncology Setting in the United States (US)

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## Background

- While most patients with newly diagnosed HL will be cured with initial therapy, between 15-30% experience treatment failure (TF), defined as relapse, progression, or refractory disease.
- Data are limited on the selection of salvage treatment (ST) and associated outcomes after TF, especially in the community-oncology setting, where most patients in the US are treated.
- We aimed to identify demographics, disease characteristics, treatment patterns, and outcomes of patients who experience TF in a large community-oncology setting in the US.**

## Sample Characteristics

TABLE 1: COHORT CHARACTERISTICS (n=75)

Patient Characteristics	(%)
Age at diagnosis in years, median (q1,q3)	36 (23, 52)
Female	34.7
Race	
White	78.7
Non-White	21.3
Hispanic ethnicity	42.7
Any comorbidity	32.4
Disease Characteristics	(%)
Histology	
Mixed cellularity	17.3
Lymphocyte rich	2.7
Gray zone lymphoma	2.7
NOS	18.7
Mixed pathology	5.3
Stage III or IV	49.3
Any B symptoms	46.7
Mediastinal bulk	39.2
Initial treatment response	
Complete Remission (CR), then relapse	53.3
Never achieved CR	46.7
Initial Treatment	(%)
ABVD	89.3
Other	10.7
Included planned radiotherapy (RT)	21.3
Salvage Treatment	(%)
Any unplanned RT	38.7
Autologous Hematopoietic cell transplant (HCT)	73.3
Allogeneic HCT	14.7
Autologous + Allogeneic HCT	13.3
Use of novel therapy	41.3

- Median time from diagnosis to first TF was 270 days (Q1,Q3: 210, 434).
- Median time from completion of initial therapy to TF was 56 days (Q1,Q3: 0, 228).

## Methods

- All incident cases of Stage II-IV diagnosed from 2007-2012 (n=473) at Kaiser Permanente of Southern California (KPSC) were identified from the tumor registry.
- Clinically based algorithms were developed to identify cases of TF in the minimum 4-year follow-up period, based on receipt of >1 treatment regimen (n=75).
- Trained study staff extracted data on disease characteristics, treatment, response to frontline treatment, use of ST, disease response, and vital status at the end of study period.
- All cases were dual-reviewed by oncologists.

## Lines of Salvage Therapy (ST)

TABLE 2: PATTERNS OF SALVAGE TREATMENT

Initial Salvage Treatment	Subsequent Therapy	%
Ifosfamide-Based Chemotherapy (n=57)	Autologous HCT	70
	Additional therapy*	28
	Hospice/Death	2
Brentuximab Vedotin (Bv) (n=8)	Autologous HCT	38
	Additional therapy*	50
	Hospice/Death	12
Other Chemotherapy (n=9)	Autologous HCT	11
	Additional therapy*	33
	Hospice/Death	45
	Observation	11
Unknown (n=1)	Additional therapy*	100

\*e.g., radiation, chemotherapy, Bv

Patients with TF received median of 2 (range 1-9) STs.

- Among Ifosfamide ST, 86% ultimately received autologous HCT
- 7/55 (13%) auto HCT patients received post transplant Bv.

## Outcomes at 4 Years

- 27/75 (36%) of patients with TF died, 81% from HL.
- Median time to death from TF was 376 days (IQR 194, 813).
- Patients who never achieved CR were more likely to die (49% vs. 25%, P=0.05).
- Of surviving patients, 71% achieved CR, 17% have active disease, and 12% were lost to follow-up.

## Conclusions

- Salvage treatment for HL is heterogenous in a community-oncology setting. Mortality after treatment failure is prominent.
- Further studies should identify use of novel therapeutics in salvage and frontline therapy in the community setting.
- A **critical gap** remains to identify high-risk patients early in the disease course who may benefit from alternative upfront treatment approaches.

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