

ABSTRACT

Background: Lymphoma is the most common hematologic malignancy in active-duty service members (ADSMs). Survivors often face uncertainty about fitness for duty that affects careers and force readiness. We determined how many previously deployed ADSMs deployed after a lymphoma diagnosis and characterized those deployments.

Methods: Hodgkin (HL) and non-Hodgkin lymphoma (NHL) cases diagnosed 2001–2022 were identified from the DHA Cancer Registry (ICD-O-3 codes). Deployment data was obtained from the Defense Manpower Data Center.

Results: Of 866 previously deployed ADSMs with lymphoma (455 HL, 411 NHL), 119 (13.7%) deployed after diagnosis. 86 HL patients deployed (18.9%) vs. 33 NHL patients (8.0%; $p < 0.001$). The mean interval to deployment was 5.1 years (HL) and 4.5 years (NHL), and all 119 were alive as of 2022.

Conclusions: Roughly one in six previously deployed ADSMs deployed again after lymphoma diagnosis, typically within five years, reflecting the success of military cancer care and its favorable impact on operational readiness.

INTRODUCTION

Each year, >800 ADSMs are diagnosed with cancer, of which lymphoma is the most common hematologic malignancy.

Treatment has shifted from toxic multi-agent chemotherapy and extended radiotherapy toward highly effective, targeted regimens, so more patients are cured upfront with fewer late effects.

Despite this, data on post-diagnosis operational readiness are largely absent from the literature. We assessed how many previously deployed ADSMs deployed after a lymphoma diagnosis and characterized those deployments.

METHODS

Hodgkin (HL) and non-Hodgkin lymphoma (NHL) cases diagnosed 2001–2022 were identified from the Defense Health Agency (DHA) Cancer Registry using ICD-O-3 histology codes 9590/3–9738/3. Deployment variables were obtained from the Defense Manpower Data Center.

The cohort comprised service members on active duty at diagnosis with ≥1 prior deployment; those who never deployed were excluded. Deployments were any combat or non-combat overseas assignment, with no minimum duration threshold.

Analyses were descriptive and exploratory. 95% confidence intervals used the Wilson method; HL vs NHL were compared with Fisher’s exact test (categorical) and Welch’s t-test (continuous) in SAS v9.4. The study was exempt from full IRB review.

RESULTS

866 previously deployed ADSMs with lymphoma were identified (455 HL, 411 NHL). 119 (13.7%; 95% CI 11.6–16.2) deployed after their diagnosis: 86 HL (18.9%) and 33 NHL (8.0%). HL survivors were significantly more likely to deploy than NHL ($p < 0.001$). The mean interval from diagnosis to deployment was 5.1 y (HL) and 4.5 y (NHL).

There were generally no significant differences across HL vs. NHL demographic and deployment characteristics except a nominal difference in racial distribution ($p = 0.02$). Service members sustained a median deployment length of 1.1 years, and 59 (50%) deployed two or more times after diagnosis. As of 2022, all 119 patients were alive (median follow-up 10.8 y).

Figure 1. Post-Lymphoma Diagnosis Deployment Rate

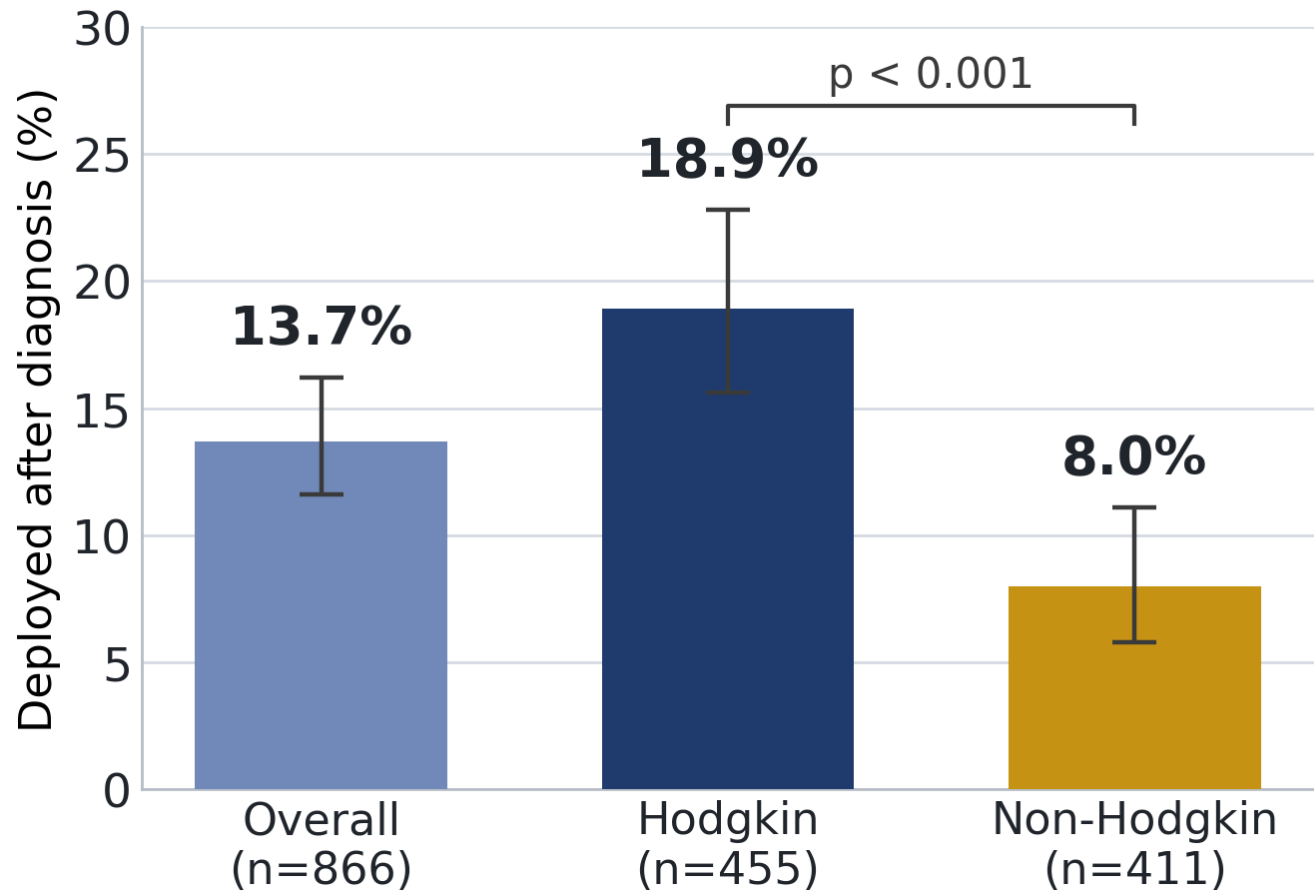


Figure 2. Service Branches of Deployed Lymphoma Survivors

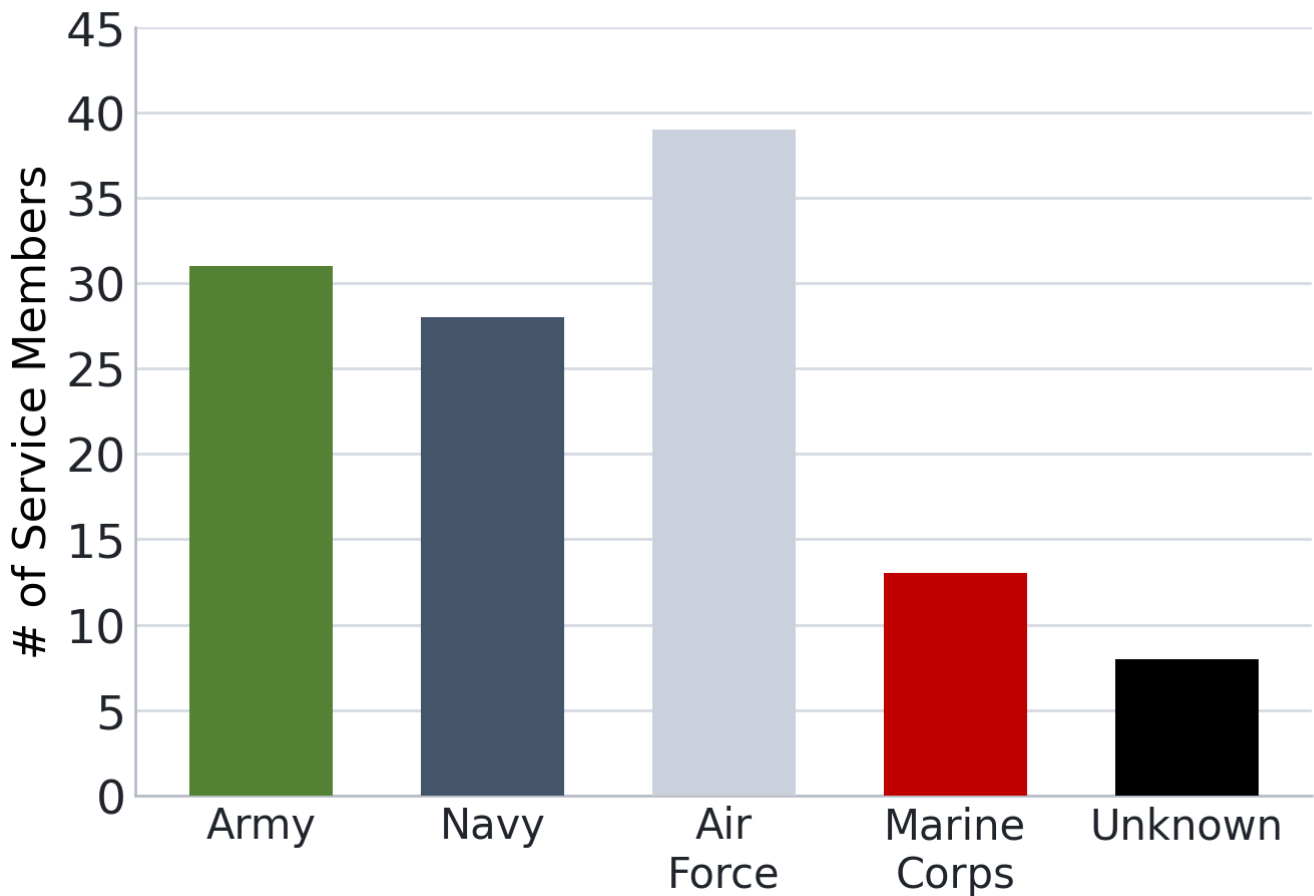


Table 1. Characteristics of ADSMs who deployed following HL or NHL diagnosis.

Characteristic	All (N=119)	HL (N=86)	NHL (N=33)
Age at diagnosis (years)			
	27.9 ± 7.0	27.5 ± 6.5	28.9 ± 8.6
Sex, n (%)			
Men	99 (83.2)	70 (81.4)	29 (87.9)
Women	20 (16.8)	16 (18.6)	4 (12.1)
Race, n (%)			
White	95 (79.8)	74 (86.0)	21 (63.6)
Black	13 (10.9)	6 (7.0)	7 (21.2)
Other	11 (9.2)	6 (7.0)	5 (15.2)
Ethnicity, n (%)			
Non-Hispanic	99 (83.2)	74 (86.0)	25 (75.8)
Hispanic	5 (4.2)	4 (4.7)	1 (3.0)
Unknown	15 (12.6)	8 (9.3)	7 (21.2)
Stage, n (%)			
I	17 (14.3)	9 (10.5)	8 (24.2)
II	42 (35.3)	36 (41.9)	6 (18.2)
III	23 (19.3)	17 (19.8)	6 (18.2)
IV	9 (7.6)	6 (7.0)	3 (9.1)
Unknown	28 (23.5)	18 (20.9)	10 (30.3)
Branch of Service, n (%)			
Army	31 (26.1)	24 (27.9)	7 (21.2)
Air Force	39 (32.8)	28 (32.6)	11 (33.3)
Navy	28 (23.5)	18 (20.9)	10 (30.3)
Marines	13 (10.9)	10 (11.6)	3 (9.1)
Other/Unknown	8 (6.7)	6 (7.0)	2 (6.1)
Characteristic			
All (N=119)			
HL (N=86)			
NHL (N=33)			
Deployment location, n (%)			
Iraq	13 (10.9)	6 (7.0)	7 (21.2)
Afghanistan	16 (13.4)	12 (14.0)	4 (12.1)
Iraq and Afghanistan	7 (5.9)	5 (5.8)	2 (6.1)
Other	83 (69.7)	63 (73.3)	20 (60.6)
No. of deployments, n (%)			
1	60 (50.4)	45 (52.3)	15 (45.5)
2	26 (21.8)	21 (24.4)	5 (15.2)
3+	33 (27.7)	20 (23.3)	13 (39.4)
Deployment length, n (%)			
< 6 months	37 (31.1)	26 (30.2)	11 (33.3)
6–<12 months	22 (18.5)	20 (23.3)	2 (6.1)
12–<24 months	22 (18.5)	15 (17.4)	7 (21.2)
24+ months	38 (31.9)	25 (29.1)	13 (39.4)
Locations / deployment, n (%)			
1–2	58 (48.7)	46 (53.5)	12 (36.4)
3–5	35 (29.4)	24 (27.9)	11 (33.3)
6+	26 (21.8)	16 (18.6)	10 (30.3)
Occupation, n (%)			
Infantry	1 (0.8)	0 (0)	1 (3.0)
Engineering / Maintenance	6 (5.0)	6 (7.0)	0 (0)
Communication / Intelligence	7 (5.9)	6 (7.0)	1 (3.0)
Healthcare	2 (1.7)	2 (2.3)	0 (0)
Other	13 (10.9)	7 (8.1)	6 (18.2)
Multiple Occupations	90 (75.6)	65 (75.6)	25 (75.8)

Table 1: Characteristics of ADSMs who deployed following HL or NHL diagnosis. Exploratory HL versus NHL comparisons (Fisher’s exact test for categorical variables; Welch’s t-test for continuous variables): age at diagnosis $p = 0.42$; sex $p = 0.58$; race $p = 0.02$; ethnicity $p = 0.20$; branch of service $p = 0.85$; deployment location $p = 0.18$; number of deployments $p = 0.20$; deployment length $p = 0.16$; locations per deployment $p = 0.21$; stage (I–IV) $p = 0.06$.

DISCUSSION

Among those with a history of deployment, roughly one in six ADSMs deployed again after lymphoma diagnosis, often on multiple, extended, globally diverse taskings.

The finding was most pronounced for HL, with nearly one in five survivors deploying after diagnosis, significantly more often than for NHL. The improved survival (>95%) and younger incidence of HL likely contributed to the higher observed deployment rate.

The ~five-year mean interval from diagnosis to deployment aligns with community oncology practice, in which surveillance for recurrence of aggressive lymphoma concludes after five years.

Late effects of therapy and novel immunotherapeutics remain emerging challenges for care of cancer survivors, particularly in future large-scale combat operations.

Future comparator-based and clinically detailed studies are needed to identify factors that predict a successful return to deployment.

CONCLUSIONS

We demonstrate that a lymphoma diagnosis did not preclude deployment for a meaningful subset of previously deployed service members, who deployed multiple times within several years of diagnosis with favorable survival.

These findings highlight the success of cancer care delivered within U.S. military treatment facilities in contributing to operational readiness following a life-changing hematologic malignancy.

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Disclaimer

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