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Productivity Loss and Indirect Costs Among Non-Hodgkin Lymphoma Patients and their Caregivers

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Disclosures

- Consulting: BeiGene
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Introduction

- Non-Hodgkin lymphoma (NHL) is considered a largely incurable cancer, punctuated with multiple remission and relapses, and a long course of treatment
- NHL patients are often heavily reliant upon caregiver support
- Many NHL patients or caregivers are of working age
- Both patients and caregivers may require time off for medical care, translating to lost productivity, and in turn, indirect economic costs



Objectives

To evaluate the productivity loss and indirect costs for NHL patients and their caregivers for four different types of NHL:

- Chronic lymphocytic leukemia (CLL)
- Mantle cell lymphoma (MCL)
- Marginal zone lymphoma (MZL)
- Or Waldenström macroglobulinemia (WM)



Methods

- **Study Design:** Retrospective cohort study
- **Data Source:** De-identified U.S. claims data from the IBM MarketScan® Commercial and Health Productivity and Management (HPM) Databases
 - Commercial Database: contains the inpatient, outpatient, and outpatient prescription drug experience of employees and their dependents
 - HPM Database: contains workplace absence, short-term and long-term disability, and workers' compensation data linked to a subset of patients in the Commercial Database
- **Study Period:** 7/1/2009 to 12/31/2019



Methods

- **Patient eligibility criteria:**

- Aged 18-64 years
- ≥ 1 non-diagnostic code for NHL of interest (CLL, MCL, MZL or WM) in any date between 1/1/2010 and 12/31/2019
- Patient index date: date of first claim
- Have no other family members with NHL
- ≥ 6 months of continuous enrollment (medical and pharmacy) prior to the index date (baseline), and ≥ 1 month after the index date (follow-up).
- Not pregnant any time during the baseline or follow-up periods
- Full-time employee with a link to the HPM database

- **Caregiver eligibility criteria:**

- Single caregiver (aged 18-64 years) of a patient with NHL of interest diagnosed between 1/1/2010 and 12/31/2019
- Caregiver index date: date of first claim
- ≥ 6 months of caregiver continuous enrollment (medical and pharmacy) prior to the index date (baseline), and at least 1 month after the index date (follow-up)
- Not pregnant and not diagnosed with any B-cell lymphoma themselves any time during the baseline or follow-up periods
- Full-time employee with a link to the HPM database



Methods

Outcomes:

- Productivity loss and resulting indirect costs per patient per month (PPPM) were separately estimated for patients (illness-related work absence, short-term disability, long-term disability) and caregivers (illness-related work absence and short-term disability only) and for each type of loss
- Productivity loss: measured in hours (work absence) or days (short- or long-term disability) for up to one year after the index date
- Indirect costs: estimated using the U.S. Bureau of Labor Statistics 2019 report
- For short- and long-term disability, mean daily wage was reduced to 70% of typical wage
- All costs were adjusted for inflation using the consumer price index and standardized to 2019 U.S. dollars



Results: Patient and Caregiver Cohorts

	CLL	MCL	MZL	WM
All Eligible Patients	3,450	448	1,052	394
With absence data	503	74	140	50
With STD data	3,026	382	930	334
With LTD data	2,813	362	849	322
All Eligible Caregivers	1,435	171	437	190
With absence data	181	20	62	32
With STD data	1,260	149	369	168

Abbreviations: CLL: chronic lymphocytic leukemia; MCL: mantle cell lymphoma; MZL: Marginal Zone Lymphoma; WM: Waldenström macroglobulinemia; LTD: long-term disability; STD: short-term disability



Results: Demographic Characteristics of Patients and Caregivers

- Mean age of NHL patients ranged from 52.1 to 54.0 years, and the proportion of males varied from 58.8-80.1%
- Mean age of NHL caregivers ranged from 51.2 to 52.9 years

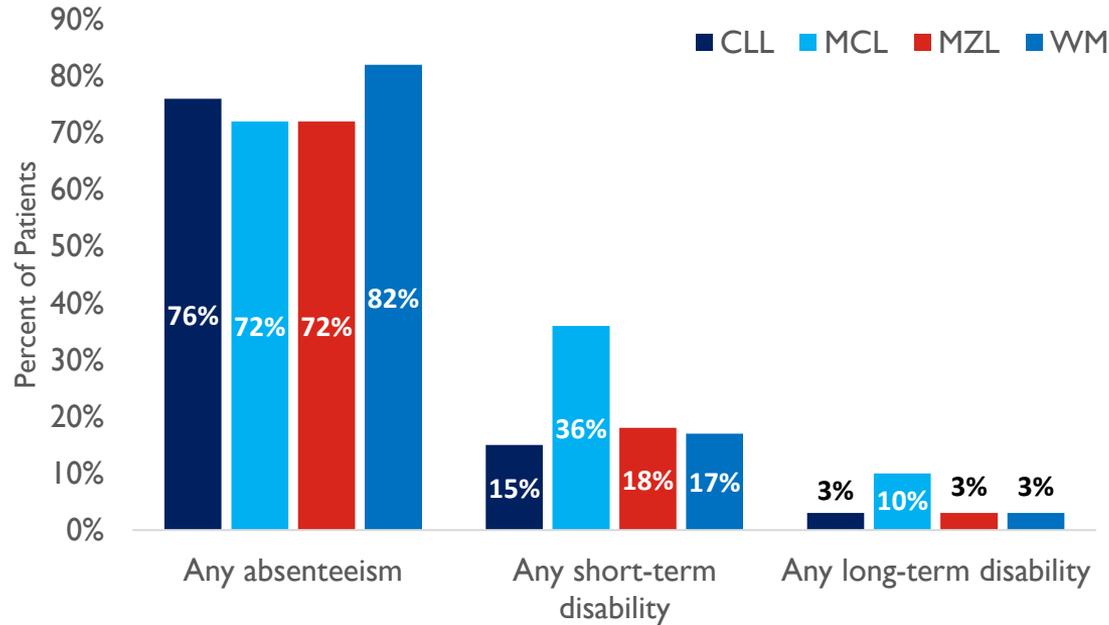
	CLL		MCL		MZL		WM	
	Patients N=3,450	Caregivers N=1,435	Patients N=448	Caregivers N=171	Patients N=1,052	Caregivers N=437	Patients N=394	Caregivers N=190
Age, mean (SD)	54.0 (7.3)	52.9 (7.3)	53.9 (7.2)	52.4 (7.6)	52.1 (8.3)	51.2 (8.3)	53.8 (7.6)	51.7 (7.9)
Male, (%)	71.0%	55.3%	80.1%	44.4%	59.8%	67.0%	68.5%	63.7%
Geographic Region, (%)								
Northeast	19.4%	18.6%	19.4%	45.0%*	19.2%	22.2%	22.6%	24.2%
North Central	25.3%	26.4%	28.6%		24.9%	24.7%	24.6%	23.7%
South	35.3%	34.6%	33.5%		36.9%	37.3%	33.2%	27.4%
West	19.7%	20.0%	18.5%		18.7%	15.8%	19.3%	24.7%
Unknown/Missing	0.3%	0.3%	0.0%	0.6%	0.3%	0.0%	0.3%	0.0%
Insurance plan type, (%)								
Comprehensive/ Indemnity	2.6%	2.0%	2.9%	1.2%	2.6%	2.3%	3.6%	3.2%
EPO/PPO	59.0%	58.5%	55.1%	57.9%	57.0%	60.6%	55.1%	61.6%
POS/POS with capitation	6.0%	4.9%	6.0%	4.1%	6.4%	5.7%	8.4%	6.3%
HMO	10.6%	10.7%	9.8%	13.5%	10.8%	10.1%	10.4%	7.9%
CDHP/HDHP	21.0%	23.3%	25.7%	22.2%	22.3%	20.6%	21.3%	21.1%
Unknown	0.8%	0.6%	0.4%	1.2%	0.9%	0.7%	1.3%	0.0%
Urban, (%)	90.7%	90.8%	90.6%	86.0%	92.4%	91.5%	92.4%	90.5%
Length of follow-up, Mean (SD)	327.6 (85.1)	330.3 (83.2)	319.9 (90.9)	327.4 (83.2)	331.4 (79.8)	335.0 (75.8)	329.5 (82.5)	326.3 (88.6)

Abbreviations: CLL: chronic lymphocytic leukemia; MCL: mantle cell lymphoma; MZL: marginal zone lymphoma; WM: Waldenström macroglobulinemia; SD: standard deviation; EPO: exclusive provider organization; HMO: health maintenance organization; POS: point-of-service; PPO: preferred provider organization; CDHP: consumer-driven health plan; HDHP: high deductible health plan



Results: Absenteeism, Short-Term Disability, and Long-Term Disability in CLL, MCL, MZL, WM Patients

- Higher proportions of eligible patients had absentee claims than for short-term disability or long-term disability

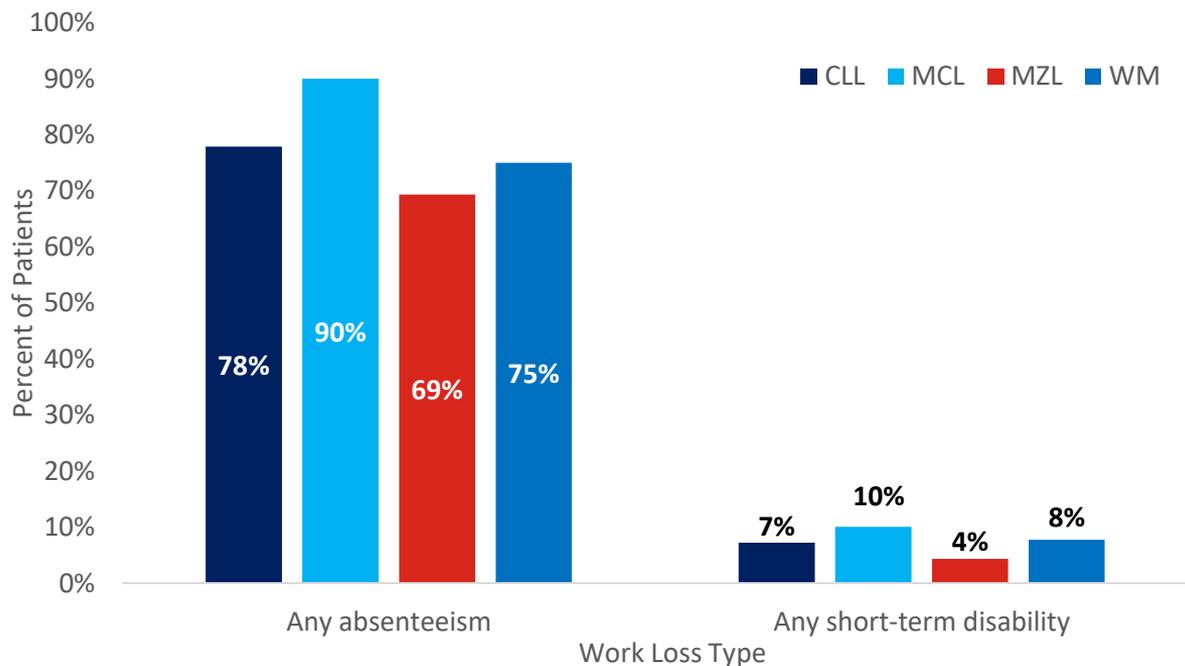


Abbreviations: CLL: chronic lymphocytic leukemia; MCL: mantle cell lymphoma; MZL: marginal zone lymphoma; WM: Waldenström macroglobulinemia



Results: Absenteeism and Short-Term Disability among CLL, MCL, MZL, WM Caregivers

- Proportions of caregivers with absentee claims were higher than those with short-term disability claims
- For all NHL types, average illness-related absentee hours were higher in patients than caregivers. A similar pattern was observed for short-term disability days

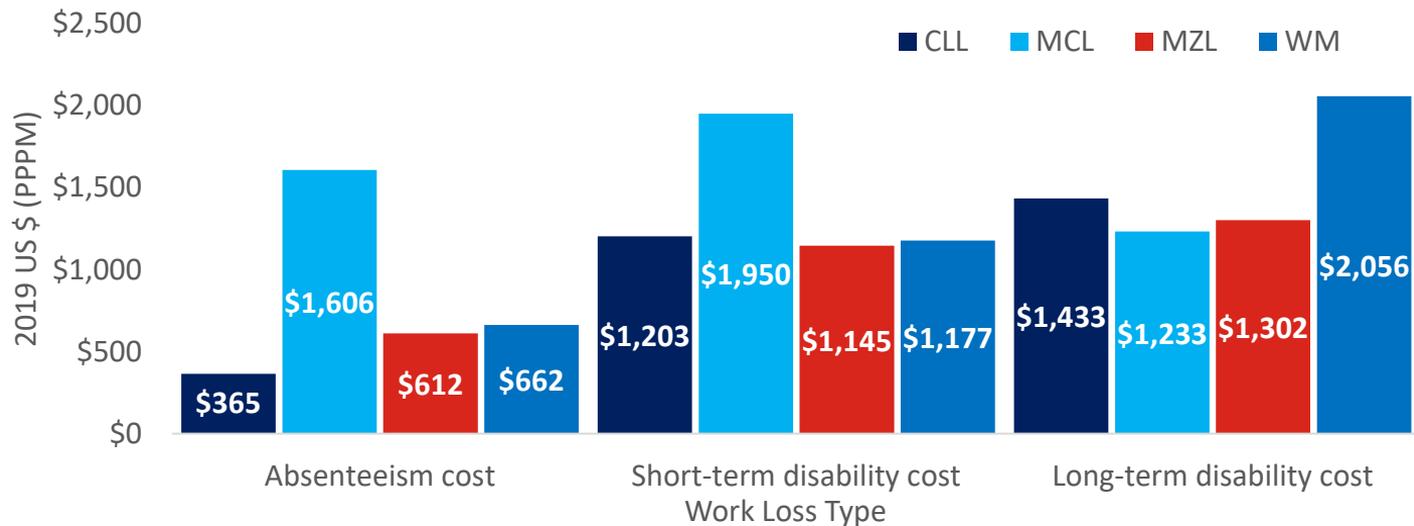


Abbreviations: CLL: chronic lymphocytic leukemia; MCL: mantle cell lymphoma; MZL: marginal zone lymphoma; WM: Waldenström macroglobulinemia



Results: Costs of Absenteeism, Short-Term Disability, and Long-Term Disability in CLL, MCL, MZL, WM Patients

- Average PPPM indirect costs were higher for patients with long-term disability than with short-term disability or absentee claims, except for patients with MCL

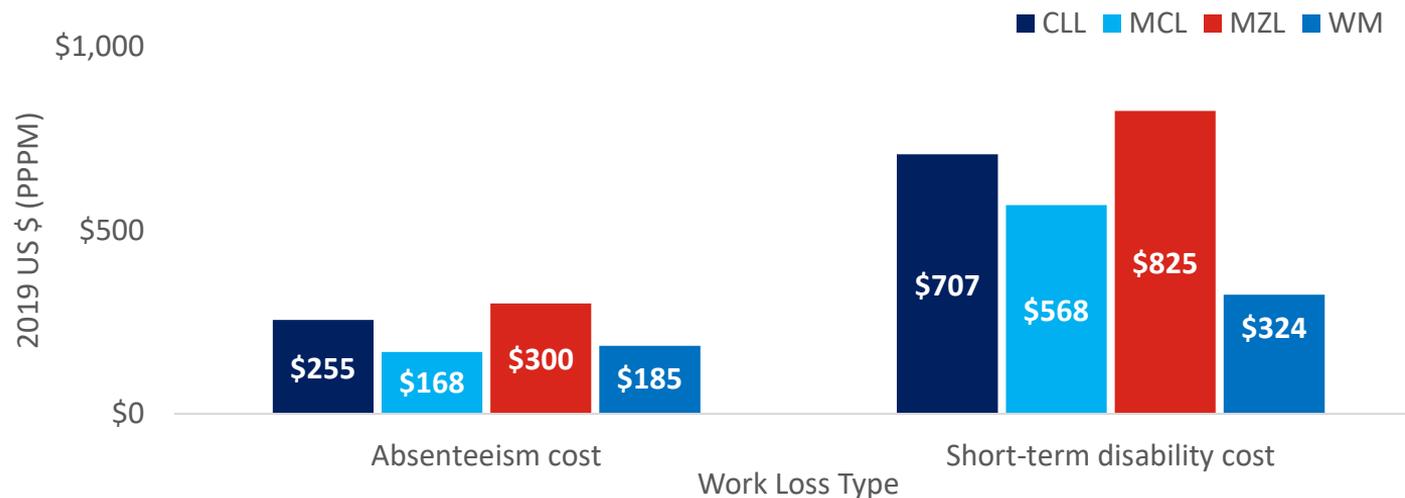


Abbreviations: CLL: chronic lymphoid leukemia; MCL: mantle cell lymphoma; MZL: Marginal Zone Lymphoma; WM: Waldenström macroglobulinemia; PPPM: per patient per month



Results: Costs of Absenteeism and Short-Term Disability in CLL, MCL, MZL, WM Caregivers

- Similar trends were observed among caregivers, though indirect costs due to absenteeism and short-term disability were higher in patients than caregivers



Abbreviations: CLL: chronic lymphocytic leukemia; MCL: mantle cell lymphoma; MZL: marginal zone lymphoma; WM: Waldenström macroglobulinemia; PPPM: per patient per month



Discussions

Study limitations

- The MarketScan[®] Research Databases represent a sample of individuals with employer-sponsored health insurance; thus, findings from this study may not be generalizable to populations with other forms of insurance or the uninsured
- NHL patients and caregivers in this study are limited to adult full-time employees with insurance coverage and absence, STD, or LTD benefits provided by their employer and may not be representative of all NHL patients and caregivers



Conclusions

- Patients with CLL, MCL, MZL and WM and their caregivers incurred substantial productivity loss and indirect costs
- Effective treatments that offer a cure or better remission rates, longer duration, and/or less toxicities may not only enhance patients' and caregivers' quality of life, but also reduce work loss
- Future studies are needed to understand the impact of therapies that result in higher remission and more manageable toxicities, such as oral, targeted therapies, on work loss and indirect costs of NHL

