Use of Supportive Care in Patients with Metastatic Squamous Cell Carcinoma of the Head and Neck (mSCCHN)

Emily Nash Smyth[1], Joanna M. Kubisiak[2], Lee Bowman[1], Li Li[1], Meredith J. Chace[2], Emily Kubisiak[2], David E. Gilden[2], Aimee Bence Lin[1], Daniel M. Gilden[2]

[1]Eli Lilly and Company, Indianapolis, IN, USA; [2]JEN Associates, Cambridge, MA, USA

ABSTRACT

Objective: Supportive care strategies are critical to minimizing treatment and disease-related complications while maximizing quality of life for mSCCHN pts. The study objective was to evaluate the frequency of supportive care use in US pts with mSCCHN.

Methods: Patients registered in Surveillance, Epidemiology and End Results (SEER) as having SCCHN between 2005-2009 and linked to Medicare claims from 2002-2010 were evaluated. Metastases were identified by the presence of stage IVC as denoted in SEER records or secondary/distant cancer diagnoses in Medicare claims. Supportive care utilization as per NCCN guidelines was evaluated by therapy status. All analyses were descriptive.

Results: A total of 4,616 pts with 93,095 pt-months (mths) were eligible. First-line therapy for metastatic disease was received by 1,902 pts. A greater proportion of pts-mths on systemic therapy were spent receiving supportive care versus time not on systemic therapy (Table 1). The percent of pt-mths receiving supportive care for pts who permanently discontinued systemic therapy (i.e. post systemic) was comparable to the percent of pt-mths prior to initiating therapy and/or not receiving systemic treatment for metastatic disease. During > 1 mth gaps in systemic therapy (i.e., treatment interruptions), there were larger absolute decreases in the proportion of pt-mths on symptom management (≥41.4%), nutritional support (≥21.5%), and infection treatment (≥6.2%) versus time on systemic treatment.

Supportive Care Categories	Untreated/ Pre Systemic	1st-line	2nd-line	3rd-line	4th-line	Treatment Interruption	Post Systemic
Total Cohort, Pt-Mths	56,032	4,707	1,438	587	298	2,838	27,195
Symptom Management	42.2%	93.8%	95.9%	96.4%	95.6%	52.4%	41.7%
Infection Treatment	19.3%	40.9%	34.6%	32.7%	36.2%	26.5%	18.1%
Nutritional Support	28.0%	69.4%	72.1%	73.1%	74.2%	47.9%	32.3%
Speech/Swallowing Therapy	19.7%	34.6%	33.7%	37.0%	26.2%	35.4%	22.2%
Durable Medical Equipment	18.1%	33.7%	33.3%	32.7%	27.2%	31.5%	18.8%
Tracheostomy Care	8.8%	13.8%	14.0%	11.8%	16.8%	14.4%	7.7%
Wound Management	1.9%	6.3%	4.8%	2.4%	2.3%	3.4%	1.5%
Dental Care/Xerostomia	3.6%	5.2%	4.7%	6.3%	4.7%	3.7%	3.4%
Depression Management	12.2%	22.6%	18.8%	17.5%	15.8%	14.0%	10.9%
Pain Management	18.5%	35.2%	31.0%	31.5%	34.2%	26.0%	19.9%
Social Work	1.4%	2.4%	1.9%	1.5%	1.3%	1.5%	1.5%
Audiology Care	3.3%	3.3%	2.5%	2.4%	3.0%	4.9%	3.3%

Conclusions: These results help to characterize supportive care treatment considerations for US patients with mSCCHN. A greater proportion of pt time on systemic treatment received supportive care across NCCN categories versus pts not receiving systemic treatment. The majority of supportive care use dropped during gaps in treatment, perhaps in association with the decrease in systemic therapy side effects.

BACKGROUND

- Supportive care is a critical adjunct to cancer care for patients with SCCHN because most lose weight and experience significant quality-of-life impacts as a result of their disease, health behaviors, and treatment-related toxicities.[1]
- Long-term sequelae of head and neck cancer therapy can be particularly problematic; rigorous rehabilitation is recommended following cancer-directed therapy to minimize symptom burden and maximize functional outcomes. However, even with supportive therapy, some patients do not fully recuperate and are forced to alter activities of daily living.[2]
- Le et al[3] found that approximately 70% and 90% of patients with recurrent, locally advanced and metastatic SCCHN, respectively, received supportive care therapy as part of their cancer care.
- There are limited publications discussing select symptoms and associated supportive care measures.
  - Murphy et al[4] reported mucositis-related supportive care in SCCHN patients with non-metastatic and metastatic disease, in which 76% of patients reported severe mouth and throat soreness.
- To our knowledge, this is the first report characterizing real-world utilization of supportive care therapies in US patients with mSCCHN across categories recommended by the National Comprehensive Cancer Network (NCCN).[1]

OBJECTIVE

- To evaluate the frequency and associated cost of supportive care use in US patients with mSCCHN between 2005-2010 using the Surveillance, Epidemiology, and End Results (SEER) cancer registry, linked to Medicare claims.

METHODS

Patient Identification

- This study population was derived from the 2005-2009 SEER cancer registry, linked to Medicare claims for 2002-2010.
- Patient inclusion criteria:
  - Head and neck cancer was listed in SEER as the first primary cancer.
  - ICD-O-3 site codes within the values 0-10, 37, or 38 and squamous cell histology as determined by 8050 to 8052, 8070 to 8078, and 8082 to 8084.
  - Initially diagnosed with stage IVC SCCHN or an earlier stage, with a record in Medicare claims denoting later progression to metastatic disease (155.xx, 162.xx, 170.xx, 191.xx, 197.xx, 198.xx).
  - Enrolled in a traditional Medicare Fee-for-Service plan at least 12 months prior to diagnosis and during follow-up. Patients were censored if they changed to a Medicare managed care plan.

METHODS (CONTINUED)

Table 1. Attrition

Patient Characteristics	N
Reported HNC primary cancers in SEER	64,340
HNC as the first primary cancer	55,463
Initial HNC diagnoses occur in 2005-2009 and have valid year and month of diagnosis	47,843
Patients with any linked Medicare claims	43,756
Primary HNC occurring at designated anatomical study sites	28,352
Squamous Cell histology	24,137
Patients have 12 months of fee-for-service Medicare enrollment and no Medicare managed care prior to and within diagnostic month	12,641
No evidence of second primary post-SCCHN diagnosis	10,935
Diagnosed with stage IVC, or earlier stage SCCHN with evidence of later progression to stage IVC	4,616

Treatment Patterns

- Supportive care treatments evaluated in this study were informed by:
  - NCCN Guidelines[1]
  - NCCN identified therapies as documented in 5% Medicare Standard Analytic Files
- Each supportive care measure within the following categories was identified by the Healthcare Common Procedure Coding System (HCPCS) and National Drug Codes (NDC) in the Medicare claims records
  - Infection
  - Pain Management
  - Symptom Management
  - Nutritional Support
  - Dental care for radiotherapy effects and/or xerostomia management
  - Speech Swallowing Therapy
  - Tracheostomy Care
  - Wound Management
  - Depression Management
  - Social Work
  - Audiology Care
  - Durable Medical Equipment
- All analyses were descriptive

Table 2. Patient Demographic Characteristics

	Total Study Cohort N=4,616		Initial Stage IVC N=402		Progressed to Stage IVC N=4,214	
	N	%	N	%	N	%
Index Year						
2005	702	15.2%	84	20.9%	618	14.7%
2006	943	20.4%	79	19.7%	864	20.5%
2007	986	21.4%	80	19.9%	906	21.5%
2008	988	21.4%	75	18.7%	913	21.7%
2009	997	21.6%	84	20.9%	913	21.7%
Gender						
Male	3,168	68.6%	303	75.4%	2,865	68.0%
Female	1,448	31.4%	99	24.6%	1,349	32.0%
Race						
White	3,808	82.5%	312	77.6%	3,496	83.0%
Black	504	10.9%	26	6.5%	274	6.5%
Other	300	6.5%	64	15.9%	440	10.4%
Unknown	4	0.1%	0	0.0%	4	0.1%
Age (years)						
Under 50	115	2.5%	6	1.5%	109	2.6%
50-59	387	8.4%	38	9.5%	349	8.3%
60-69	1,183	25.6%	111	27.6%	1,072	25.4%
70-79	1,820	39.4%	166	41.3%	1,654	39.3%
80+	1,111	24.1%	81	20.1%	1,030	24.4%
Median Age (years)	72.0		71.5		72.0	
Diagnostic Year Urban/Rural Residence at Index						
Urban County	3,705	80.3%	320	79.6%	3,385	80.3%
Rural County	911	19.7%	82	20.4%	829	19.7%
Long-Term Care Status in Pre-Index Year						
Community/Other	4,021	87.1%	374	93.0%	3,647	86.5%
Community LTC	331	7.2%	12	3.0%	319	7.6%
Nursing Home/ Institutional LTC	264	5.7%	16	4.0%	248	5.9%

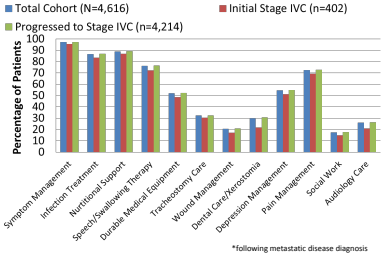
RESULTS

Table 3. Comorbidity Status and Pre-Index Cancer Care

	N=4,616		Initial Stage IVC N=402		Progressed to Stage IVC N=4,214	
	n	%/Mean	n	%/Mean	n	%/Mean
JEN Frailty Index (JFI) Level						
Low Risk	2,200	47.7%	275	68.4%	1,925	45.7%
Medium Risk	1,712	37.1%	107	26.6%	1,605	38.1%
High Risk	704	15.3%	20	5.0%	684	16.2%
Mean JFI score		3.92		2.64		4.04
Charlson Comorbidity Index Score		0.85		0.68		0.86
Select Chronic Diseases in Pre-Index Year						
Diabetes	1,022	22.1%	79	19.7%	943	22.4%
Heart Disease	1,798	39.0%	128	31.8%	1,670	39.6%
Stroke/CVD*	792	17.2%	54	13.4%	738	17.5%
Asthma/COPD‡	1,575	34.1%	119	29.6%	1,456	34.6%
Arthritis	667	14.5%	52	12.9%	615	14.6%
Congestive Heart Failure	599	13.0%	43	10.7%	556	13.2%
Mean Count of Selected Chronic Diseases		1.4		1.19		1.42
Cancer Treatment in the Pre-Index Year						
Systemic Therapy	637	13.8%	1	0.2%	636	15.1%
Radiation Therapy	1,021	22.1%	0	0.0%	1021	24.2%
Surgery	719	15.6%	5	1.2%	714	16.9%

*CVD = Cardiovascular Disease
‡COPD = Chronic Obstructive Pulmonary Disease

Figure 1. Frequency of Supportive Care Utilization*



*following metastatic disease diagnosis

Table 4. Total Cost of Supportive Care according to Diagnosis Status

	Total Study Cohort Mean (SD)	Initial Stage IVC Mean (SD)	Progressed to Stage IVC Mean (SD)
N	4,616	402	4,214
Total Overall Supportive Care Costs	$15,291 ($22,855)	$14,116 ($21,383)	$15,403 ($22,990)
Symptom Management	$4,375 ($10,266)	$4,425 ($9,957)	$4,370 ($10,296
Infection Treatment	$3,725 ($10,819)	$3,065 ($7,599)	$3,788 ($11,076)
Nutritional Support	$3,264 ($8,472)	$3,880 ($8,632)	$3,205 ($8,455)
Speech/Swallowing Therapy	$2,283 ($6,816)	$1,416 ($4,522)	$2,366 ($6,990)
Durable Medical Equipment	$426 ($1,084)	$369 ($952)	$432 ($1,096)
Tracheostomy Care	$319 ($1,572)	$374 ($1,980)	$314 ($1,527)
Wound Management	$286 ($2,648)	$159 ($1,485)	$299 ($2,733)
Dental Care/Xerostomia	$179 ($1,466)	$113 ($798)	$185 ($1,514)
Depression Management	$162 ($834)	$158 ($677)	$162 ($847)
Pain Management	$125 ($598)	$69 ($250)	$130 ($621)
Social Work	$76 ($263)	$54 ($199)	$78 ($269)
Audiology Care	$71 ($574)	$33 ($281)	$75 ($595)

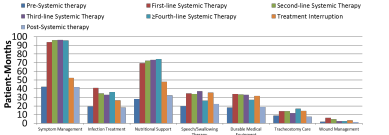
Table 5. Per Patient per Month Cost of Supportive Care according to Treatment Status – Overall Cohort

	Pre-Systemic Therapy	First-line Systemic Therapy	Second-line Systemic Therapy	Third-line Systemic Therapy	≥ Fourth-line Systemic Therapy	Treatment Interruption	Post- Systemic therapy
N	4,087	1,902	486	159	53	345	1,716
Mean Follow-up Months	13.7	2.5	3.0	3.7	5.6	8.2	15.8
PPPM* Total Supportive Care (SD)	$694 ($3,810)	$1,783 ($4,292)	$1,681 ($4,102)	$1,330 ($3,084)	$1,893 ($3,342)	$914 ($3,121)	$624 ($3,182)
Symptom Management	$185 ($1,955)	$647 ($2,727)	$650 ($1,622)	$472 ($1,144)	$787 ($1,598)	$257 ($1,977)	$169 ($1,837)
Infection Treatment	$180 ($2,061)	$324 ($2,185)	$273 ($1,549)	$330 ($2,619)	$536 ($2,721)	$148 ($1,241)	$162 ($1,992)
Nutritional Support	$124 ($1,780)	$528 ($1,792)	$509 ($2,420)	$343 ($913)	$391 ($911)	$223 ($819)	$145 ($891)
Speech/Swallowing Therapy	$120 ($1,257)	$148 ($913)	$142 ($2,133)	$111 ($309)	$100 ($550)	$176 ($1,337)	$85 ($861)
Durable Medical Equipment	$20 ($99)	$43 ($162)	$40 ($144)	$35 ($72)	$39 ($213)	$29 ($69)	$18 ($87)
Tracheostomy Care	$17 ($321)	$28 ($214)	$15 ($79)	$10 ($57)	$10 ($45)	$14 ($126)	$12 ($189)
Wound Management	$16 ($595)	$20 ($441)	$13 ($223)	$0 ($7)	$0 ($0)	$46 ($900)	$7 ($350)
Dental Care/Xerostomia	$10 ($371)	$12 ($222)	$12 ($216)	$1 ($7)	$4 ($65)	$2 ($22)	$6 ($210)
Depression Management	$8 ($186)	$15 ($225)	$13 ($172)	$18 ($254)	$17 ($241)	$3 ($41)	$6 ($125)
Pain Management	$6 ($79)	$8 ($74)	$6 ($61)	$3 ($39)	$5 ($40)	$7 ($50)	$7 ($137)
Social Work	$4 ($40)	$7 ($57)	$4 ($48)	$5 ($48)	$5 ($42)	$4 ($37)	$3 ($36)
Audiology Care	$4 ($119)	$3 ($80)	$3 ($59)	$2 ($17)	$ ($6)	$6 ($68)	$3 ($33)

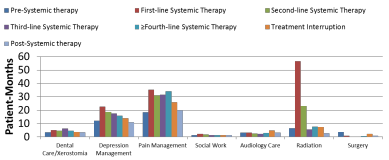
*PPPM = per patient per month

Figure 2. Prevalence of Supportive Care Utilization according to Treatment Status – Overall Cohort

Percent of Patient-Months with Each Supportive Care Category	Pre-Systemic therapy	First-line Systemic Therapy	Second-line Systemic Therapy	Third-line Systemic Therapy	≥Fourth-line Systemic Therapy	Treatment Interruption	Post-Systemic therapy
Total Cohort, Patient-Months	56,032	4,707	1,438	587	298	2,838	27,195
Mean Monthly Supportive Care Count (SD)*	1.77 (1.87)	3.61 (1.86)	3.47 (1.72)	3.45 (1.62)	3.38 (1.60)	2.62 (2.10)	1.81 (1.85)



Percent of Patient-Months with Each Supportive Care Category	Pre-Systemic Therapy	First-line Systemic Therapy	Second-line Systemic Therapy	Third-line Systemic Therapy	≥Fourth-line Systemic Therapy	Treatment Interruption	Post-Systemic therapy
Total Cohort, Patient-Months	56,032	4,707	1,438	587	298	2,838	27,195
Mean Monthly Supportive Care Count (SD)*	1.77 (1.87)	3.61 (1.86)	3.47 (1.72)	3.45 (1.62)	3.38 (1.60)	2.62 (2.10)	1.81 (1.85)



* Supportive care procedures and therapies were aggregated into the 12 categories shown (excluding radiation and surgery). The monthly supportive care count represented the number of such care categories that each patient experienced in a given month

LIMITATIONS

- This analysis was primarily descriptive in nature, evaluating supportive care utilization in patients with mSCCHN. A suggestion for future research is to better understand the key drivers of supportive care use in patients diagnosed with stage IVC versus those who progressed to stage IVC disease.
- Treatment episodes were determined by applying an algorithm to the administrative claims data. It is possible that there is misclassification of supportive care information if there are errors in the algorithm-related methodology.
- The SDs for the cost analyses reveals a high level of variability in the data, due in part to the large number of patient-months with zero supportive care costs.
- The results of this study are most applicable to mSCCHN patients with traditional fee-for-service Medicare and may not be generalizable to patients with other healthcare coverage.

CONCLUSIONS

- To our knowledge, this is the first study detailing supportive care utilization in the real-world setting in US patients with mSCCHN.
- At least 75% of the total cohort received therapies for symptom management, infection, speech and swallowing, or nutritional support. Symptom management was the most frequently received supportive care therapy (97%), whereas social work consultation was the least frequent (17%).
- There was a small numerical increase in frequency of use across supportive care categories for patients who progressed to stage IVC disease relative to those initially diagnosed with stage IVC; this corresponded to an increase in cost across categories with the exception of nutritional support, tracheostomy care, and symptom management.
- A greater proportion of patients on systemic treatment received supportive care across NCCN categories versus patients not receiving systemic treatment.
- The majority of supportive care use dropped during gaps in treatment, perhaps in association with the decrease in systemic therapy side effects or due to other patient considerations.

References

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