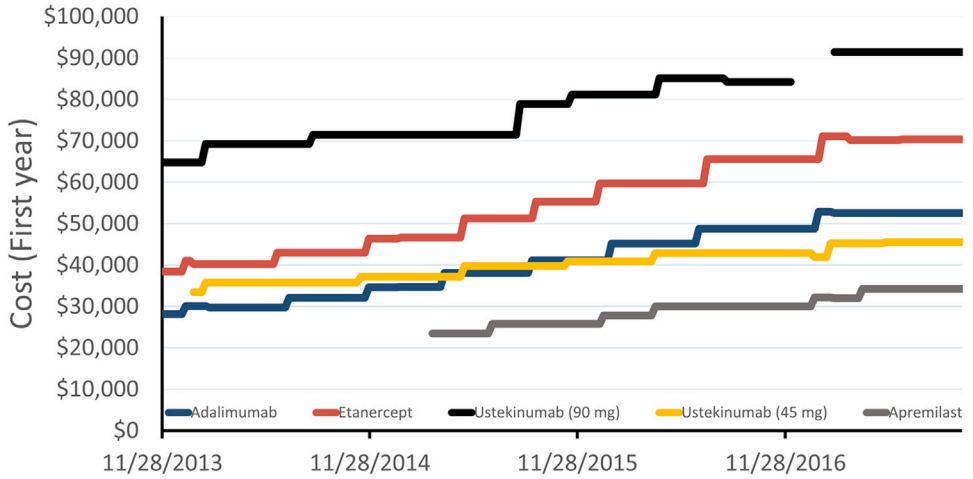

Fig 1. Trends in the costs of the first year of treatment per patient for specialty medications for plaque psoriasis from November 28, 2013, to October 4, 2017.

medications will be necessary to combat this growing problem and deliver cost-conscious and cost-effective care.

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Analysis of national skin cancer expenditures in the United States Medicare population, 2013

To the Editor: Approximately 3 million adults in the United States are treated annually for skin cancer, costing nearly $8.1 billion per year.[1,2] Nonmelanoma skin cancer and malignant melanoma (MM) are the fifth and ninth most costly dermatologic conditions, respectively.[3] The few studies that have evaluated allocation of resources on skin cancer have underestimated total cost, as they included only payments to dermatologists. The goal of this study was to analyze 2013 Medicare skin cancer spending by diagnosis and procedure.

The 2013 Medicare Limited Data Set Standard Analytic File 5% Sample Physician Supplier was queried for all claims filed for *International Classification of Diseases, Ninth Revision, Clinical Modification* codes for MM, squamous cell carcinoma (SCC), basal cell carcinoma (BCC), other malignant neoplasms of the skin, carcinoma in situ of the skin (CIS), actinic keratosis (AK), and neoplasm of uncertain behavior of the skin. All payments

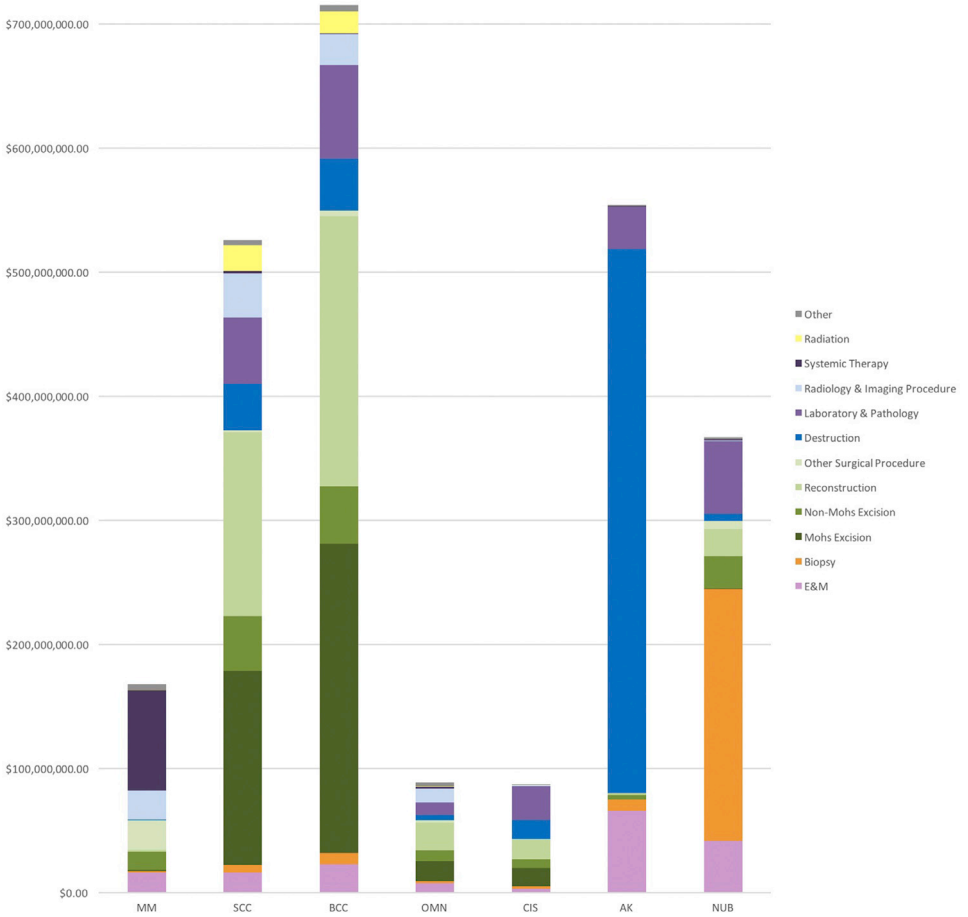

Fig 1. Stacked bar chart illustrating the cost of each treatment category by diagnosis and showing the amount spent on each treatment modality for each diagnosis. *AK*, Actinic keratosis; *BCC*, basal cell carcinoma; *CIS*, carcinoma in situ; *E&M*, evaluation and management; *MM*, malignant melanoma; *NUB*, neoplasm uncertain behavior; *OMN*, other malignant neoplasm; *SCC*, squamous cell carcinoma.

associated with more than 1570 Current Procedural Terminology codes were classified into 9 treatment categories (evaluation and management, biopsy, surgical procedures, destruction, laboratory and pathology, radiology and other imaging procedures, systemic therapy, radiation, and other) and 22 subcategories by diagnosis. Spending on each subcategory was summed to calculate total and mean spending per person per diagnosis. All analyses were performed with SAS software (version 9.4, SAS Institute Inc, Cary, NC). The Partners Human Research Committee exempted this study.

A total of $2.5 billion was spent on skin cancer–related diagnoses in Medicare patients in 2013. Half (49%) of this spending was on BCC ($715 million) and SCC ($525 million), which are highly prevalent cancers. Total spending on AK ($554 million) narrowly exceeded that on SCC, with 76% of AK resources allocated to destruction (Fig 1). MM was the costliest diagnosis per person per year ($1241), followed by BCC ($689) and SCC ($649). The percentages of total spending on skin cancer per diagnosis were as follows BCC, 29%; AK, 22%; SCC, 21%; neoplasm of uncertain behavior of the skin, 15%; MM, 7%; CIS, 3.5%; and other, 3.5%. Mohs micrographic surgical excision accounted for 17.5% of spending ($438 million). Approximately half of spending on MM (48%) was for systemic therapy. Forty percent of spending on MM ($74 million) was allocated to ipilimumab for 920 patients (0.6% of patients with melanoma) at a cost of $80 thousand per patient treated (Table I).

In conclusion, of the $2.5 billion spent on skin cancer–related diagnoses, the majority (72%) was divided approximately equally between treatment of BCC, SCC, and AK. Because the costs of topical prescription drugs such as 5-fluorouracil were not included in this analysis, the costs of treatment of AKs, CIS, and superficial BCCs are underestimated. The largest fraction (40%) of money spent on MM is

Table I. Detailed spending analysis by diagnosis

Indicator	MM		SCC		BCC		OMN		CIS		AK		NUB	
	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient	Total cost* (%)	Annualized cost per patient
Total	$183,613 (7)	$1241	$525,826 (21)	$649	$715,427 (29)	$689	$88,595 (3.5)	$356	$87,256 (3.5)	$242	$554,152 (22)	$139	$366,882 (15)	$152
E/M	$16,324 (9)	$177	$16,196 (3)	$73	$22,713 (3)	$68	$7290 (8)	$79	$3007 (3)	$58	$66,012 (12)	$61	$41,368 (11)	$58
Biopsy	$691 (0.7)	$69	$6019 (1)	$76	$9206 (1)	$74	$1514 (2)	$81	$1963 (2)	$72	$8908 (1)	$87	$203,486 (55)	$105
Surgical procedures														
Excision	$14,743 (8)	$272	$44,308 (8)	$188	$46,205 (6)	$180	$8641 (10)	$199	$6856 (8)	$170	$3545 (1)	$134	$5,646 (7)	$111
Mohs micrographic surgery	$1301 (5)	$556	$156,422 (30)	$770	$249,072 (35)	$804	$16,311 (18)	$842	$14,689 (17)	$723	$88 (0)	$487	$357 (0.1)	$458
Primary repairs	$9734 (6)	$260	$68,469 (13)	$261	$80,338 (11)	$249	$6959 (8)	$237	$9125 (10)	$249	$692 (0.1)	$177	$16,083 (4)	$251
Flaps and grafts	$11,615 (6)	$771	$79,489 (15)	$836	$137,663 (19)	$817	$15,396 (17)	$761	$6960 (8)	$786	$883 (0.2)	$649	$5811 (2)	$761
LN procedure	$3303 (2.2)	$273	$348 (0.1)	$129	$7 (0)	$177	$144 (0.2)	$241	$12 (0)	$195	—	—	$24 (0)	$200
Other	$672 (0.4)	$517	$1529 (0.3)	$622	$4569 (1)	$567	$1830 (2)	$520	$214 (0.3)	$357	$157 (0)	$157	$6607 (2)	$171
Destruction	$286 (0.2)	$114	$37,514 (7)	$166	$41,643 (6)	$155	$4221 (5)	$164	$15,491 (18)	$153	$422,363 (76)	$115	$5785 (2)	$83
PDT	—	—	$37 (0)	$122	$28 (0)	$140	$3 (0)	$135	$18 (0.2)	$150	$16,412 (3)	$211	$16 (0)	$112
Laboratory and pathology	$15,520 (8)	$174	$53,187 (7)	$100	$75,497 (11)	$98	$10,339 (11)	$117	$27,205 (31)	$96	$34,001 (6)	$81	$58,991 (16)	$88
Radiology and imaging procedures	$23,357 (13)	$565	$35,334 (7)	$1959	$25,304 (4)	$1685	$11,033 (12)	$945	$1205 (1)	$941	$25 (0)	$61	$539 (0.2)	$69
Systemic therapy														
Ipilimumab	$73,781 (40)	$80,196	—	—	—	—	$697 (1)	$34,861	—	—	—	—	—	—
Interferon	$1271 (1)	$9077	—	—	$5 (0)	$236	—	—	—	—	—	—	—	—
Chemotherapy	$2994 (2)	$1610	$226 (0)	$195	$51 (0.1)	$213	$111 (0.1)	$463	—	—	—	—	$28 (0)	$172
Monoclonal Ab	$1518 (1)	$15,178	—	—	$267 (0.4)	$6687	—	—	—	—	—	—	$571 (0.2)	$14,272
Immunotherapy	$372 (0.2)	$18,575	—	—	—	—	—	—	—	—	—	—	—	—
EGFR	$148 (0.1)	$7417	$1630	$9056	—	—	$362 (0.4)	$6039	—	—	—	—	—	—
Other	$688 (0.4)	$383	$141 (0)	$76	$36 (0)	$17	$131 (0.1)	$122	$6 (0)	$50	$28 (0)	$10	$60 (0)	$12
Radiation	$34 (0.2)	$840	$20,926 (4)	$19,023	$17,687 (2)	$14,264	$558 (1)	$13,949	$1205 (1)	$941	—	—	—	—
Other	$5206 (3)	$118	$4001 (1)	$143	$4981 (1)	$138	$3048 (4)	$131	$317 (0.4)	$151	$1038 (0.1)	$126	$1091 (0.3)	$45

Ab, Antibody; *AK*, actinic keratosis; *BCC*, basal cell carcinoma; *CIS*, carcinoma in situ; *EGFR*, epidermal growth factor receptor; *E/M*, evaluation and management; *ICD*, International Classification of Disease; *LN*, lymph node; *MM*, malignant melanoma; *NUB*, neoplasm uncertain behavior; *OMN*, other malignant neoplasm; *PDT*, photodynamic therapy; *SCC*, squamous cell carcinoma.
*Total costs reported in thousands of dollars.

spent on a small number of patients (<1%) who require expensive systemic therapy. A limitation of this study is that claims data rely on the accuracy of coding by physicians. Medicare data include information only on individuals age 65 year and older; therefore, additional studies that include patients of all ages are needed to generate a comprehensive analysis of skin cancer spending.

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Survey analysis on the management of moderately dysplastic nevi among academic dermatologists across the United States

To the Editor: Currently there are no clinical guidelines for the management of moderately dysplastic nevi (DN), and the decision to observe, rebiopsy, or excise remains up to the discretion of the dermatologist. Many dermatopathologists do not embrace the grading system of mild, moderate, or severe dysplasia but simply comment on the presence of architectural or cytologic atypia. In the literature to date, there is significant variation and lack of consensus on the management of moderate DN,[1-3] the histologic criteria, and the use of the term moderate DN. In fact, low interobserver reproducibility in the classification of dysplastic nevi between dermatopathologists viewing the same lesion, demonstrated by low kappa values in both experienced and less experienced dermatopathologists, has been demonstrated previously.[4] The purpose of this study was to better understand the management of biopsy-proven moderate DN among academic dermatologists, given their critical role in influencing the future practice guidelines of dermatology.

After University of South Florida Institutional Review Board approval was obtained, an anonymous survey of 12 multiple-choice questions was e-mailed to the 385 members of the Association of Professors of Dermatology. Respondents were asked to indicate how they would manage biopsy-proven moderate DN in 9 different situations, selecting from 5 different management options (Tables I and II).

A total of 131 (34%) members (52 programs) of the Association of Professors of Dermatology listserv completed the survey, with 12 respondents indicating that their institution did not use the term moderate DN. We found notable variability in the management of biopsy-proven moderate DN among academic dermatologists (Tables I and II). The only scenario with high concordance was in the management of moderately DN with clear biopsy margins and without visible pigment, with 93% (124) of respondents choosing clinical monitoring. However, 5% of respondents still chose surgical excision with 2–3-mm margins, highlighting the lack of consensus.

Our results show varied management depending on biopsy margin and residual pigment status; however, certain trends can be recognized. In all scenarios with a positive biopsy margin, the majority of respondents chose a second procedure over clinical monitoring (Table II), irrespective of pigment at the biopsy site. Both repeat biopsy and excision at various margins are done with the intent to obtain a histologically clear margin; however, each subcategorization of these procedures can be used to reflect the comfort level of practitioners with moderate DN.

The absence of visible pigment in a positive biopsy margin (lateral, deep, deep and lateral) markedly increased the percentage of respondents who chose clinical monitoring (45%, 40%, 37%, respectively). Surgical excision (2–3-mm margin)