Table II. Demographics, initial length of stay, and 60-day readmission for study groups

Category	2016, Control period	2017, Order set available for use and not used	2017, Order set used*
n	42	9	23
Mean age, y	66.0	67.6	66.6
Sex, male, n (%)	19 (45.2)	6 (66.7)	12 (52.2)
Race, white, n (%)	19 (45.2)	6 (66.7)	17 (73.9)
Initial admission length of stay in hours, mean; median	125; 85	178; 149	156; 113
Readmission within 60 days, n = readmission/discharges, (%)†	17/74 (20.27)	3/16 (18.75)	1/24 (4.17)
Admissions without major comorbidities, n (%, actual over expected cost ± SD)‡	23 (14.73 ± 61.20)	3 (−32.46 ± 8.33)	7 (−14.28 ± 40.53)

SD, Standard deviation.
*Includes 4 redundant patients due to 2017 readmission from 2016.
†$P = .039$ in 1-tailed testing using multivariable logistic regression model after adjustment for age 60 y attained, sex, and race (white, nonwhite). Excludes 1 outlier patient first admitted in 2016 with 17 readmissions.
‡Expected cost was <$6500.00 on the basis of 2016 average reimbursement for diagnosis-related group 299 (peripheral vascular disorders).

This study is limited by implementation at a single tertiary center. However, improved value with use of our order set despite low usage of dermatologic and vascular medicine consultations suggests effectiveness even in hospitals lacking dermatologic and vascular medicine consultants. Given the slight decrease in readmissions in 2017 in our control group, institutional initiatives to limit readmission for comorbidities might also confound our results. Materials for the order set and tools developed for this study are freely available at doi: 10.17632/hzx22yb7n2.1.

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Sunburn prevalence among US adults, National Health Interview Survey 2005, 2010, and 2015

To the Editor: Sunburn is a biologic indicator of acute overexposure to ultraviolet (UV) radiation, and sunburn at any age is associated with an increased risk for melanoma.[1] Tracking changes in the national prevalence of sunburn over time can provide insight to our nation's progress toward increasing adequate

Table I. Estimated percentages (unadjusted) of US adults experiencing ≥1 sunburns in the past 12 months, National Health Interview Survey 2005, 2010, 2015

	2005		2010		2015	
Category	**Sample size**	**% (95% CI)**	**Sample size**	**% (95% CI)**	**Sample size**	**% (95% CI)**
Total	29,250	34.2 (33.5-34.9)	25,159	37.1 (36.3-37.9)	31,399	34.1 (33.2-35.1)
Sex						
Male	12,762	36.2 (35.1-37.2)	11,090	38.6 (37.5-39.7)	14,056	34.8 (33.5-36.0)
Female	16,488	32.4 (31.6-33.3)	14,069	35.7 (34.7-36.7)	17,343	33.5 (32.4-34.6)
Age group, years						
18-29	5434	45.6 (43.9-47.2)	4949	50.1 (48.2-51.9)	5331	47.2 (45.0-49.4)
30-39	5543	43.6 (42.0-45.3)	4557	45.8 (44.0-47.5)	5229	44.2 (42.4-46.0)
40-49	5715	40.2 (38.6-41.8)	4455	42.7 (41.0-44.5)	4866	38.5 (36.6-40.4)
50-59	4983	28.6 (27.1-30.1)	4249	33.7 (31.9-35.5)	5447	31.7 (30.0-3.5)
60-69	3421	19.4 (17.9-20.9)	3431	22.1 (20.6-23.8)	5143	22.5 (20.7-24.4)
≥70	4154	9.2 (8.2-10.3)	3518	11.5 (10.2-12.9)	5383	10.0 (8.8-11.2)
Race/ethnicity						
Non-Hispanic white	19,059	41.2 (40.3-42.1)	14,490	44.8 (43.9-45.7)	19,784	42.4 (41.2-43.7)
Non-Hispanic black	3986	8.2 (7.2-9.3)	4093	11.0 (9.8-12.3)	4157	9.7 (8.6-10.9)
Hispanic	5106	22.4 (21.0-23.8)	4779	27.0 (25.4-28.7)	5208	24.5 (22.8-26.2)
Other non-Hispanic races*	1029	19.5 (16.5-22.9)	1710	21.1 (18.8-23.6)	2074	18.2 (16.1-20.5)
US region						
Northeast	4921	34.3 (32.8-35.8)	3982	36.5 (34.8-38.2)	5175	33.0 (31.2-35.0)
Midwest	6868	42.6 (41.1-44.1)	5543	43.6 (42.0-45.2)	6633	41.0 (38.7-43.4)
South	10,828	27.7 (26.5-29.0)	9240	32.7 (31.3-34.1)	10,731	29.8 (28.3-31.4)
West	6633	35.4 (34.0-36.9)	6394	37.7 (36.0-39.5)	8860	35.1 (33.3-36.9)

CI, Confidence interval.
*Includes non-Hispanic respondents who were American Indian, Alaska Native, Asian, or multiple races.

use of sun protection and reducing skin cancer risk at a population level.[2] We examined changes over time in sunburn among US adults during 2005-2015.

We analyzed data from the 2005, 2010, and 2015 National Health Interview Survey, a cross-sectional, nationally representative sample of the US civilian population aged ≥18 years (https://www.cdc.gov/nchs/nhis/). Respondents were asked to report the number of sunburns they experienced during the preceding 12 months. We estimated the percentage of adults who experienced ≥1 sunburn each year and the mean number of sunburns among those who were sunburned overall and by sex, age group, race/ethnicity, and US region. We assessed differences in sunburn between survey years by using logistic regressions to calculate adjusted prevalence ratios overall and for each demographic subgroup. Annual unconditional response rates were 55.2%-69.0%, and sample sizes were 27,157-33,672 persons. We used SAS-callable SUDAAN version 11.0 (Research Triangle Institute, Research Triangle Park, NC) for the analyses to account for the complex sampling design and for nonresponse.

Each year, more than one third of adults experienced sunburn (Table I). The mean number of sunburns (among those reporting sunburn) ranged from 2.37 (95% confidence interval [CI] 2.25-2.48) in 2010 to 2.62 (95% CI 2.39-2.84) in 2015. A higher percentage of non-Hispanic white adults experienced sunburn compared with other racial/ethnic groups ($P < .001$), and the percentage of adults experiencing sunburn tended to decrease with increasing age ($P < .001$). Among all adults, sunburn increased significantly during 2005-2010 (adjusted prevalence ratio [APR] 1.13, 95% CI 1.09-1.17) and during 2005-2015 (APR 1.09, 95% CI 1.05-1.14). Sunburn did not change significantly during 2010-2015. Similar patterns occurred across most demographic subgroups. However, during 2005-2015, sunburn increased significantly only among females, 50—59-year-olds, 60—69-year-olds, non-Hispanic whites, and those living in the South (Fig 1). There were no significant changes in the mean number of sunburns over time.

Study limitations include reliance on self-reported information, which is subject to error, and generalizability to only the noninstitutionalized, civilian adult population. The large sample size warrants caution when interpreting statistically significant results with small absolute differences between years.

Overall, we found little change in sunburn prevalence during 2005-2015. Although sunburn is most prevalent among non-Hispanic white adults,

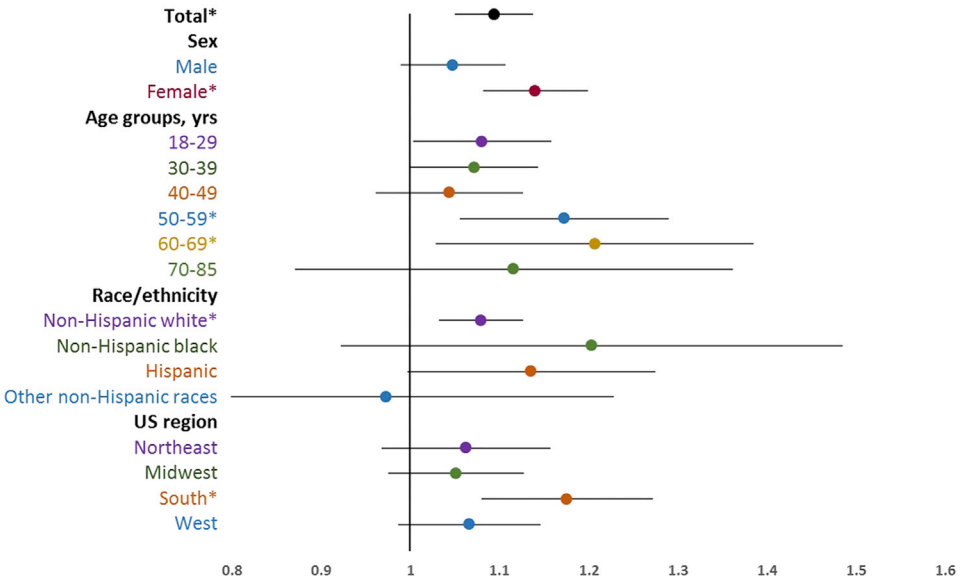

Fig 1. APRs for ≥1 sunburns among US adults in 2015 versus 2005 overall and by sex, age, race/ethnicity, and US region. APRs were adjusted for demographic characteristics by using logistic regression models with predicted marginal probabilities. The APRs for total were adjusted for sex, age groups, race/ethnicity, and US region in the model. The APRs for male and female were adjusted for age groups, race/ethnicity, and US region in the model. The APRs for the 5 age groups were adjusted for sex, race/ethnicity, and US region in the model. The APRs for the racial/ethnic groups were adjusted for sex, age groups, and US region in the model. The APRs for the US regions were adjusted for sex, age groups, and race/ethnicity. The category other non-Hispanic races included non-Hispanic respondents who were American Indian, Alaska Native, Asian, or multiple races. *APR*, Adjusted prevalence ratio. *APR is statistically significant ($P < .01$).

heterogeneity in skin type exists within racial and ethnic groups, and these data indicate that all demographic groups experience preventable overexposure to UV radiation. Without future decreases in sunburn, skin cancer rates will likely continue to increase in the decades to come.[3] Evidence-based interventions to reduce UV exposure and increase sun protection are available.[2,4,5] However, more efforts are needed to help communities adapt and adopt these strategies and programs to meet their unique needs and maximize the likelihood of sustainability over time.

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Melanoma subsequent to natalizumab exposure: A report from the RADAR (Research on Adverse Drug events And Reports) program

To the Editor: Although natalizumab is approved for treating multiple sclerosis,[1] reports have raised concern about malignant melanoma (MM) after natalizumab exposure.[2,3] The aim of this study was to determine if an association was detectable for MM after natalizumab exposure in patients with multiple sclerosis.

Using RADAR methodology,[4] we searched the following databases: FDA Adverse Event Reporting System (FAERS), EudraVigilance (European Medicines Agency), and the Northwestern Medicine Enterprise Data Warehouse (NMEDW).

The FAERS search (January 2004-June 2014) comprised terms related to MM combined with natalizumab. The proportional reporting ratio (PRR) was then calculated to determine if a safety signal (defined as >3 events, chi-squared result >4, and PRR >2) was detectable.[5] We extracted data (January 2004-December 2015) from the NMEDW, a large, urban, Midwestern US population (>4 million patients, including a National Cancer Institute–designated comprehensive cancer center) for multiple sclerosis patients exposed to natalizumab who had a diagnosis for MM >3 months after initial exposure (International Classification of Diseases 9th Revision [172.0-172.9]; International Classification of Diseases 10th Revision [C43.0-C43.9]). The EudraVigilance database was searched (December 2001-November 2016) for terms related to MM combined with natalizumab.

A signal was detected in the FAERS database (PRR 2.42, 95% confidence interval 2.10-2.8) from 205 reports of MM subsequent to natalizumab exposure. In the NMEDW, of 5097 multiple sclerosis patients, 192 were exposed to natalizumab with 3 (1.6%) subsequently receiving a MM diagnosis (a significant association, Fisher's exact test, $P < .0001$). The EudraVigilance database comprised 78 reports of MM after natalizumab exposure.

These findings substantiate a recent study that linked natalizumab exposure to MM through FAERS analysis.[2] Natalizumab-exposed patients had a younger median age at MM diagnosis compared with the general (non–natalizumab-exposed) US population.[2] Mechanisms underlying the association for MM with natalizumab are incompletely understood; however, it seems that the drug's inhibitory effects on α_4-integrins might relate to MM evolution because melanoma cells expressing $\alpha_4\beta_1$ have increased homotypic intercellular adhesion and decreased ability to invade the extracellular matrix.[3] Inhibition of integrins with natalizumab might increase invasive potential. Of importance, these findings suggest that MM occurrence after natalizumab exposure might be biologically dissimilar to MM de novo.

Limitations include possible reporting bias within FAERS and possible redundancy in the EudraVigilance and FAERS databases. Moreover, signals detected from reporting in FAERS constitute reporting ratios and cannot be interpreted as incidence rates or risk ratios.[5] Furthermore, NMEDW database's small sample prevented additional analyses for potential confounding factors. Because determination of PRR requires the total number of adverse events reported for the drug of interest, number of adverse events of interest for the drug of interest, total number of all other adverse events, and the total number of all other drugs,[5] PRR could not be calculated with EudraVigilance data.

These findings demonstrate a detectable safety signal within FAERS and a statistically significant association for MM after natalizumab exposure in NMEDW; the EudraVigilance data was not inconsistent with these findings, with 78 reports being found. Of note, the full prescribing information for natalizumab does not refer to melanoma,[1] but enhanced monitoring of exposed patients seems warranted, especially for those at high risk for melanoma.

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