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# **Use of Indoor Tanning Diagnosis Codes in Claims Data**



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The International Classification of Diseases: 10th Revision (effective from October 2015) included indoor tanning diagnosis codes for the first time. The majority of data on indoor tanning is self-reported. We used a large claims dataset to investigate the patients and settings in which indoor tanning International Classification of Diseases: 10th Revision codes are being used. We included encounters with the International Classification of Diseases: 10th Revision indoor tanning codes in Truven Health MarketScan data 2016—2018, which contain deidentified commercial insurance claims data for approximately 43 million patients. We used descriptive statistics to evaluate patient and encounter characteristics and normalized results using outpatient dermatology encounters. A total of 4,550 encounters were identified, 99.0% of which were outpatient, and 72.3% were with dermatology. Patients were majority female (85.0%) with ages ranging from 7 to 93. The Midwest region had the most indoor tanning encounters. Destruction of a premalignant lesion was performed in 15.1%, and biopsies were performed in 18.4% of encounters, suggesting that encounters may have been for skin cancer surveillance. Increased usage of indoor tanning International Classification of Diseases: 10th Revision codes in the coming years may strengthen the indoor tanning literature. Claims data are a potential tool to better understand patients who have a history of exposure to indoor tanning and their associated risk factors, comorbidities, behaviors, and healthcare utilization.

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#### **INTRODUCTION**

There is significant evidence supporting the association of indoor tanning with melanoma and keratinocyte carcinomas, and the rates of these malignancies continue to rise in the United States (Colantonio et al., 2014; Wehner et al., 2012). Efforts to reduce indoor tanning require knowledge of the population at risk. The ability to recognize and provide counseling to at-risk patients has been shown to improve sunprotective behaviors and reduce indoor tanning (Henrikson et al., 2018; Lin et al., 2011). Whereas the majority of indoor tanning data are self-reported, insurance claims databases provide information on patient encounters, and the International Classification of Diseases: 10th Revision (ICD-10) (effective from October 2015) included diagnosis codes for indoor tanning exposure for the first time. To our knowledge, no previous studies have examined indoor tanning

ICD-10 codes. In this study, we use a large claims database to evaluate the patients and settings in which ICD-10 codes are being used.

#### **RESULTS**

From 2016-2018, a total of 4,550 patient encounters with indoor tanning claims were recorded in 4,101 patients (3,755 [91.6%] patients with a single encounter with an indoor tanning ICD-10 code, 346 [8.4%] with more than one encounter). Provider information (National Provider Identifier number) was available in 2,707 encounters (59.5%). In these 2,707 encounters, there were 1,118 unique providers (mean of 2.4 encounters with indoor tanning claims per unique provider). Patient demographics and encounter characteristics are shown in Table 1. The most common provider specialty was dermatology (72.3% of encounters; 86.0% of encounters with a known specialty), and 99.0% of encounters were outpatient. There were 29 encounters with indoor tanning claims per 100,000 dermatology encounters. The majority of patients were female (85.0%). Ages ranged from 7 to 93 years, with the majority of encounters in patients aged 18-54 years, relative to the number of dermatology visits in these age groups. Encounters with indoor tanning ICD-10 codes were most common in the spring and least common in the fall (in absolute numbers and relative to dermatology encounters). The Midwest region had the highest number of indoor tanning encounters per 100,000 dermatology encounters, nearly double that of the next highest region. Table 2 shows other ICD-10 codes and procedural Current Procedural Terminology (CPT) codes recorded in at least 10% of encounters with the indoor tanning ICD-10 codes. Other ICD-10 codes were all dermatology

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Abbreviations: CPT, Current Procedural Terminology; ICD-10, International Classification of Diseases: 10th Revision

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related (e.g., melanin hyperpigmentation, actinic keratosis). CPT codes were also all dermatology related. Notably, destruction of at least one premalignant lesion (CPTs 17000 or 17004) was performed in 689 encounters (15.1%), and at least one biopsy (CPTs 11100) was performed in 817 encounters (18.0%).

#### **DISCUSSION**

In this study, we report that encounters with indoor tanning ICD-10 codes are uncommon, relative to how common indoor tanning exposure is in the population (Wehner et al., 2014), and occur primarily in outpatient dermatology. Patient demographics were in line with the known demographics of individuals who indoor tan and who tend to be younger females. However, encounters occurred across the age spectrum. The Midwest had nearly double the number of relative encounters, compared with those in other regions. Whether dermatologists in the Midwest are more likely to use these codes or whether patients in the Midwest are more likely to indoor tan is unknown. In addition, a substantial number of encounters with indoor tanning ICD-10 codes included premalignant lesion destruction or skin biopsy. This suggests that many of these encounters may have been for skin cancer surveillance and that indoor tanning exposure may have been coded as part of a patient's skin cancer risk profile.

This study provides insight into how and when indoor tanning ICD-10 codes are being used. The prevalence of indoor tanning ever exposure has previously been found to be 35.7% in adults, 55.0% in university students, and 19.3% in adolescents (Wehner et al., 2014). Given that this study observed 29 encounters with indoor tanning claims per 100,000 dermatology encounters (0.029% of dermatology encounters), we suspect significant underutilization of these codes. Because indoor tanning ICD-10 codes were only recently universally implemented in 2015 and because providers may be using other codes that cover similar services, it is likely that our data underestimate the number of encounters and sequelae associated with indoor tanning. We hope that this study increases the awareness and encourages the adoption of these codes among providers. The use of indoor tanning exposure codes could have several potential positive impacts on indoor tanning research, patient care, and outcomes. Increased documentation of indoor tanning exposure would allow researchers to identify patients with this skin cancer risk factor and investigate other risk factors, patterns of care, and outcomes associated with indoor tanning. Furthermore, increased documentation of indoor tanning exposure in electronic health records could better equip clinicians to identify patients' associated risk factors and to provide counseling and/or preventative services for their patients, potentially improving outcomes.

Insurance claims data can provide patient and encounter information across provider settings and can help identify healthcare utilization patterns. Future research could consider claims databases as a valuable tool to better understand patients who have been exposed to indoor tanning and their associated risk factors, comorbidities, behaviors, and healthcare utilization.

Table 1. Characteristics of 4,550 Indoor Tanning ICD-10 Encounters

Encounter Characteristics	Number (%)	Per 100,000 Dermatology Encounters
Indoor tanning ICD-10 used		
Initial encounter (W89.1XXA)	3,846 (84.5)	NA
Subsequent encounter (W89.1XXD)	189 (4.2)	NA
Sequela (W891.XXS)	516 (11.3)	NA
Setting of encounter		
Outpatient	4,503 (99.0)	NA
Emergency room	12 (0.3)	NA
Urgent care	10 (0.2)	NA
Other	25 (0.5)	NA
Provider specialty at encounter		
Dermatology	3,293 (72.3)	NA
Internal medicine	63 (1.4)	NA
Emergency medicine	9 (0.2)	NA
Family medicine	135 (3.0)	NA
Pediatrics	58 (1.3)	NA
Other	273 (6.0)	NA
Unknown	719 (15.8)	NA
Patient sex	, ,	
Female	3,867 (85.0)	42
Male	683 (15.0)	10
Patient age (y)		
<18	72 (1.6)	4
18-24	532 (11.7)	40
25-34	884 (19.4)	56
35-44	938 (20.6)	47
45-54	1,033 (22.7)	37
55-64	868 (19.1)	22
65+	223 (4.9)	11
Year of encounter	223 (4.3)	
2016	1,418 (31.2)	25
2017	1,428 (31.4)	28
2018	1,704 (37.5)	34
Season of encounter	1,704 (37.3)	34
Spring (March—May)	1,304 (28.7)	32
	1,304 (28.7)	27
Summer (June—August)	1,113 (24.3)	26
Fall (September–November)		
Winter (December—February)	1,088 (23.9)	29
Geography of encounter	1 002 (41 ()	20
South	1,892 (41.6)	28
Midwest	1,560 (34.3)	55
Northeast	610 (13.4)	16
West	472 (10.4)	21
Other/unknown	16 (0.4)	42

Abbreviations: ICD-10, International Classification of Diseases: 10th Revision; NA, not applicable.

## **MATERIALS AND METHODS**

We utilized Truven Health MarketScan data (2016–2018) (IBM, Armonk, NY), which include deidentified commercial insurance claims data for approximately 43 million patients. We included patient encounters with ICD-10 indoor tanning codes W89.1, W89.1XXA, W89.1XXD, and W89.1XXS. These codes are included in the ICD-10 Clinical Modification chapter on external causes of morbidity and represent *exposure* to a tanning bed (W89.1), with seventh digit specifiers indicating *initial* 

## Table 2. ICD and CPT Codes Present in at least 10% of Encounters

## **ICD Codes**

64 L56.8 Other specified acute skin changes due to UVR 64 D23.72 Other benign neoplasms of the skin of the left lower limb, including the hip 62 L90.5 Scar conditions and fibrosis of the skin 62 D22.62 Melanocytic nevi of the left upper limb, including the shoulder 60 L72.0 Epidermal cyst 59 L71.8 Other rosacea 59 178.1 Nevus, non-neoplastic 56 L21.8 Other seborrheic dermatitis 56 L21.8 Other seborrheic dermatitis 56 L40.0 Psoriasis vulgaris 57 D22.4 Melanocytic nevi of scalp and neck 58 X32.XXXD Exposure to sunlight, subsequent encounter 59 B36.0 Pityriasis versicolor 60 R56.8 L85.3 Xerosis cutis	Count	ICD-10 Code	Code Description
855         L57.0         Actinic keratosis           808         D48.5         Neoplasmo uncertain behavior of skin           743         L57.8         Other skin changes due to chronic exposure to nonionizing radiation           689         L82.1         Other skin changes due to chronic exposure to nonionizing radiation           526         D22.9         Melanocytic newl, unspecified           367         L70.0         Acne vulgaris           269         D18.01         Hernangioma of skin and subcutaneous tissue           250         Z12.83         Facounter for screening for malignant neoplasm of skin           148         Z80.8         Family history of malignant neoplasm of other organs or systems           148         L82.0         Inflamed seborrheic levatosis           127         D23.9         Other benign neoplasm of the skin, unspecified           128         L82.0         Inflamed seborrheic levatosis           127         D49.2         Neoplasm of unspecified behavior benegans of skin of skin other specified pelaveric levatosis           128         L82.2         Personal history of diseases of the skin and subcutaneous tissue           129         Z87.2         Personal history of diseases of the skin of the truth           120         L82.2         Personal history of diseases of the skin of the truth	931	L81.4	Other melanin hyperpigmentation
808         D48.5         Neoplasm of uncertain behavior of skin           743         L57.8         Other skin changes due to chronic exposure to nonionizing radiation           669         L82.1         Other skon changes due to chronic exposure to nonionizing radiation           520         A32.XXXA         Exposure to sunlight, initial encounter           526         D22.9         Melanocytic nevi, unspecified           387         L70.0         Acne valigaris           269         D18.01         Hernangioma of skin and subcutaneous tissue           148         Z80.8         Family history of malignant neoplasm of skin           148         182.0         Inflamed seborrheic keratosis           148         182.0         Inflamed seborrheic keratosis           149         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           157         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           128         D49.2         Neoplasm of unspecified	860	D22.5	Melanocytic nevi of trunk
743         L57.8         Other skin changes due to chronic exposure to nonionizing radiation           689         L82.1         Other seborrheic kerpotatios           520         X32.XXXX         Exposure to sunlight, initial encounter           526         D22.9         Melanocytic nevi, unspecified           387         L70.0         Acre vulgaris           269         D18.01         Hemangioma of skin and subcutaneous tissue           250         212.83         Encounter for screening for malignant neoplasm of skin           148         Z80.8         Family history of malignant neoplasm of skin, unspecified           148         L82.0         Inflamed seborrheic keratosis           148         L82.0         Other benign neoplasms of the skin, unspecified           149         L82.9         Other benign neoplasms of the skin, unspecified           140         L87.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           157         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           158         L87.2         Personal history of diseases of the skin of the runk           159         Z87.2         Personal history of diseases of the skin of the runk           160         L83.0         Demantia, precipied           171	855	L57.0	Actinic keratosis
689         LB2.1         Other seborrheic keratosis           530         X32,XXXA         Exposure to sunlight, initial encounter           526         D22.9         Melanocytic mist, unspecified           387         L70.0         Acre vulgaris           269         D18.01         Hemangioma of skin and subcutaneous tissue           250         212.83         Encounter for screening for malignant neoplasm of skin           148         Z80.8         Family history of malignant neoplasm of other organs or systems           148         L82.0         Inflamed seborrheic keratosis           127         D43.9         Other benign neoplasms of the skin, unspecified           128         D45.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           128         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           93         Z85.828         Personal history of other malignant neoplasms of the skin           86         L30.9         Dermatitis, unspecified           87         D23.5         Other benign neoplasms of the skin of the trunk           88         D42.7         Melanocytic nevi of the right lower limb, including the hip           89 <td>808</td> <td>D48.5</td> <td>Neoplasm of uncertain behavior of skin</td>	808	D48.5	Neoplasm of uncertain behavior of skin
530         X32,XXXA         Exposure to sunlight, initial encounter           526         D22.9         Melanocytic newi, unspecified           347         L70.0         Acne vulgaris           269         D18.01         Hemangioma of skin and subcutaneous tissue           250         271.283         Encounter for screening for malignant neoplasm of skin           148         Z80.8         Family history of malignant neoplasms of skin           148         Use of the skin of the skin unspecified           148         Use of the skin of the skin unspecified           148         Use of the skin of the skin unspecified           148         Use of the skin of the skin unspecified           149         D3.9         Other benign neoplasms of the skin, unspecified           147         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           157         Z87.2         Personal history of otherabor of bone, soft tissue, and skin           161         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           17         Z87.2         Personal history of divenages of the skin of the trunk           18         D3.5         Other benign neoplasms of the skin of the trunk           18         L57.9         Melanocytic nevi of the right lower limb, including	743	L57.8	Other skin changes due to chronic exposure to nonionizing radiation
526         D22.9         Melanocytic nevi, unspecified           367         170.0         Acne vulgaris           269         D18.01         Hemangioma of skin and subcutaneous tissue           250         272.83         Encounter for screening for malignant neoplasm of skin           148         880.8         Family history of malignant neoplasm of skin           148         182.0         Inflamed seborrheic keratosis           148         182.0         Other benign neoplasms of the skin, unspecified           147         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           157         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           17         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           17         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           18         D57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         287.2         Personal history of diseases of the skin and subcutaneous tissue           98         285.82         Personal history of diseases of the skin of the trunk           86         13.0.9         Demantits, unspecified           87         D23.5         Other benign neoplasms of the skin	689	L82.1	Other seborrheic keratosis
387         170.0         Acne vulgaris           269         D18.01         Hemangioma of skin and subuctaneous tissue           250         271.283         Encounter for screening for malignant neoplasm of skin           148         280.8         Family history of malignant neoplasm of other organs or systems           148         182.0         Other benign neoplasm of the skin, unspecified           149         203.9         Other benign neoplasm of the skin, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         157.9         Skin changes due to chronic exposure to noinoizing radiation, unspecified           97         287.2         Personal history of other skin and subcutaneous tissue           98         285.828         Personal history of other which seed skin and subcutaneous tissue           87         287.2         Personal history of other malignant neoplasms of the skin           88         D23.5         Other benign neoplasms of the skin of the trunk           89         287.8         Personal history of other malignant neoplasms of the skin of the trunk           80         191.8         Other benign neoplasms of the skin of the trunk           87         271.8         Other benign neoplasms of the skin of the right lower limb, including the hip	530	X32.XXXA	Exposure to sunlight, initial encounter
269         D18.01         Hemangioma of skin and subcutaneous tissue           250         212.83         Encounter for screening for malignant neoplasm of skin and subcutaneous of skin and subcutaneous files and subcutaneous files and subcutaneous files and subcutaneous systems           148         280.8         Family history of malignant neoplasm of other organs or systems           148         182.0         Inflamed seborrheic keratosis           127         D23.9         Other benign neoplasms of the skin, unspecified           128         157.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         287.2         Personal history of diseases of the skin and subcutaneous tissue           93         285.828         Personal history of diseases of the skin and subcutaneous tissue           86         130.9         Dermatitis, unspecified           81         122.51         Melanocytic nevi of the right lower limb, including the hip           82         123.5         Other benign neoplasms of the skin of the trunk           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           84         123.8         Other specified counseling           85         D22.61         Melanocytic nevi of the right upper limb, including the hip           86         D22.61         Melanocytic nevi	526	D22.9	Melanocytic nevi, unspecified
250         Z12.83         Encounter for screening for malignant neoplasm of skin           148         Z80.8         Family history of malignant neoplasm of other organs or systems           148         L82.0         Inflammed seborrheic keratosis           127         D23.9         Other benign neoplasms of the skin, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           128         Z87.2         Personal history of other malignant neoplasms of the skin of the trunk           93         Z85.28         Personal history of other malignant neoplasms of the skin of the trunk           86         L30.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           84         L30.9         Other hypertrobic disorders of the skin           89         Z71.89         Other specified counseling           89         D22.61         Melanocytic nevi of the right upper limb, including the hip           80         B07.8         Other specified acute skin of the fight lower limb, including the hip           81         D22.51         Melanocytic nevi of the skin of the left lower limb, including the hip           82 <td>387</td> <td>L70.0</td> <td>Acne vulgaris</td>	387	L70.0	Acne vulgaris
148         Z80.8         Family history of malignant neoplasm of other organs or systems           148         182.0         Inflamed sobornheic keratosis           127         D23.9         Other benignee plasms of the skin, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         157.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           93         Z85.828         Personal history of other malignant neoplasms of the skin           86         130.9         Dermatitis, unspecified           87         D22.71         Melanocytic nevi for her right upen limb, including the hip           88         192.71.8         Other hypertrophic disorders of the skin           89         Z71.89         Other specified counseling           69         D22.61         Melanocytic nevi of other parts of the face           69         B07.8         Other benign neoplasms of the skin of the right upen limb, including the hip           66         D22.71         Other benign neoplasms of the skin of the right upen limb, including the hip           66         D22.72         Melanocytic nevi of the left lower limb, including the hip           65	269	D18.01	Hemangioma of skin and subcutaneous tissue
148         L82.0         Inflamed seborrheic keratosis           127         D23.9         Other benign neoplasms of the skin, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           93         Z85.828         Personal history of other malignant neoplasms of the skin           86         L30.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         L91.8         Other hypertrophic disorders of the skin           81         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         L91.8         Other hypertrophic disorders of the skin           81         D22.71         Melanocytic nevi of the right upper limb, including the hip           82         D22.81         Melanocytic nevi of the right upper limb, including the shoulder           89         B07.8         Other benign neoplasms of the skin of the right lower limb, including the hip           80         D22.72         Melanocytic nevi of the left lower limb, including the hip <td< td=""><td>250</td><td>Z12.83</td><td>Encounter for screening for malignant neoplasm of skin</td></td<>	250	Z12.83	Encounter for screening for malignant neoplasm of skin
127         D23.9         Other benign neoplasms of the skin, unspecified           127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         287.2         Personal history of diseases of the skin and subcutaneous tissue           93         285.828         Personal history of other malignant neoplasms of the skin           86         130.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         191.8         Other hypertrophic disorders of the skin           80         192.61         Melanocytic nevi of the right lower limb, including the shoulder           80         192.39         Melanocytic nevi of the skin of the skin	148	Z80.8	Family history of malignant neoplasm of other organs or systems
127         D49.2         Neoplasm of unspecified behavior of bone, soft tissue, and skin           111         157.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         Z87.2         Personal history of other malignant neoplasms of the skin of	148	L82.0	Inflamed seborrheic keratosis
111         L57.9         Skin changes due to chronic exposure to nonionizing radiation, unspecified           97         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           93         Z85.828         Personal history of other malignant neoplasms of the skin           87         D23.5         Other benign neoplasms of the skin of the trunk           86         L30.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         L91.8         Other hypertrophic disorders of the skin           79         Z71.89         Other specified counseling           69         D22.61         Melanocytic nevi of the right upper limb, including the shoulder           69         B07.8         Other benign neoplasms of the skin of the right lower limb, including the shoulder           69         B07.8         Other benign neoplasms of the skin of the right lower limb, including the hip           66         D22.72         Melanocytic nevi of the left lower limb, including the hip           66         D22.72         Melanocytic nevi of the left lower limb, including the hip           67         Z0         D4 benegation neoplasms of the skin of the left lower limb, including the hip           68         D22.72         Other benign neoplasms of the skin of the left l	127	D23.9	Other benign neoplasms of the skin, unspecified
97         Z87.2         Personal history of diseases of the skin and subcutaneous tissue           93         Z85.828         Personal history of other malignant neoplasms of the skin           87         D23.5         Other benign neoplasms of the skin of the trunk           86         13.0.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         191.8         Other hypertrophic disorders of the skin           79         271.89         Other specified counseling           69         D22.61         Melanocytic nevi of the right upper limb, including the shoulder           69         B07.8         Other benign neoplasms of the skin of the right lower limb, including the hip           68         B07.8         Other benign neoplasms of the skin of the right lower limb, including the hip           66         D22.72         Melanocytic nevi of the left lower limb, including the hip           67         Z08         Encounter for follow-up examination after completed treatment for malignant neoplasm           68         D22.72         Melanocytic nevi of the left lower limb, including the hip           69         L56.8         Other benign neoplasms of the skin of the left lower limb, including the hip           60         L56.8         Other benign neoplasms of the skin of the le	127	D49.2	Neoplasm of unspecified behavior of bone, soft tissue, and skin
93         Z85.828         Personal history of other malignant neoplasms of the skin           86         D23.5         Other benign neoplasms of the skin of the trunk           86         D23.71         Melanocytic nevi of the right lower limb, including the hip           80         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         E191.8         Other hypertrophic disorders of the skin           89         Z71.89         Other specified counseling           89         D22.61         Melanocytic nevi of the right upper limb, including the shoulder           89         B07.8         Other specified counseling           89         B07.8         Other viral warts           80         B07.8         Other specified courseling           80         B07.8         Other specified souts skin of the light lower limb, including the hip           81         B07.2         Other benign neoplasms of the skin of the left lower limb, including the hip           82         B07.2         Melanocytic nevi of the left lower limb, including the shou	111	L57.9	Skin changes due to chronic exposure to nonionizing radiation, unspecified
87         D23.5         Other benign neoplasms of the skin of the trunk           86         L30.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           86         L91.8         Other hypertrophic disorders of the skin           87         Z71.89         Other specified counseling           89         D22.61         Melanocytic nevi of the right upper limb, including the shoulder           89         D22.39         Melanocytic nevi of other parts of the face           89         B07.8         Other bright upper limb, including the shoulder           80         D23.71         Other benign neoplasms of the skin of the right lower limb, including the hip           80         D23.71         Other benign neoplasms of the skin of the right lower limb, including the hip           81         D23.72         Melanocytic nevi of the left lower limb, including the hip           82         D3.8         Other specified acute skin changes due to UVR           84         D3.72         Other benign neoplasms of the skin of the left lower limb, including the hip           85         D3.8         Other specified acute skin changes due to UVR           86         D3.7         Other benign neoplasms of the skin of the left lower limb, including the hip           86	97	Z87.2	Personal history of diseases of the skin and subcutaneous tissue
86         130.9         Dermatitis, unspecified           83         D22.71         Melanocytic nevi of the right lower limb, including the hip           80         191.8         Other hypertrophic disorders of the skin           79         Z71.89         Other specified counseling           69         D22.61         Melanocytic nevi of the right upper limb, including the shoulder           69         D22.39         Melanocytic nevi of other parts of the face           69         B07.8         Other viral warts           68         D23.71         Other benign neoplasms of the skin of the right lower limb, including the hip           65         Z08         Encounter for follow-up examination after completed treatment for malignant neoplasms           64         156.8         Other specified acute skin changes due to UVR           64         D23.72         Other benign neoplasms of the skin of the left lower limb, including the hip           62         190.5         Scar conditions and fibrosis of the skin           62         190.5         Scar conditions and fibrosis of the skin           62         190.5         Scar conditions and fibrosis of the skin           63         171.8         Other rosacea           64         122.0         Epidermal cyst           65         178.1	93	Z85.828	Personal history of other malignant neoplasms of the skin
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59         L71.8         Other rosacea           59         178.1         Nevus, non-neoplastic           56         L21.8         Other seborrheic dermatitis           56         L40.0         Psoriasis vulgaris           55         D22.4         Melanocytic nevi of scalp and neck           54         X32.XXXD         Exposure to sunlight, subsequent encounter           50         B36.0         Pityriasis versicolor           48         L85.3         Xerosis cutis	62	D22.62	Melanocytic nevi of the left upper limb, including the shoulder
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	48	L85.3	•
L/ 4.0 Outer formed at Cysis of the skin and subcutations tissue	46	L72.8	Other follicular cysts of the skin and subcutaneous tissue

## **CPT Codes**

Count	Procedure Code	Code Description
817	11100	Skin biopsy, first lesion
631	17000	Destruction of premalignant lesions, first lesion
383	17003	Destruction of premalignant lesions, 2-14 lesions
267	11101	Skin biopsy, each additional lesion
214	17110	Destruction of benign lesions, 1–14 lesions
87	88305	Surgical pathology, gross and microscopic examination
77	11301	Shave removal, lesion diameter of 0.6-1.0 cm
59	11300	Shave removal, lesion diameter of 0.5 cm or less
58	17004	Destruction of premalignant lesions, 15 or more lesions

Abbreviations: CPT, Current Procedural Terminology; ICD, International Classification of Diseases; ICD-10, International Classification of Diseases, 10th Revision.

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Indoor Tanning ICD-10 Codes in Claims Data

encounter (W89.1XXA), subsequent encounter (W891.XXD), and seguela (W891.XXS). We used descriptive statistics to evaluate patient and encounter characteristics, including sex, age, location, season, provider specialty, setting, and other ICD-10 codes and procedural CPT codes entered in at least 10% of encounters. Results were also presented per 100,000 encounters with dermatologists in the dataset, which were identified by specialty taxonomy code.

### Data availability statement

The data that support the findings of this study are available from Truven MarketScan. Restrictions apply to the availability of these data, which were used under license for this study.

#### **Ethics statement**

This research was conducted in Houston, Texas United States. Institutional Review B oard approval was provided by The University of Texas MD Anderson Cancer Center (protocol 2019-0966).

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#### **AUTHOR CONTRIBUTIONS**

Conceptualization: MRW, AMB, CLH, YL; Data Curation: YL; Formal Analysis: YL; Methodology: MRW, AMB, SHG, CLH, YL; Project Administration: MRW, CLH; Resources: MRW, SHG; Supervision: MRW, SHG; Writing -Original Draft Preparation: MRW, AMB, CLH; Writing - Review and Editing: MRW, AMB, SHG, CLH, YL

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#### Disclaimer

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#### **CONFLICT OF INTEREST**

The authors state no conflict of interest.

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