Dermatologic Care in the Homeless and Underserved Populations: Observations From the Venice Family Clinic

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Dermatologic care in the homeless and impoverished urban underserved populations is rarely described despite the wide prevalence of skin concerns in this population. Because the homeless population may be subject to increased sun exposure compared to the nonhomeless population, they also may be at increased risk for skin cancer. We sought to describe the spectrum of dermatologic diseases seen in a free clinic in Venice, California—the Venice Family Clinic (VFC)—as well as the differences in diagnoses between the homeless and nonhomeless patients seen at this clinic. A retrospective chart review was performed of dermatology patients (N=82) seen at VFC throughout the 2006 calendar year. The homeless population (n=22) was found to have more diagnoses of malignant/premalignant growths (25% [16/64] of all homeless diagnoses) compared to their nonhomeless (n=60) counterparts (6.1% [8/132] of all nonhomeless diagnoses; P<.0001). This difference was sustained when ethnicity was controlled, with 29.6% [16/54] of diagnoses in the homeless white group consisting of malignant/

premalignant growths compared to 8.9% [4/45] of diagnoses in the nonhomeless white cohort (P<.005). Homeless patients may have a higher incidence of skin cancers and precancerous skin lesions due to increased sun exposure and/or limited access to dermatologic care.

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Dermatologic care in the homeless and impoverished urban underserved populations is rarely described. Skin concerns are prevalent in this population and may be the main reason a homeless patient would seek medical attention.[1,2] Providing access to dermatologic care for this population is vital from a public health perspective.

The risk for infectious disease transmission via ectoparasites in the homeless population has been well-documented; in addition, nonarthropod-borne infectious diseases, such as tuberculosis and methicillin-resistant *Staphylococcus aureus*, also are highly prevalent in this population.[3-5] In a prior report, one cohort of homeless patients had higher incidences of skin disease, pruritus, body lice infestation, folliculitis, tinea pedis, scabies, and impetigo compared to controls.[6] Another study found a high incidence of foot concerns in a cohort of homeless patients, likely related to poor hygiene and long-term exposure to moisture.[7,8]

Aside from cutaneous infectious diseases, other dermatologic diseases such as skin malignancies and premalignancies may be prevalent in this population; however, the literature reporting on this topic is scant. Skin cancer has been positively correlated with increased sun exposure. Because the homeless population may be subject to increased sun exposure compared to the nonhomeless population, they also may be at increased risk for skin cancer. One

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study (N=221) found that only 24% of homeless adults presenting to a health clinic in Los Angeles County, California, had any sort of skin examination.[9]

Free clinics likely represent first points of access of homeless patients within the healthcare system. In 2011, the US Census Bureau reported that 49.9 million Americans, or 16.3% of the population, lacked health insurance coverage at some time during 2010.[10] Few healthcare options exist for uninsured and underinsured patients, and hundreds of free, volunteer-based clinics have emerged throughout the country to help fill gaps in medical care for the nation's uninsured population.[11,12] The majority of these patients use free clinics as their only source of healthcare.[11,13] In addition to routine health maintenance, uninsured patients are less likely to receive preventative services, including cancer screening.[14]

The Venice Family Clinic (VFC) is a free clinic located in Venice, California. Within VFC, numerous general medical and specialty clinics regularly provide care to a largely uninsured and underserved patient population in West Los Angeles. Sixteen percent of the patients seen at VFC are homeless and either reside on the streets or in shelters or transitional housing facilities (unpublished data, 2008). In addition to regularly tracking its patients and referring them to specialty clinics, VFC has an on-site pharmacy from which its providers are able to prescribe necessary medications to patients seen within the clinic.

Over the years, several private practice dermatologists have volunteered at VFC, the largest free clinic system in the United States. Additionally, a volunteer dermatology clinic organized by dermatology residents from the University of California, Los Angeles (UCLA), was set up as a specialty clinic functioning within VFC since 2003. Patients are seen at the dermatology clinic throughout the year as referred by their primary care providers. In 2006, 32 dermatology clinics were held, staffed by faculty and residents from the Division of Dermatology at UCLA and the Harbor-UCLA Medical Center in Torrance. Medical students rotating in dermatology at these 2 sites also were encouraged to participate; many continued to volunteer throughout the year. At each clinic visit, patients typically are seen by either a resident or medical student, followed by presentation to a faculty attending. Minor procedures, such as excisions and biopsies, are performed on site, whereas larger procedures typically are referred to Harbor-UCLA Medical Center. Pathology specimens are reviewed by volunteer dermatopathologists at UCLA and St. John's Health Center in nearby Santa Monica, California.

Similar to the rest of VFC, the dermatology clinic sees a largely uninsured patient population, including a substantial homeless population. The spectrum of dermatologic diseases seen in this clinic as well as differences in diagnoses between the homeless and nonhomeless patients seen at the VFC dermatology clinic have never been analyzed or described. Given the possibility of increased sun exposure and lack of resources for sun-preventative measures, we hypothesize that the homeless group of patients may have different or more severe dermatologic diseases than their nonhomeless counterparts, including the potential incidence of more skin malignancies in this group of patients.

Methods

This study was approved by the institutional review board of UCLA. A retrospective chart review was performed on all patients seen at the dermatology clinic at VFC from January 1, 2006, through December 31, 2006. Files that were either unavailable due to use by other clinics at the VFC or with incomplete documentation of demographic data or dermatologic visits were excluded.

Charts were reviewed and patient demographics including patient age, gender, ethnicity, housing status, and education level were recorded. These data were self-reported by patients during their clinic visit intakes, which were performed routinely at the time of check-in to all VFC patient clinic appointments. Patients were considered homeless if they listed their residence to be on the streets, in an automobile, in a shelter, or in a transitional or group home. All others were recorded as nonhomeless.

Clinic notes were reviewed from each patient's visit to the VFC dermatology clinic. Chief concerns from all dermatology visits were recorded as well as all diagnoses made and treatments rendered.

All diagnoses were reviewed and sorted into the following categories: (1) growth, malignant/premalignant; (2) growth, benign; (3) growth, undetermined; (4) rash, noninfectious; (5) rash, infectious; (6) rash, pigmentary; and (7) screening visits. The "growth, undetermined" category included cases in which the diagnosis was unknown at the time this survey was conducted. Data were then sorted according to homeless versus nonhomeless status, and statistical analysis was performed comparing the diagnostic spectrum in the homeless versus nonhomeless cohort of patients.

The homeless and nonhomeless patients were then divided according to self-reported ethnicity, which included black, Asian American, white, and Hispanic. Comparisons of the diagnoses seen in homeless versus nonhomeless patients were made according to ethnicity.

In comparing baseline demographics between homeless and nonhomeless patients, the standard

tests for comparing population means (assuming unequal variances) and proportions were used when appropriate. The resultant P values corresponded to the hypotheses of equal means or proportions, whichever applied. $P<.05$ was considered significant.

Results

In all, 176 patients were seen at the VFC dermatology clinic in 2006. Of these 176 patients, 82 patient files were available and met criteria for review. Of the 82 VFC eligible dermatology patients, 22 were homeless (27%) and 60 (73%) were nonhomeless. Although the nonhomeless group contained patients spanning all ethnicities included in the study (ie, black, Asian American, white, Hispanic), the homeless group consisted of only patients of self-reported black and white ethnicity. Patient demographic data are recorded in Table 1.

These 82 patients made a total of 132 visits to the VFC dermatology clinic during the 2006 calendar year. The 22 homeless patients seen at the clinic made a total of 38 clinic visits, while the 60 nonhomeless patients made a total of 94 visits. Of the 132 patient visits, a total of 210 diagnoses were made. Fourteen diagnoses (10 in the nonhomeless group, 4 in the homeless group) were excluded because they were either unknown or had pending pathologies at the time the study was conducted, leaving a total of 196 diagnoses. A total of 132 diagnoses were made in the nonhomeless population and 64 in the homeless cohort. The mean number of diagnoses per nonhomeless visit was 1.40 compared to 1.68 diagnoses per homeless visit. A listing of diagnoses and recorded categorizations is provided in Table 2.

Although there were no significant differences in the numbers of infectious or noninfectious inflammatory diagnoses between the homeless and nonhomeless groups, diagnoses in the 2 populations differed in the categories of benign and malignant/premalignant growths. The nonhomeless population had more

Table 1.

Patient Demographics[a]

	Nonhomeless (n=60)	Homeless (n=22)	P Value
Age, y			
Mean (SD)	44 (15.7)	47 (9.1)	.22
Sex, n (%)			
Male	23 (38.3)	14 (63.6)	.02
Female	37 (61.7)	8 (36.4)	.02
Ethnicity, n (%)			
Black	2 (3.3)	6 (27.3)	.0006
Asian American	6 (10.0)	0 (0)	.06
White	19 (31.7)	16 (72.7)	.0004
Hispanic	33 (55.0)	0 (0)	<.0001
Highest education, n (%)			
<9th grade	19 (31.7)	0 (0)	.001
Some high school	7 (11.7)	6 (27.3)	.04
Completed high school	17 (28.3)	11 (50.0)	.03
College+	15 (25.0)	4 (18.2)	.26
Unreported	2 (3.3)	1 (4.5)	.4

Abbreviation: SD, standard deviation.
[a]Patient demographic data stratified according to housing status.

Table 2.

Diagnoses by Category[a]

Diagnosis	Nonhomeless, n (%)(n=132)	Homeless, n (%)(n=64)	P Value
Growths	58 (43.9)	33 (51.6)	.16
Malignant/premalignant	8 (6.1)	16 (25.0)	<.0001
Actinic keratosis	6 (4.5)	9 (14.1)	
Basal cell carcinoma	1 (0.8)	7 (10.9)	
Squamous cell carcinoma	1 (0.8)	0 (0)	
Benign	37 (28.0)	12 (18.8)	.08
Seborrheic keratosis	15 (11.4)	3 (4.7)	
Verruca vulgaris	6 (4.5)	2 (3.1)	
Venous lake	0 (0)	2 (3.1)	
Acrochordon	3 (2.3)	0 (0)	
Epidermal inclusion cyst	6 (4.5)	0 (0)	
Cherry angioma	1 (0.8)	0 (0)	
Prurigo nodularis	0 (0)	1 (1.6)	
Sty	0 (0)	1 (1.6)	
Spitz nevus	1 (0.8)	0 (0)	
Lentigo	2 (1.5)	2 (3.1)	
Melanocytic nevus	3 (2.3)	1 (1.6)	
Undetermined	13 (9.8)	5 (7.8)	.32
Lesion could not be identified clinically or malignancy could not be ruled out without biopsy	13 (9.8)	5 (7.8)	
Rashes	71 (53.8)	28 (43.8)	.09
Noninfectious	47 (35.6)	19 (29.7)	.21
Acne vulgaris	8 (6.1)	2 (3.1)	
Psoriasis	10 (7.6)	5 (7.8)	
Rosacea	2 (1.5)	1 (1.6)	
Dermatitis (eg, eczematous, atopic, contact, nummular, dyshidrotic, asteatotic, xerosis, neurodermatitis)	21 (15.9)	8 (12.5)	
Seborrheic dermatitis	2 (1.5)	1 (1.6)	
Polymorphous light eruption	1 (0.8)	0 (0)	
Generalized drug eruption	3 (2.3)	0 (0)	
Foreign-body reaction	0 (0)	1 (1.6)	
Vasculitis	0 (0)	1 (1.6)	

Diagnosis	Nonhomeless, n (%)(n=132)	Homeless, n (%)(n=64)	*P* Value
Infectious	18 (13.6)	8 (12.5)	.41
Tinea pedis	5 (3.8)	2 (3.1)	
Tinea cruris	2 (1.5)	1 (1.6)	
Tinea manus	1 (0.8)	0 (0)	
Onychomycosis	5 (3.8)	1 (1.6)	
Tinea versicolor	0 (0)	1 (1.6)	
Abscess	1 (0.8)	0 (0)	
Zoster	1 (0.8)	0 (0)	
Folliculitis	0 (0)	2 (3.1)	
Intertrigo	2 (1.5)	0 (0)	
Bullous impetigo	1 (0.8)	0 (0)	
Candidiasis	0 (0)	1 (1.6)	
Pigmentary	6 (4.5)	1 (1.6)	.15
Melasma	1 (0.8)	1 (1.6)	
Nevus depigmentosus	1 (0.8)	0 (0)	
Vitiligo	2 (1.5)	0 (0)	
Postinflammatory pigment alteration	1 (0.8)	0 (0)	
Acanthosis nigricans	1 (0.8)	0 (0)	
Screening Visits	3 (2.3)	3 (4.7)	.18
History of melanoma	1 (0.8)	0 (0)	
History of nonmelanoma skin cancer	2 (1.5)	2 (3.1)	
History of actinic keratosis	0 (0)	1 (1.6)	

[a]Diagnoses encountered within each of the specified diagnostic categories are stratified by housing status.

diagnoses of benign lesions such as seborrheic keratoses (28.0% [37/132] of all nonhomeless diagnoses vs 18.8% [12/64] of homeless diagnoses; *P*=.08), while the homeless population had more diagnoses of malignant/premalignant growths (25.0% [16/64] of all homeless diagnoses vs 6.1% [8/132] of all nonhomeless diagnoses; *P*<.0001)(Figure 1).

When comparisons by ethnicity were made, 29.6% (16/54) of diagnoses in the homeless white group were malignant/premalignant compared to 8.9% (4/45) of diagnoses in the nonhomeless white

cohort (*P*<.005) (Figure 2). Patients with skin cancer were either treated at the clinic or referred directly to Harbor-UCLA Medical Center for dermatologic surgery or Mohs micrographic surgery.

Comment

The major finding of our study was an increased proportion of malignant/premalignant growths in the homeless patients who visited the VFC dermatology clinic in comparison to their nonhomeless counterparts. This increase remained present when ethnicity
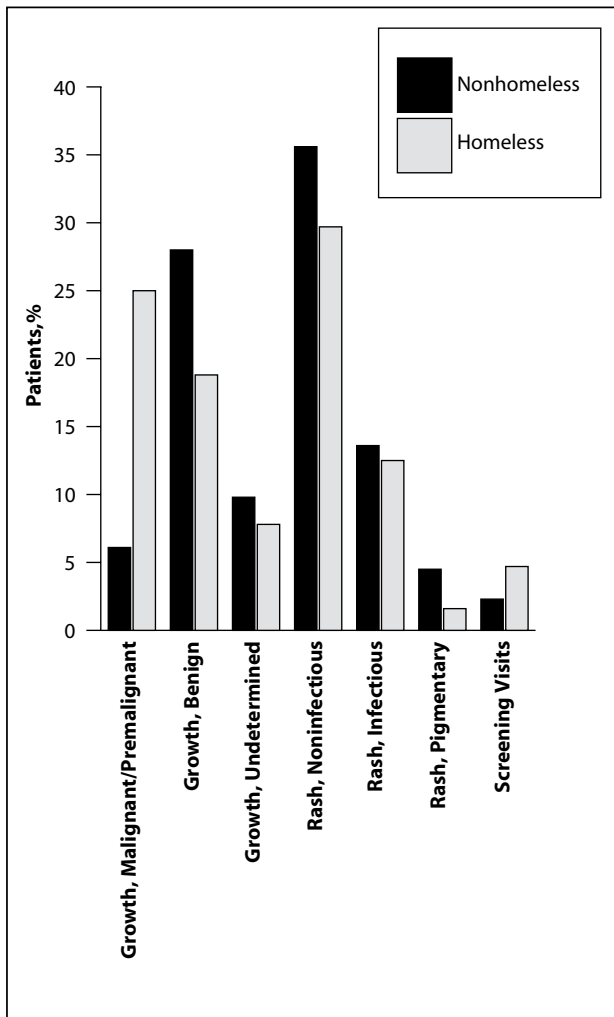
Figure 1. Diagnoses by category among Venice Family Clinic (Venice, California) patients. Diagnoses encountered within each of the specified diagnostic categories are stratified by housing status (n=132 for nonhomeless population; n=64 for homeless population).
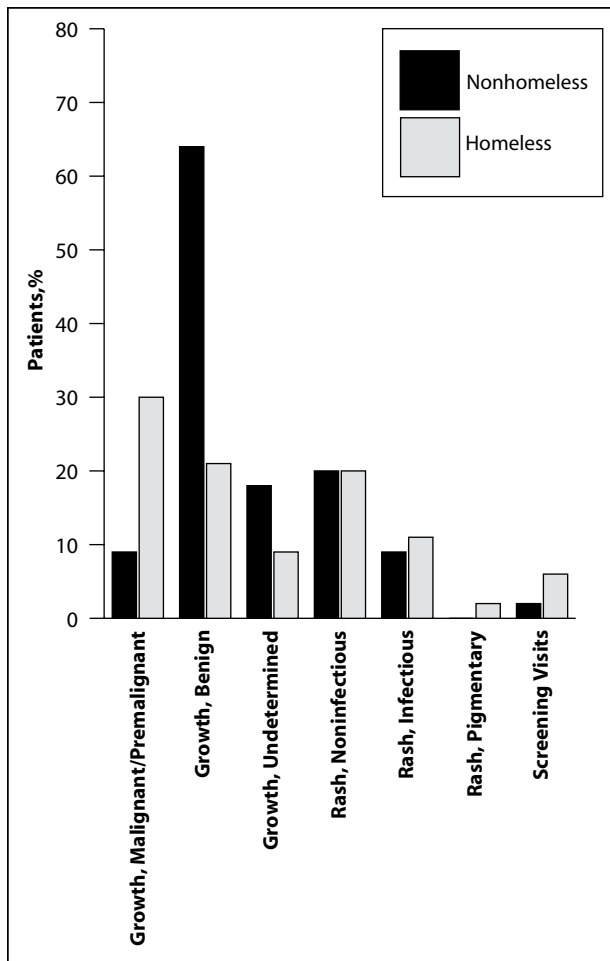
Figure 2. Diagnoses by category among Venice Family Clinic (Venice, California) patients. Diagnoses encountered in white patients within each of the specified diagnostic categories are stratified by housing status. $P<.005$ for malignant/premalignant growths and $P=.02$ for benign growths. All other comparisons are not significantly different statistically.

was controlled. Specifically, there was a nearly 4-fold increase in the proportion of skin malignancies in white homeless patients compared to white nonhomeless patients.

The increased proportion of skin cancer seen in the homeless population of our study compared to the nonhomeless group may reflect increased sun exposure in this population. Decreased access to sun-protective measures, such as sunscreen and protective clothing, in homeless patients also may contribute to this higher proportion of skin malignancies in this group compared to the nonhomeless group. Homelessness in other climates or shorter lengths of homelessness may affect this propensity for skin cancer. Indeed, our study did not include data for duration

of homelessness, quantity of sun exposure, use of sun protection, or Fitzpatrick skin type. These aspects could be studied in larger cohorts or at other centers treating this population. Limited access to dermatologic care in the homeless population also may play a role in the increased incidence of skin malignancies detected in this population because they may neglect premalignant skin lesions for longer periods of time before seeking care.

The malignant/premalignant dermatologic diseases detected in this study included actinic keratosis, basal cell carcinoma, and squamous cell carcinoma. No melanomas were detected in either of the populations studied during 2006. However, as of the end of 2008, in the 5 total years that the resident-run

dermatology clinic has been in existence at the VFC, 2 invasive melanomas have been detected (unpublished data).

Although we found no differences in the number of infectious or noninfectious inflammatory diagnoses between the homeless and nonhomeless populations in our study, we did not ascertain the severity of these diagnoses in these patients. It would be interesting to see in future studies if the severity of disease is affected by homelessness or other factors such as substance abuse or socioeconomic status. Interestingly, our study does not corroborate the findings of prior studies of increased incidence of infectious skin conditions in the homeless population,[3-6] as both homeless and nonhomeless patients were found to have similar rates of infectious skin disease diagnoses. One of the great strengths of VFC is in its full-time primary care providers; these physicians are highly skilled in caring for this population. Primary care providers at VFC are highly capable of detecting and treating infectious skin conditions that are commonly associated with homeless populations, such as scabies, lice, and methicillin-resistant S aureus. This factor results in fewer routine specialty referrals to the dermatology clinic being made, which may result in fewer visits for common infectious diagnoses. Furthermore, our data likely differ from other studies because other studies may have screened discrete homeless populations for skin disease without acquiring data from free clinic referrals.

A further limitation of our study is the low number of patients evaluated. With only 176 patients seen by the VFC dermatology clinic and only 82 charts eligible for inclusion in the study, our findings may not be representative of the underserved and homeless populations. Additionally, our definition of homeless included self-reports of individuals residing on the streets, in an automobile, in a shelter, or in a transitional or group home at the time of data collection. The nonhomeless group also would include patients who may have similar financial troubles as the homeless group but had a home at the time of data collection. Because homelessness may be a transitory state and the delineation between homeless and nonhomeless populations may be subtle, future studies should attempt to further differentiate these 2 populations.

Other potential limitations of our study include our assessment of the homeless and nonhomeless patients attending only 1 free clinic located in Venice, California. This fact makes these results difficult to extrapolate to all homeless populations where sunlight exposure may be less or the percentage of white individuals may be different. Logistical limitations in collecting data included common shortcomings of a paper charting system in which patient charts were unavailable for review because they may have been in use at the time of the study. Additionally, all diagnoses were extrapolated from clinic notes, which are subject to differences in style and documentation.

Conclusion

The VFC dermatology clinic is an example of a successful volunteer specialty clinic that provides excellent medical care to a large underserved population. The clinic runs on generous donations of services, materials, and medications. It generally is accepted that volunteer services of specialists is a remarkable way for private and academic physicians to contribute to the less-fortunate members of the community in which they reside. The free clinic environment also provides a unique and rewarding training environment for medical students and residents. We believe this model could be replicated at other free clinics, especially if supported by residency program directors.

Offering the homeless population routine skin examinations and other preventative measures may be advantageous from a public health perspective. The results of our analysis suggest that the homeless population may have a higher risk for developing skin cancer than controls, but further study of the incidence of skin disease and particularly the incidence of skin malignancy in homeless populations is warranted.

REFERENCES

1. Raoult D, Foucault C, Brouqui P. Infections in the homeless. *Lancet Infect Dis*. 2001;1:77-84.
2. Kleinman LC, Freeman H, Perlman J, et al. Homing in on the homeless: assessing the physical health of homeless adults in Los Angeles County using an original method to obtain physical examination data in a survey. *Health Serv Res*. 1996;31:533-549.
3. Brouqui P, Raoult D. Arthropod-borne diseases in homeless. *Ann N Y Acad Sci*. 2006;1078: 223-235.
4. Gilbert M, MacDonald J, Gregson D, et al. Outbreak in Alberta of community-acquired (USA300) methicillin-resistant *Staphylococcus aureus* in people with a history of drug use, homelessness or incarceration. *CMAJ*. 2006;175:149-154.
5. Lofy KH, McElroy PD, Lake L, et al. Outbreak of tuberculosis in a homeless population involving multiple sites of transmission. *Int J Tuberc Lung Dis*. 2006;10: 683-689.
6. Badiaga S, Menard A, Tissot Dupont H, et al. Prevalence of skin infections in sheltered homeless. *Eur J Dermatol*. 2005;15:382-386.

7. Stratigos A, Stern R, González E, et al. Prevalence of skin disease in a cohort of shelter-based homeless men. *J Am Acad Dermatol*. 1999;41(2, pt 1):197-202.

8. Stratigos AJ, Katsambas AD. Medical and cutaneous disorders associated with homelessness. *Skinmed*. 2003;2: 168-172.

9. Chau S, Chin M, Chang J, et al. Cancer risk behaviors and screening rates among homeless adults in Los Angeles County. *Cancer Epidemiol Biomarkers Prev*. 2002;11:431-438.

10. DeNavas-Walt C, Proctor B, Smith J. *Income, Poverty, and Health Insurance Coverage in the United States: 2010*. Washington, DC: US Census Bureau; 2011.

11. Geller S, Taylor BM, Scott HD. Free clinics helping to patch the safety net. *J Health Care Poor Underserved*. 2004;15:42-51.

12. Nadkarni MM, Philbrick JT. Free clinics and the uninsured: the increasing demands of chronic illness. *J Health Care Poor Underserved*. 2003;14:165-174.

13. Keis RM, DeGeus LG, Cashman S, et al. Characteristics of patients at three free clinics. *J Health Care Poor Underserved*. 2004;15:603-617.

14. Ayanian JZ, Weissman JS, Schneider EC, et al. Unmet health needs of uninsured adults in the United States. *JAMA*. 2000;284:2061-2069.