

Results from Skin Cancer Screenings in Tucson, Arizona from 2006-2013

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Abstract

Background: The incidence of both melanoma and non-melanoma type skin cancers is increasing, and one out of every three cancer diagnoses is skin cancer. Skin cancers, including melanoma, are typically treatable if detected early. **Specific Aims:** 1) to evaluate characteristics of participants who attend a community skin cancer screening event, 2) to determine the proportion of participants with suspicious lesions who complied with a follow-up request to visit a dermatologist or primary care physician. **Methods:** The Skin Cancer Institute (SCI) sponsored 16 community skin cancer screening events in Tucson, Arizona from 2006 to 2013. Participants with suspicious lesions identified during a whole body skin examination who agreed to be contacted again received questionnaires 4 months after the initial screening to assess compliance with follow up recommendations. **Results:** 1979 community members attended the skin cancer screenings. 748 (37.8%) of the community members were referred and instructed to see a dermatologist for further evaluation of a skin lesion. Of the 441 participants with a suspicious lesion who agreed to participate in the follow-up study, 120 returned a questionnaire; 90 (75%) reported they followed up with a physician, and 30 (25%) did not. **Conclusions/Impact:** This study demonstrated that 38% of community skin cancer screening participants were referred for follow up due to a suspicious skin lesion. It also appeared that 75% complied with the request within four months, although the response rate for the follow-up questionnaire was low (27%).

Introduction

- Currently the United States Preventive Services Task Force does not recommend regular whole body skin examinations for adults in the general population due to a lack of research studies identifying the relative health benefits and cost benefits.
- The goal of this project was to evaluate the impact of this program to identify skin cancers which would elucidate a potential benefit of community-based skin cancer screenings.

Research Questions:

- What percentage of participants who consented to be contacted complied with recommendations to follow up with a physician after they were informed that they had a suspicious skin lesion requiring further evaluation?
- What percentage of follow up study participants were diagnosed with a precancerous or cancerous skin lesion based upon their self-reported biopsy results?

Methods

- The SCI at the University of Arizona Cancer Center sponsored skin cancer screening events in Tucson.

- The screenings followed American Academy of Dermatology (AAD) requirements for community screenings and were advertised on their website in addition to local advertisements.
- Each participant completed an AAD skin cancer screening form prior to receiving a whole body skin examination by an SCI dermatologist or resident.
- The questions on the AAD forms contained variations each year and were not identical from 2006-2013
- Participants were informed about their suspicious skin lesions after they were screened, and they were asked for permission to be contacted to complete a follow-up questionnaire.
- Participants who consented received a questionnaire in the mail four months after their screening in a postage-paid envelope.
- Questionnaire data was entered into a password-protected database and an anonymized analytic file was created.
- Descriptive statistics were employed for data analysis.

	FREQUENCY (N=1979)	PERCENTAGE
Gender		
Female	1148	58
Male	835	42
Eye Color		
Brown Eyes	348	35.58
Blue Eyes	357	36.50
Green Eyes	110	11.25
Hazel Eyes	163	16.67
Hair Color		
Black Hair	92	10.17
Brown Hair	604	66.74
Red Hair	12	1.54
Blonde Hair	177	19.56
Race/Ethnicity		
Caucasian	1295	87.09
Black	14	.94
Hispanic	104	6.99
Asian	31	2.08
Other	43	2.89
Education Level		
Elementary school education	9	1.24
High school	146	20.05
College	308	42.31
Graduate school	265	36.40

Table 1: Personal and demographic characteristics of all attendees

	FREQUENCY (N=1871)	PERCENTAGE
Sunburn Frequency		
Always burn in sun	25	9.09
Usually burn in sun	42	15.27
Sometimes burn in sun	147	53.45
Rarely burn in sun	61	22.18
Family History of Skin Cancer		
Yes	692	37.50
No	1149	62.41
Personal History of Skin Cancer		
Yes	208	11.12
No	1663	88.88

Table 2: Reported frequency of burning in the sun, family history of skin cancer, and personal history of skin cancer for all of the community skin cancer screening attendees.

Results

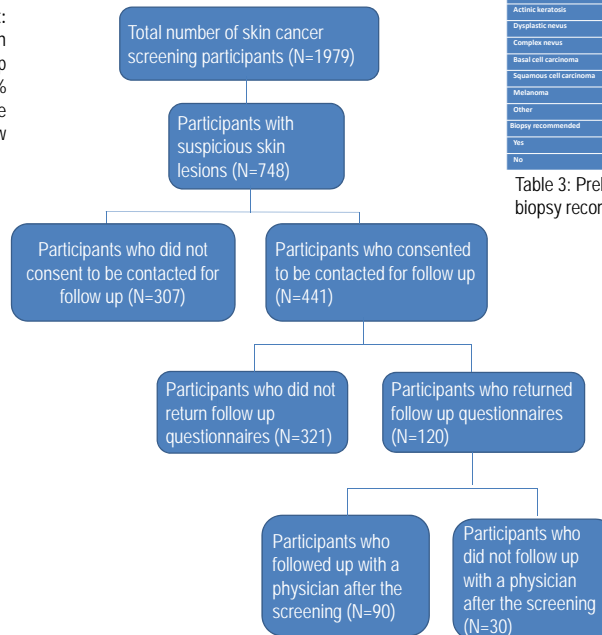


Figure 1: Categories of screening participants

	FREQUENCY (N=1851)	PERCENTAGE
Diagnosis		
Sikorrhithic keratosis	442	32.57
Actinic keratosis	213	15.70
Dysplastic nevus	114	8.40
Compound nevus	22	2.36
Basal cell carcinoma	98	7.22
Squamous cell carcinoma	16	1.18
Melanoma	5	.37
Other	382	28.15
Biopsy recommended		
Yes	387	20.91
No	1,464	79.09

Table 3: Preliminary diagnosis and biopsy recommendation status.

	FREQUENCY (N=98)	PERCENTAGE
Biopsy of the suspicious skin spot was performed		
Yes	52	53.06
No	46	46.94
Self reported diagnosis from the biopsy		
Dysplastic or atypical nevus	3	3.16
Actinic Keratosis	18	20.93
BCC	14	16.28
SCC	7	8.14
Melanoma	2	2.33
Not skin cancer	33	38.37
Don't recall the diagnosis	9	10.47

Table 4: Follow-up results: whether or not a biopsy of the suspicious skin lesion was performed, and the self-reported diagnoses from the biopsies.

	FREQUENCY (N=95)	PERCENTAGE
Received treatment for the suspicious spot		
Yes	57	60
No	38	40
Received liquid nitrogen or cryosurgery therapy		
Yes	33	58.93
No	23	41.07
Received electrocauterization and curettage		
Yes	9	16.07
No	47	83.93
Given a prescription cream or topical medication		
Yes	9	16.07
No	47	83.93
Underwent wider surgical removal after biopsy		
Yes	14	25
No	42	75
Underwent wider surgical removal and sentinel lymph node biopsy		
Yes	1	1.79
No	55	98.21

Table 5: Follow-up results: whether or not the participants received treatment for the suspicious skin lesion and the type of treatment.

Discussion and Conclusions

- The majority of attendees were Caucasian (87%), female (58%), and college educated (42%)
- 38% of participants had a suspicious skin lesion. This identification rate is comparable to 31% from a study with 2560 participants by Koh et al.
- 52% of the participants with a suspicious skin lesion requiring follow-up received a biopsy recommendation
- Among those responding to follow-up questions, the self-reported diagnoses from the biopsies included 1% atypical or dysplastic nevus, 21% actinic keratosis, 16% basal cell carcinoma, 8% squamous cell carcinoma, 2% melanoma, and 38% had non-cancerous lesions.
- The follow up questionnaire response rate was low (27%). Another study by Jonna et al. received an 87% post screening follow-up response rate; they utilized a reminder system after the screening.
- Strengths:** A large number of screening attendees
- Weaknesses:** Low follow-up questionnaire response rate, the absence of a follow up reminder protocol, and no histopathological confirmation of the diagnoses
- Conclusion: Implementation of a follow up reminder protocol is necessary to improve the response rate and consent should be obtained in the future to obtain the biopsy results.

References

- Koh HK, Caruso A, Gage I et al. Evaluation of melanoma/skin cancer screening in Massachusetts. *Cancer*. 1990 65(2): 375-379.
- Jonna, B., Dellino, R., Newnam, W et al. Positive predictive value for presumptive diagnoses of skin cancer and compliance with follow-up among patients attending a community screening program. *Preventive Medicine*. 1998; 27(4): 611-616.

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