

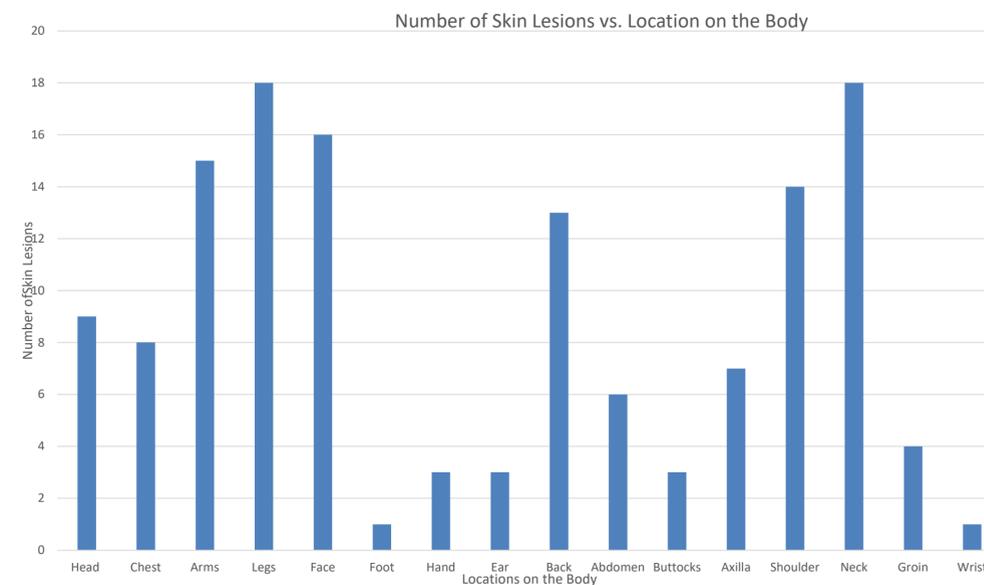
Introduction

Skin disease is one of the principle causes of the global disease burden, affecting millions of people from varying ages, cultures, and geographic backgrounds¹. One in four Americans, accounting for nearly 85 million people, presented with at least one skin disease in 2013¹. The prevalence of skin cancer is estimated at five times that of breast or prostate cancer and greater than the 31-year prevalence of all the other cancers combined.² There are a range of elements that influence the manifestation of skin malignancies and conditions: age, genetics, environmental factors, UV exposure, socioeconomic status, and geographical location. In 2013, the average number of diagnosed skin diseases out of the affected American population was 1.6¹. This number increased to 2.3 skin malignancies, along with doubling the rate of prevalence, in persons over 65 years¹. For example, increased seborrheic keratosis correlated to an increase in age. The frequency of basal cell carcinoma, the most common skin cancer in Caucasian populations, varies according to sunlight exposure, race, and gender⁴. The incidence of basal cell carcinoma in male patients were 1.7 times that of female patients, and whites constituted 92.1% of cases, whereas Asians made up 1%, Hispanics 3.1%, and African Americans 0.2% of cases⁵. While there is a lack of association between cumulative sun exposure and basal cell carcinoma, there is a significant increased risk with prolonged sun exposure in children and adolescents from 0 - 19 years old⁴. Overall the cost associated with skin disease is estimated at \$75 billion in 2013¹. The cost per person with a skin disease averages \$887, and in the United States, the cost of skin disease per capita was \$240¹. These costs greatly affect one's ability to obtain treatment and prevent further malignancies from developing¹. All of these factors influence the frequency of skin conditions in the population. The question thus remains whether skin malignancies persist at different rates in varying regions of the United States. In this study, we sought to investigate the prevalence of various skin lesions biopsied at a Midwestern, urban tertiary university hospital.

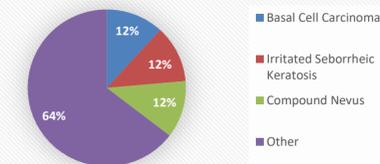
Methodology

Pathology reports on skin specimens from patients in the greater Kansas City area during the period of April 4, 2017, through June 15, 2017, were obtained from Truman Medical Center in Kansas City, Missouri. Pathology reports were chosen from patients being seen for skin lesions at University Health Dermatology department. University Health Dermatology sees most of the adult population in the province. The study is retrospective in that all pathology reports have been stored at Truman Medical Center prior to the start of this study. Eligibility for cases to be included in this study included having biopsies/excisions originating from a board certified Dermatologist at the University Health Dermatology department and subsequently evaluated by a board certified pathologist trained in examining skin biopsies. De-identification of the reports and IRB approval was obtained before initiation of data collection. The reports consisted of 395 skin biopsies/excisions obtained from 200 patients. The reports were picked out based exclusively on when and where they were obtained. Patient's age, gender, socioeconomic status was not considered when obtaining pathology reports for this study since reports were already de-identified. Once obtained, the reports were analyzed and the following information was extracted: date obtained, type of excision (shave, punch, etc.), location of skin lesion, final pathology diagnosis. In total, 200 patient samples were included in this study which comprised of 395 skin biopsies. Analyses of the data were done based off of final diagnosis and location in which the biopsy was obtained. The data was categorically organized based on its relative prevalence to the specific body area of biopsy.

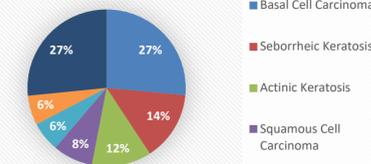
Results



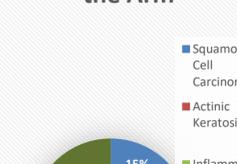
Frequency of Most Common Skin Malignancies in the Shoulder



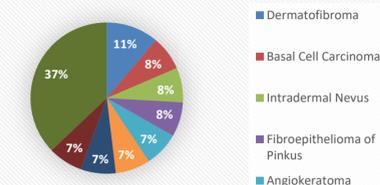
Frequency of Most Common Skin Malignancies in the Face



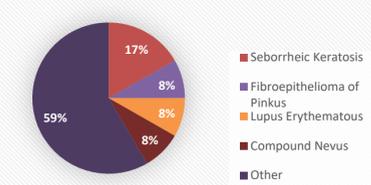
Frequency of Most Common Skin Malignancies in the Arm



Frequency of Most Common Skin Malignancies in the Legs



Frequency of Most Common Skin Malignancies in the Neck



Summary/Conclusion

The prevalence of skin disease within the United States continues to rise. In 2013, one in every four Americans presented with skin disease, correlating to about 85 million Americans.¹ There are a vast range of factors that can impact the manifestation of skin disease. Factors such as age, genetics, environment, UV exposure, socioeconomic status, and geographical location, can influence which diseases are found at increased or decreased rates in different parts of the United States. In this study, we focused on which skin malignancies are found to be more frequent in Midwestern United States. We examined the prevalence of various skin lesions as biopsied at a Midwest, urban dermatology clinic, associated with a tertiary university in Kansas City, Missouri. Our data demonstrates that there are five regions of the body where the most common skin lesions were found: the legs, the neck, the arms, the face, and the shoulder. When looking at national data taken from a 2013 study, prevalence was highest for categories of noncancerous skin growths, cutaneous infections, cutaneous skin growths, viral and fungal diseases, wound and burns, contact dermatitis, and actinic damage, whereas prevalence was lowest for cutaneous lymphoma, bullous diseases, and vitiligo¹. When examining the data for this study, the most frequent skin lesions were basal cell carcinoma, followed by seborrheic keratosis and squamous cell carcinoma. Thus, the results of this study do not necessarily mirror the national data. The skin malignancies fall under the categories of non-melanoma skin cancers and actinic damage. Many reasons can underlie these differences, particularly the geographic location and the time frame the studies were conducted. The national study in 2013 was conducted over the entire year. Prevalence of skin malignancies were measured over all four seasons¹. However, this study took samples from April to June of 2017. Thus, the result of these biopsies was limited to the summer months. In the summer, people are exposed to more ultraviolet radiation from sunlight. Elevated levels of UV radiation increases levels of interleukin 4 and interleukin 10, which result in decreased immunologic tumor surveillance⁶. In addition, interstitial collagenase, an enzyme fostering local tumor invasion, is stimulated by UV radiation⁶. While these are not driving factors of tumor development, they do assist in tumor development. Therefore, the increased UV exposure can be a contributing factor to the high prevalence of non-melanoma skin cancers in our study versus the national data. Along with differences in the time period the studies were conducted, the studies also obtained data from different geographical locations. The national study looked at data from all across the United States, whereas this study only obtained data from a small, randomized sample in Kansas City, Missouri. Geography influences environmental factors, such as temperature, sunlight, pollution, and water, which can all play a role in the development of skin malignancies. In conclusion, skin disease is one of the principle causes of the global disease burden, affecting millions of people from varying ages, cultures, and geographic backgrounds¹. In order to most effectively prevent and treat varying skin malignancies, it is important to identify their prevalence in various regions around the United States.

References

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