University of Nebraska Medical Center
Nebraska Medicine

Graduate Medical Education Research Journal

Volume 6 | Issue 1 Article 37

June 2024

Impact of a Pediatric Dermatologist on Resident Education: An Evaluation of Dermatology Resident Case Logs Before and After Hiring a Pediatric Dermatologist

Allison Lloyd-McLennan
University of Nebraska Medical Center

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Abstract

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#32. Quality Improvement – Optimizing Dermatology Post-discharge Care: Evaluating an EHR Intervention in Dermatology Post-discharge Follow-up

Alfredo Siller Jr.[1], Makayla Schissel[2], Dillon Clarey[1], Erin X. Wei[1]

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA
[2]Department of Biostatistics, College of Public Health, University of Nebraska Medical Center, Omaha, NE, USA

Mentor: Erin X. Wei

Program: Dermatology

Type: Original Research

Background: Effective inpatient to outpatient care transitions is crucial for patient well-being, yet challenges in communication and workflow often result in poor scheduling and higher no-show rates, impacting health outcomes. This project assessed an intervention's effect on dermatology no-show rates post-discharge. The objective of the study was to develop and evaluate an EHR-based intervention aimed at improving dermatology care transitions post-discharge.

Methods: Patient demographics, clinical characteristics, and outcomes were analyzed using descriptive statistics, t-tests, and Chi-Square/Fisher's exact tests in SAS 9.4, considering $P < 0.05$ as statistically significant. Only the first record per patient was used to ensure group independence.

Results: No significant demographic or clinical differences were found between pre- and post-intervention groups, except for a higher male proportion (56% vs. 31%, p=0.04), increased mortality (24% vs. 3.1%, p=0.03), and more individuals with a primary care provider post-intervention (97% vs. 69%, p=0.002). No-show rates decreased from 38% to 29%, but not significantly (p=0.49). A moderate association between race and appointment status was noted, with non-white patients more likely to miss appointments. Those attending their appointments often had a primary care provider (91% vs. 68%, p=0.03) (**Table 1**).

Conclusion: The intervention did not significantly reduce no-show rates but highlighted important demographic and outcome distinctions. These insights are valuable for future efforts to improve dermatology care transitions post-discharge.

Table 1. Comparing demographics and appointment status between pre- and post-intervention groups

	Group			
	Pre (N=32)	**Post (N=34)**	**Total (N=66)**	**P-value**
Age				0.47[1]
N (Missing)	32 (0)	34 (0)	66 (0)	
Mean (SD)	42.2 (18.20)	45.9 (23.24)	44.1 (20.88)	
Median (IQR)	43.5 (28.5, 54.5)	47.0 (33.0, 61.0)	45.5 (29.0, 58.0)	
Range	2.0, 79.0	0.0, 86.0	0.0, 86.0	
Gender, n (%)				0.04[2]
Female	22 (68.8%)	15 (44.1%)	37 (56.1%)	
Male	10 (31.3%)	19 (55.9%)	29 (43.9%)	
Living Status, n (%)				0.03[3]
Alive	31 (96.9%)	26 (76.5%)	57 (86.4%)	
Deceased	1 (3.1%)	8 (23.5%)	9 (13.6%)	
Race, n (%)				0.18[3]
American Indian or Alaska Native	2 (6.3%)	0 (0.0%)	2 (3.0%)	
Black or African American	8 (25.0%)	7 (20.6%)	15 (22.7%)	
Native Hawaiian or Other Pacific Islander	2 (6.3%)	0 (0.0%)	2 (3.0%)	
Other	5 (15.6%)	3 (8.8%)	8 (12.1%)	
Unknown	0 (0.0%)	2 (5.9%)	2 (3.0%)	
White or Caucasian	15 (46.9%)	22 (64.7%)	37 (56.1%)	
Ethnicity, n (%)				0.85[3]
Hispanic or Latino	4 (12.5%)	3 (8.8%)	7 (10.6%)	
Not Hispanic or Latino	28 (87.5%)	30 (88.2%)	58 (87.9%)	
Unknown	0 (0.0%)	1 (2.9%)	1 (1.5%)	
Primary Care Provider, n (%)				0.002[3]
No	10 (31.3%)	1 (2.9%)	11 (16.7%)	
Yes	22 (68.8%)	33 (97.1%)	55 (83.3%)	
Insurance, n (%)				0.84[3]
Medicaid	14 (43.8%)	13 (38.2%)	27 (40.9%)	
Medicare	11 (34.4%)	10 (29.4%)	21 (31.8%)	
Private	5 (15.6%)	8 (23.5%)	13 (19.7%)	
Uninsured	2 (6.3%)	3 (8.8%)	5 (7.6%)	
Appointment Status, n (%)				0.49[2]
F/U Completed	20 (62.5%)	24 (70.6%)	44 (66.7%)	
No Show	12 (37.5%)	10 (29.4%)	22 (33.3%)	
Skin – Primary Discharge Diagnosis, n (%)				0.23[2]
No	16 (50.0%)	22 (64.7%)	38 (57.6%)	
Yes	16 (50.0%)	12 (35.3%)	28 (42.4%)	

[1]Equal variance two sample t-test; [2]Chi-Square p-value; [3]Fisher Exact p-value

#33. Racial and Ethnic Differences in Time to Definitive Surgery for Melanoma: A Retrospective Study From the National Cancer Database

Jennifer M. Fernandez[1], Tyler D. Evans[1], Makayla Schissel[2], Alfredo Siller Jr.[1], Erin X. Wei[1]*, Ashley Wysong[1]*

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA
[2]Department of Biostatistics, College of Public Health, University of Nebraska Medical Center, Omaha, NE, USA
*Equal contributions

Mentor: Ashley Wysong

Program: Dermatology

Type: Original Research

Background: Longer time to definitive surgery (TTDS) is associated with poorer melanoma outcome regardless of stage. Factors that influence TTDS include geography and physician availability, race and ethnicity, and insurance. This study explored racial and ethnic differences in TTDS for melanoma within the same insurance coverage.

Methods: Biopsy-confirmed invasive cutaneous melanomas stages I-III with known TTDS from the National Cancer Database 2004-2019 were included. Cases were excluded if they were treated definitively with local tumor destruction or excisional biopsy (TTDS=0 days) or had a TTDS >365 days. Statistical analysis included Kruskal-Wallis and multivariable logistic regression (significance: $p<0.05$).

Results: Of 406,938 patients, 97.8% were White, 1.3% were Hispanic, 0.5% were Black, 0.3% were Asian/Pacific Islander, and 0.1% were American Indian/Alaska Native. Significant differences in median TTDS were observed across racial and ethnic groups for all insurance types even when stratified by stage (private/Medicare/Medicaid/uninsured) and by surgical procedure type (local excision/wide local excision/Mohs/major amputation). In a multivariable logistic regression that accounted for confounders (age, sex, primary site, insurance, facility type, distance to institution, stage/histologic subtype, and surgical procedure type) where White patients were the reference group, all other racial and ethnic groups had a higher odds of undergoing surgery more than 60 days after diagnosis (adjusted odds ratios, 95% confidence intervals): Black (1.83, 1.60-2.10), Hispanic (1.73, 1.59-1.88), Asian/Pacific Islander (1.62, 1.35-1.94), and American Indian/Alaska Native (1.47, 1.08-2.01).

Conclusion: Significant racial differences in TTDS exist within the same surgical procedure and insurance type; differences in health insurance cannot fully explain variability in TTDS.

#34. Impact of a Pediatric Dermatologist on Resident Education: An Evaluation of Dermatology Resident Case Logs Before and After Hiring a Pediatric Dermatologist

Allison Lloyd-McLennan[1], Erica Lee[1], Nicole Harter[1,2]

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA
[2]Department of Pediatric Dermatology, Children's Hospital and Medical Center, Omaha, NE, USA

Mentor: Nicole Harter

Program: Dermatology

Type: Original Research

Background: Many states do not have a pediatric dermatologist, emphasizing the importance of pediatric dermatology training in resident education. Data submitted to Accreditation Council for Graduate Medical Education (ACGME) by dermatology residents is not publicly available, so little is known about resident pediatric procedural training. This study analyzes differences in resident procedures before and after having a pediatric dermatologist at an academic institution.

Methods: This is a single-center cross-sectional study of resident procedures logged in the ACGME case log system at a dermatology residency before and after residents began training with a board-certified pediatric dermatologist (January 1, 2022).

All procedures logged from July 1 of the residents' first year through April 14, 2023 were included. Procedures were categorized into pre or post pediatric dermatologist if they occurred before or after January 1, 2022. Fisher's exact test and descriptive statistics were used for analysis.

Results: Of the 5678 logged procedures, pediatric procedures comprised 3/2661 (0.1%) before and 29/3017 (1%) after training with a pediatric dermatologist. The proportion of pediatric procedures significantly increased by 10-fold ($p<0.001$). Prior to the pediatric dermatologist, 1 of 6 residents logged pediatric procedures. Afterwards, 8 of 9 residents logged pediatric procedures. Pediatric procedures were 69% laser, 28% surgical, and 3% other.

Conclusion: Our study highlights the significant impact a pediatric dermatologist has on resident education. After training with a pediatric dermatologist, there was a statistically significant increase in pediatric procedures logged by residents. Resident education initiatives that increase pediatric procedural training could increase the number of residents pursuing pediatric dermatology.

#35. Pediatric Melanoma Survival Is More Favorable in Females, a Retrospective Cohort Study of the National Childhood Cancer Registry From 1997 – 2020

Bianca Ituarte[1], **Divya Sharma**[1], Mollie Oudenhoven[1], Nicole Harter[1], Ashley Wysong[1]

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA

Mentor: Ashley Wysong

Program: Dermatology

Type: Original Research

Background: Melanoma is the deadliest skin cancer, though it is exceedingly rare in pediatric patients. Despite the diagnosis, survival is higher among children with a lower stage, and among females in analysis of adult patients. This study seeks to identify survival rates of pediatric melanoma between males and females.

Methods: A retrospective cohort study of patients aged 0-19 and diagnosed with melanoma was completed using the 12-State

National Childhood Cancer Registry data available in Surveillance, Epidemiology, and End Results. Search criteria of malignant melanoma (8720-8780) localized to the skin (C44.0-44.9) returned 3,095 cases from 1997-2020, 1,767 females and 1,328 males. Cause-specific survival was isolated, excluding missing or unknown causes of death. Difference of proportion was obtained on survival rates for males and females at one-year intervals from 1-10 years post-diagnosis.

Results: Overall cause-specific survival of pediatric melanoma at 2-, 5-, and 10-years post-diagnosis was 97.3, 95.3, and 93.6%, respectively. Females exhibited significantly higher rates of survival at all year intervals during the study period. Difference of proportion reveals 2.8%, 3.6%, and 4.2% greater survival among females in comparison to males at the same time intervals ($p < 0.0001$).

Conclusion: This study used the most comprehensive collection of pediatric cancer diagnoses to date and found more favorable overall survival for pediatric melanoma than previously reported. Females had higher survival at each year interval when compared to males, however both sexes experienced greater than 90% survival through 120 months post-diagnosis. Further research is necessary to elucidate factors behind the discrepancy among survival outcomes.

#36. The Use of Virtual Reality to Reduce Anxiety and Pain in Pediatric Dermatologic Outpatient Procedures

Erica B. Lee[1], Ritu N. Swali[1], Katherine Plampton[1], Tyler D. Evans[1], Allison Lloyd-McLennan[1], Nicole N. Harter[1,2]

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA
[2]Division of Dermatology, Children's Hospital and Medical Center, Omaha, NE, USA

Mentor: Nicole Harter

Program: Dermatology

Type: Original Research

Background: Procedures are often necessary for diagnosis and treatment in the pediatric population. These procedures can cause significant anxiety for both the patient and the patient's caregiver. Virtual reality (VR) presents a promising novel technique for alleviating anxiety and perceived pain in dermatologic outpatient procedures; however, data are lacking in the pediatric population.

Methods: Patients undergoing outpatient dermatologic cosmetic procedures were randomly assigned to intervention (VR experience during their procedure) or control (standard distraction techniques). The VR experience comprised of a selection of videos displayed through a Meta Quest 2 headset. Patients were asked to assess their pain and anxiety levels both before and after the procedure. Primary endpoints were the relative change in anxiety and perceived pain before and after the procedure. Wilcoxon rank sum test was used to compare the changes in pain and anxiety scores between the two groups.

Results: Twenty patients completed the study, with ten in each group. The average change in anxiety scores from prior to the procedure to post-procedure was -0.6 in both groups ($p=0.90$). The intervention group reported an average increase in pain score of 0.6 compared to 0.8 in the control group, however, this was not statistically significant ($p=0.66$).

Conclusion: Although limited by our small sample size thus far, preliminary data suggests that the VR experience could have positive effects on perceived pain for pediatric patients undergoing dermatologic procedures.

#37. Lyme Disease and Climate Change: The Clock Is Ticking

Divya Sharma[1], Lilia Murase[2], Jaimie Rodger[2]

[1]Department of Dermatology, College of Medicine, University of Nebraska Medical Center, Omaha, NE, USA
[2]OhioHealth Riverside Methodist Hospital, Columbus, OH, USA

Mentor: Jaimie Rodger

Program: Dermatology

Type: Case Report

Background: The life cycle and prevalence of the vector transmitting Lyme Disease (Ixodes-genus ticks) is strongly influenced by temperature, thriving in environments above 45˚F. Rising average temperatures associated with climate change may play a critical role in the growing incidence of Lyme disease.

Case: A 78-year-old male presented to the Emergency Department with a diffuse rash and fatigue. He resides on a farm in rural Southeastern Ohio and reports spending a significant amount of time outdoors each day along with finding one to two ticks on himself weekly which he removes. One month prior to presentation, the patient developed worsening fatigue with recurrent fevers and myalgias. Two weeks following symptom onset he developed multiple, erythematous, annular plaques on his right thigh, torso, and back. Western Blot was performed which was positive for IgG and IgM against Borrelia Burgdorferi, confirming his diagnosis. The patient was admitted to the hospital and treated with Doxycycline resulting in rapid improvement of his skin lesions.

Conclusion: In 18 out of the last 20 years, the annual mean temperature in Ohio has exceeded the 20th century average. Furthermore, the annual case rate of Lyme disease in the state of Ohio has increased from 67 in 2012 to 590 in 2021 **(Figure 1)**. This is not limited to Ohio, as rising temperatures have been found to be associated with increasing Lyme disease rates nationally. As temperatures continue to rise, health care practitioners must be aware that climate-sensitive diseases may begin to present in previously non-endemic areas.

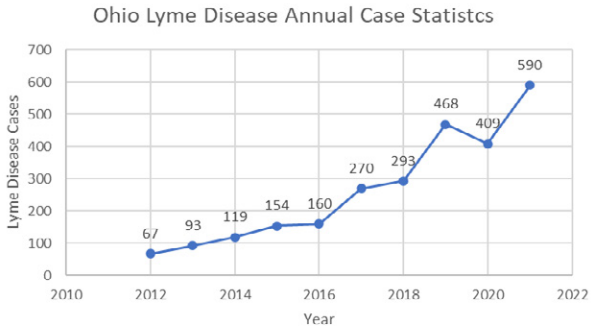

Figure 1. Ohio Lyme Disease Annual Case Statistics.