Trends in Inpatient Admissions for Diseases of the Skin

Alexandra Finstad1 and Raed Alhusayen2,3

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Skin disease is the fourth leading cause of nonfatal disease burden worldwide and is highly prevalent among hospitalized patients.1,2 However, published data are lacking on the epidemiology of hospitalizations. Our study sought to investigate trends in hospital admissions for dermatologic disease to help better characterize inpatient care.

In this population-based study, we used administrative healthcare data from Ontario, Canada. Data were anonymized and publicly available, thus research ethics board approval was not required. A retrospective analysis was conducted across 17 years from 2002 to 2018 on patients admitted to an inpatient unit with a principal diagnosis of “diseases of the skin and subcutaneous tissue” (International Classification of Diseases 10th Revision (ICD-10), codes L00-L99).

Over a 17-year period, 161,358 patients were hospitalized for diseases of the skin as the primary diagnosis, with an annual average of 9,492 admissions. In total, skin diseases rose from 0.8% of all inpatient care in 2002 to 1.0% in 2018. The mean ± SD age was 52.8 ± 26.5, increasing from 49.6 ± 26.5 in 2002 to 55.1 ± 25.7 in 2018. There was an approximately equal number of male and female patients. The average length of stay was 8.0 days. A total of 1.2% of patients died in hospital. Seasonally, admissions peaked in the summer months (June to August) and were lowest in February (Supplemental Figure 1).

Classified by ICD-10 blocks, infectious diseases of the skin accounted for the majority of visits at 78.8%, followed by dermatitis and eczema, urticaria and erythema, disorders of skin appendages, papulosquamous disorders, and bullous disorders (Supplemental Figure 2). Patients admitted for urticaria and erythema were the youngest with a mean ± SD age of 35.2 ± 27.3 years, followed by disorders of skin appendages at 40.0 ± 22.0 years. Patients admitted with bullous disorders were the oldest at 70.9 ± 20.0 years with the highest in-hospital mortality rate (5.2%) and second longest length of stay (14.0 ± 25.1 days). Disorders of skin appendages had the shortest mean ± SD length of stay (4.0 ± 7.6 days) and lowest in-hospital mortality rate (0.2%). More specifically, cellulitis was the most common reason for admission at 61.5%, with cellulitis of the lower limb representing 41.6% of visits.

Overall, dermatologic diseases were found to account for approximately 1.0% of all inpatient care. In comparison, diseases of the skin account for 3.3% of emergency department visits.3 Similar to emergency department visits, admissions peaked in the summer and decreased in winter, shown to be primarily driven by infectious skin diseases, with cellulitis being most common in both settings.3

As many hospitals lack an inpatient dermatology consulting service, education targeting internists on the management of common skin diseases requiring admission is needed, especially those with high mortality. Notably, internal medicine residents report low levels of confidence in treating dermatologic issues.4 Misdiagnosis is particularly common for cellulitis,5 emphasized by the high rates in our study. Specifically, cellulitis of the lower limb was the most common cause for admission, representing potential misdiagnosis of stasis dermatitis or lipodermatosclerosis as recurrent bilateral cellulitis.

Further understanding and characterization of inpatient dermatology is required to enhance medical education, decrease admissions, and improve patient care.

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1Faculty of Medicine, University of Ottawa, ON, Canada
2Division of Dermatology, Department of Medicine, Sunnybrook Health Sciences Centre, Toronto, ON, Canada
3Division of Dermatology, Department of Medicine, University of Toronto, ON, Canada

Corresponding Author:
Raed Alhusayen, Division of Dermatology, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Toronto, ON M4N 3M5, Canada.
Email: raed.alhusayen@sunnybrook.ca
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ORCID iD
Alexandra Finstad https://orcid.org/0000-0003-0499-4930

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