Retrospective Analysis of Inpatient Dermatologic Consultations in a Residency Training Program

Pantaree Kobkurkul, M.D., Chanakarn Pisankikitti, B.Sc., Jidapa Rueangkaew, B.Sc., Nattha Angkoolpakdeekul, M.D., Supenya Varothai, M.D., Sumanas Bunyaratavej, M.D., Narumol Silpa-archa, M.D.

Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand.

ABSTRACT

Objective: This study assessed the prevalence and clinical characteristics of inpatient dermatologic diseases, examined trends over 3 academic years in a tertiary care hospital in Thailand, and evaluated their relevance to the current dermatology residency curriculum.

Materials and Methods: A retrospective review was performed at the Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand. Consultation records from July 2018 to June 2021 were assessed. Data extracted included patient age, sex, referring departments, and diagnoses.

Results: Of the 1964 consultations, 2002 diagnoses were identified. Consistent with previous findings, the predominant diagnostic categories were drug eruptions (28.02%; 561), eczema (16.18%; 324), and viral infections (9.29%; 186). Internal medicine made the most requests, followed by surgery and orthopedics. While the prevalence of consulted diseases remained constant over the 3 academic years, the total number of consultations increased. Most of the consulted conditions were already covered in the "must-know" section of the dermatology residency curriculum, with a few exceptions. The consultation cases satisfied the inpatient evaluation requirements of Entrustable Professional Activity.

Conclusion: The prevalence of inpatient dermatologic diseases was highest for drug eruptions, followed by eczema and viral infections. The consistent trend in the prevalence of these consulted diseases underscores the significance of inpatient dermatology. Incorporating these insights into revisions of the dermatology residency curriculum may enhance the training of dermatologists.

Keywords: Dermatologic consultation; Dermatology; Inpatient dermatology; Residency training (Siriraj Med J 2024; 76: 52-60)

INTRODUCTION

Dermatology predominantly operates within an outpatient context.[1] Common outpatient conditions such as eczema, acne, pigmentary disorders, and alopecia are typically neither urgent nor life-threatening. Conversely, inpatient dermatologic cases are typically more distinct and intricate than their outpatient counterparts.[2] Dermatologic problems may either be the primary cause of a patient's hospitalization or subsequently emerge during admission for other conditions.[3] Several inpatient dermatologic conditions demand immediate intervention, for example, severe cutaneous adverse drug reactions, vesiculobullous diseases, and generalized pustular psoriasis. Their impact often extends beyond the skin, with some complex cutaneous consultations substantially elevating morbidity and mortality rates.[3,4] Thus, inpatient dermatologic conditions merit equal, if not greater, emphasis than the dermatoses typically encountered in outpatient settings.

Corresponding author: Narumol Silpa-archa
E-mail: doctornarumol@gmail.com
Received 18 November 2023 Revise 20 December 2023 Accepted 30 December 2023
ORCID ID:http://orcid.org/0000-0002-1678-5442
https://doi.org/10.33192/smj.v76i2.266387

Dermatologists are instrumental in diagnosing and managing inpatient cutaneous manifestations. Evidence from prior research indicates that inpatient dermatologic consultations significantly refine diagnostic accuracy and improve both clinical and economic outcomes.[2-6] Without these consultations, incorrect diagnoses and treatments would escalate patient morbidity and mortality.[3,4] Therefore, dermatologists must be well versed in the characteristics of inpatient consultations. While the literature offers insights into inpatient dermatologic consultations in certain countries,[1,3,4,7-12] data for Thailand remain sparse.

This research endeavored to establish the prevalence, clinical features, and trends of inpatient dermatologic consultations within a tertiary care setting in Thailand. These insights will ascertain whether the current dermatology residency curriculum aligns with the afflictions observed among inpatients.

MATERIALS AND METHODS

We undertook a retrospective study at the Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand. The Siriraj Institutional Review Board granted study approval (COA no. Si 559/2022). We included patients aged 18 years and above with dermatologic consultation records between July 2018 and June 2021. We extracted data on age, sex, referring departments, and diagnostic outcomes. Three dermatologists from the dermatology department (N.S., S.V., S.B.) categorized these diagnoses into 22 groups. We subsequently analyzed the prevalence of each diagnostic group and discerned consultation trends.

Statistical analysis

Categorical data, encompassing sex, consulting departments, and the prevalence of each diagnostic group, were tabulated as numbers and percentages. Continuous data were evaluated using means and standard deviations. Data analyses were executed with PASW Statistics, version 18 (SPSS Inc, Chicago, IL, USA).

RESULTS

Over the 3 years from July 2018 to June 2021, 1964 consultation cases were documented. The mean age of the patients was 57.6 ± 19.1 years, with males comprising 50.05% of the cohort. The internal medicine department initiated approximately half of the consultations (53.56%; 1052). This was followed by the surgery department (25.46%; 500), orthopedics department (7.74%; 152), obstetrics and gynecology department (3.46%; 68), and ophthalmology department (2.49%; 49; refer to Table 1).

When accounting for the number of patients admitted in each department, the physical medicine and rehabilitation department had the highest consultation ratio at 3.78 %. Following this were internal medicine (2.01%), radiology (1.30%), orthopedics (1.03%), psychiatry (0.90%), surgery (0.87%), ophthalmology (0.35%), otorhinolaryngology (0.34%) and obstetrics and gynecology (0.11%), as depicted in Table 2.

Table 3 delineates the frequency distribution of each disease category. During the study interval, dermatologists and dermatology residents recorded 2002 diagnoses from the 1964 consultation cases. The top 10 diagnostic categories were drug eruptions (28.02%; 561), eczema (16.18%; 324), viral infections (9.29%; 186), fungal infections (8.44%; 169), vasculitis (5.49%; 110), miscellaneous conditions (4.3%; 86), tumors and malignancies (4.2%; 84), papulosquamous diseases (3.8%; 76), bacterial infections (3.15%; 63), and vesiculobullous diseases (3.05%; 61). Parasitic infection, such as scabies and strongyloidiasis, and mycobacterial disorders were less common. Other infrequent conditions were autoimmune diseases, urticaria, hair and nail diseases, pigmentary diseases, neutrophilic dermatoses, pregnancy dermatoses, skin manifestations in systemic diseases, panniculitis, graft-versus-host diseases, and aging skin signs.

Drug eruptions emerged as the predominant diagnostic category. Most of these eruptions lacked systemic involvement (23.83%; 477). Morbilliform drug eruption dominated this subcategory (17.13%; 343), followed by adverse reactions from chemotherapy (3.35%; 67). Among the drug eruptions with systemic involvement, drug rash with eosinophilia and systemic symptoms was predominant (2.05%; 41). Eczema was second most prominent diagnostic category. Regarding viral infections, the third most prominent category, herpes simplex virus and herpes zoster virus were the principal causative agents (8%; 160). Fungal infections stood fourth, with superficial fungal infections, especially candida and dermatophyte infections, taking precedence (7.26%; 145). In the tumor and malignancy group, benign tumors were the most diagnosed (1.6%; 32), followed by cutaneous lymphoma and leukemia/lymphoma cutis (1.25%; 25), malignant/precancerous tumors (0.95%; 19), and cutaneous metastasis (0.4%; 8). The papulosquamous disease group was predominantly characterized by psoriasis diagnoses (3.65%; 73). Within the bacterial infections, cellulitis was the primary diagnosis prompting consultation (1.00%; 20), followed by folliculitis (0.70%; 14). Last, in the vesiculobullous diseases category, bullous pemphigoid was the most frequent diagnosis (2.10%; 42).

The prevalence of diagnoses requested for consultation by each department is outlined in Table 4. In the internal

TABLE 1. Demographic data of dermatologic consultations: July 2018–June 2021.

	Number of patients (%) N= 1,964
Age (year) mean ± SD	57.6 ± 19.1
Sex: male	983 (50.05)
Department requesting consultation	
Internal medicine	1,052 (53.56)
Surgery	500 (25.46)
Orthopedics	152 (7.74)
Obstetrics & gynecology	68 (3.46)
Ophthalmology	49 (2.49)
Radiology	40 (2.04)
Physical medicine & rehabilitation	39 (1.99)
Otorhinolaryngology	34 (1.73)
Anesthesiology	17 (0.87)
Psychiatry	13 (0.66)

TABLE 2. Ratio of inpatient consultations by department.

	Average number of admitted patients in 3 years	Number of consulted patients in 3 years	Ratio of consulted patient (%)
Physical medicine & rehabilitation	1,032	39	3.78
Internal medicine	52,227	1,052	2.01
Radiology	3,078	40	1.30
Orthopedics	14,769	152	1.03
Psychiatry	1,440	13	0.90
Surgery	57,697	500	0.87
Ophthalmology	13,824	49	0.35
Otorhinolaryngology	9,948	34	0.34
Obstetrics & gynecology	64,029	68	0.11

TABLE 3. Dermatologic disease categories in consultations: July 2018–June 2021.

Diagnosis	Number of diagnoses (%) N=2,002
Drug eruptions	561 (28.02)
Drug eruptions without systemic involvement	477 (23.83)
Drug eruptions with systemic involvement	84 (4.20)
Eczema	324 (16.18)
Viral infection	186 (9.29)
Fungal infection	169 (8.44)
Vasculitis	110 (5.49)
Miscellany	86 (4.30)
Tumor/Malignancy	84 (4.20)
Papulosquamous diseases	76 (3.80)
Bacterial infection	63 (3.15)
Vesiculobullous diseases	61 (3.05)
Autoimmune diseases	58 (2.90)
Urticaria	58 (2.90)
Hair and Nail diseases	36 (1.80)
Pigmentary diseases	32 (1.60)
Neutrophilic dermatoses	22 (1.10)
Pregnancy dermatoses	18 (0.90)
Skin signs in systemic diseases	17 (0.85)
Mycobacterial infection	14 (0.70)
Panniculitis	9 (0.45)
Parasitic infestation	9 (0.45)
Graft-versus-host disease	6 (0.30)
Aging skin sign	3 (0.15)

medicine department, the most frequent diagnosis was drug eruptions (30.9%), followed by eczema (10.4%), viral infections (8.2%), vasculitis (7.9%), and other conditions (5.5%). In the surgery department, the most frequent diagnoses were drug eruptions (30.5%), eczema (20.1%), fungal infections (12.7%), viral infections (9.6%), and urticaria (5.1%). In the orthopedics department, eczema was the leading dermatosis requested for consultation (28.4%), followed by fungal infection (17.4%), drug eruptions (14.8%), viral infections (12.9%), and papulosquamous diseases (5.2%). In the obstetrics and gynecology department, pregnancy dermatoses dominated the consultation requests at 25%, followed by eczema (22.1%), fungal infections (11.8%), drug eruptions (10.3%), and tumors/malignancies (5.9%). For the ophthalmology department, the most common diagnoses were eczema (33.3%), viral infections (19.6%), drug eruptions (17.6%), fungal infections (15.7%), and vasculitis (2%).

Fig 1 charts the dermatologic consultation trends from July 2018 to June 2021. The 2018 academic year saw 591 consultations, which increased to 669 in 2019 and further to 704 in 2020. Throughout these 3 academic years, the internal medicine department consistently submitted the highest number of dermatologic consultation requests (51.44%, 54.56%, and 54.47%, respectively). Regarding the consultation disease trend, the prevalence

TABLE 4. Dermatologic diseases consulted by department: July 2018–June 2021.

Diagnosis	N (%)
Internal medicine (1,070)	
Drug eruptions	**331 (30.9)**
Eczema	**111 (10.4)**
Viral infection	88 (8.2)
Surgery (512)	
Drug eruptions	156 (30.5)
Eczema	103 (20.1)
Fungal infection	65 (12.7)
Orthopedics (155)	
Eczema	44 (28.4)
Fungal infection	27 (17.4)
Drug eruptions	23 (14.8)
Obstetrics & Gynecology (68)	
Pregnancy dermatoses	17 (25)
Eczema	15 (22.1)
Fungal infection	8 (11.8)
Ophthalmology (51)	
Eczema	17 (33.3)
Viral infection	10 (19.6)
Drug eruptions	9 (17.6)

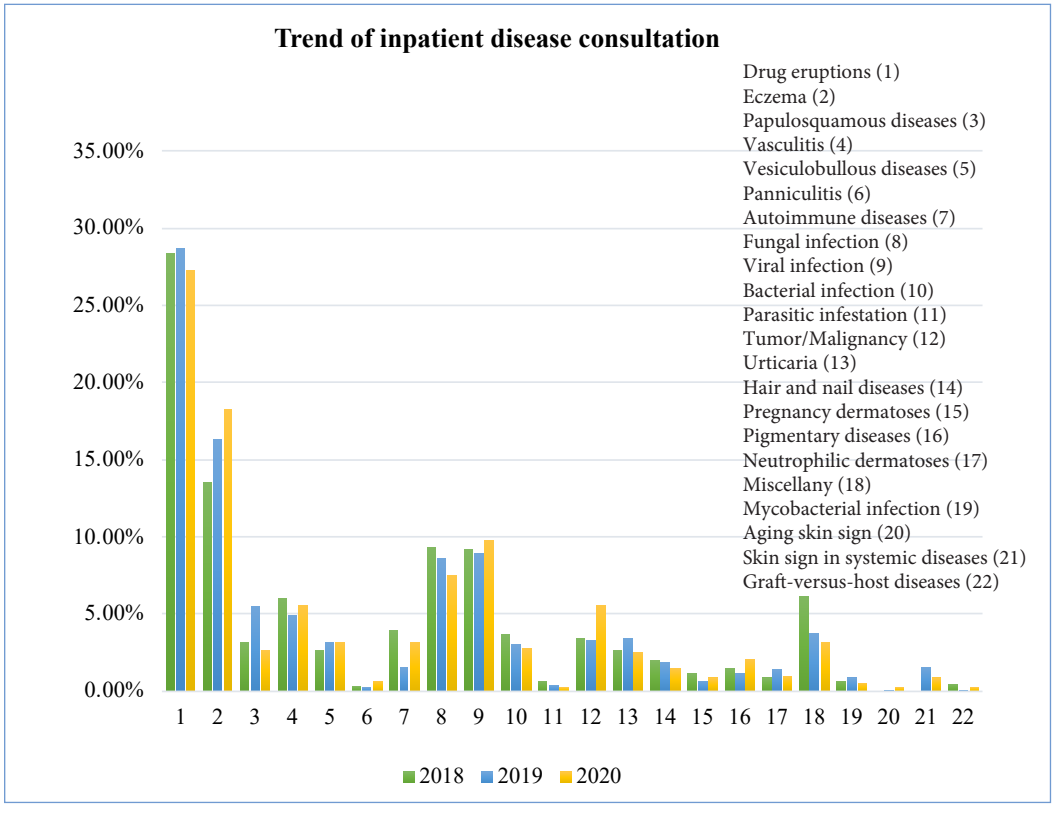

Fig 1. Disease trend in dermatologic consultations: July 2018–June 2021.

of diagnostic categories remained relatively stable across all 3 years. Drug eruptions consistently appeared as the most frequent diagnosis (28.38%, 28.63%, and 27.23%). Eczema ranked as the second most common diagnosis, with its prevalence notably rising over the 3 years (13.52%, 16.28%, and 18.30%).

Table 5 juxtaposes the diseases in the "must-know" category of the dermatology curriculum with inpatient consultations. Almost all conditions could be categorized into the "must know" diagnostic group of the dermatology residency curriculum. The notable exceptions were adverse reactions from chemotherapy, ulcer/burn conditions, and lymphoma-related diagnoses, including cutaneous lymphoma and leukemia/lymphoma cutis.

DISCUSSION

Dermatology is traditionally perceived as an outpatient specialty, yet it also plays a vital role in providing inpatient dermatologic consultations. Inpatient dermatologic consultations are integral to in-hospital patient care. The consultations offer not only clinical and educational benefits but also financial advantages to patients, hospitalist teams, and hospitals.[1,3,4] The present investigation focused on the clinical and epidemiological aspects of inpatient dermatologic consultations, evaluating the prevalence of departments soliciting dermatologic consultation, the commonality of consulted inpatient dermatoses, and consultation trends across 3 academic years.

Consistent with prior studies,[1,3,4,7-11] the internal medicine department initiated the largest number of consultations. Research by Vinay et al,[3] Galimberti et al,[4] and Balai et al[10] indicated that almost half of the consultations originated from the internal medicine department. This finding aligns with our data (53.56%). This trend might be due to the substantial number of inpatient admissions in internal medicine, compounded by the intricacy of the conditions treated and the extensive use of medications.[7,10] The high demand for consultations might also be driven by the rigorous and thorough physical examinations performed by internal medicine teams, leading to the detection of more lesions than by other departments. We found that the surgery and orthopedics departments had the second- and third-highest number of consultation requests, respectively, corroborating findings from earlier publications. However, it is imperative to note that our investigation did not encompass patients under 18, meaning that the pediatric department a significant contributor to consultations in some studies[3,4,13] was not considered.

Conversely, when assessing the proportion of dermatologic consultations relative to the total patient admissions per department, the department with the most pronounced ratio was physical medicine and rehabilitation, followed by internal medicine and then radiology. This finding indicates that even when accounting for the sheer volume of patient admissions, internal medicine remains a prominent requester of consultations. Interestingly, physical medicine and rehabilitation, which primarily admits patients for holistic rehabilitation, emerged as the department with the highest consultation frequency.

The most commonly consulted conditions highlighted in earlier studies encompass infectious dermatoses, eczema, and drug eruptions.[1,8-10,12] However, in our research, drug eruptions accounted for most consultations, followed by eczema and infectious dermatoses (encompassing viral, fungal, and bacterial infections). Drug eruptions skin manifestations more prevalent among inpatients due to the administration of multiple medications during hospitalization constituted the largest category of consulted diseases in inpatient dermatology. Although severe drug eruptions (4.2%; 84) were consulted less frequently than those without systemic involvement (23.83%; 477), the high mortality rate associated with severe drug eruptions underscores the need for emergency care awareness. An updated residency curriculum must incorporate information about novel treatments and the pathogenesis of severe drug eruptions.

The heightened prevalence of infectious lesions might be due to inpatients' significant preexisting comorbidities and immunosuppression during their admission.[3] Our study also identified complicated and atypical infectious dermatologic conditions, such as disseminated herpes infection, nontuberculous mycobacterial infection, and interferon-gamma autoantibody disease. On the other hand, our findings revealed that autoimmune diseases received fewer consultations than cutaneous vasculitis. This is likely because rheumatologists at our tertiary hospital often oversee autoimmune disease consultations. Autoimmune diseases, especially systemic lupus erythematosus, are "must-know" conditions for dermatologists. Therefore, collaboration between dermatologists and rheumatologists remains paramount for both optimal patient care and residency training.

In the internal medicine and surgery departments, the dominant conditions eliciting consultations were drug eruptions, followed by eczema and infections, both fungal and viral a pattern mirroring the general consultation trends. However, this uniformity was absent in other departments. For instance, the obstetrics and gynecology department primarily dealt with pregnancy-related dermatoses. In the orthopedic and ophthalmology departments, where the primary ailments are largely

TABLE 5. "Must-Know" disease categories in dermatology residency training curriculum vs. prevalence in inpatient consultations.

Diagnostic group and diseases found in dermatology consultation	Number of diagnoses (%)
Eczema	324 (16.18)
Immunologic diseases	127 (6.34)
Connective tissue disease: Lupus erythematosus	44 (2.20)
Anaphylactic syndrome	
Urticaria	75 (3.74)
Anaphylaxis	2 (0.10)
Graft-versus-host disease	6 (0.30)
Infection	441 (22.03)
Viral infection	186 (9.29)
Fungal infection	169 (8.44)
Bacterial infection	63 (3.15)
Mycobacterial infection	14 (0.70)
Parasitic infestation	9 (0.45)
Photodermatology	-
Papulosquamous eruptions	76 (3.80)
Psoriasis	73 (3.65)
Others	3 (0.15)
Vesiculobullous disease	61 (3.05)
Bullous pemphigoid	42 (2.10)
Pemphigus vulgaris	13 (0.65)
Others	6 (0.30)
Vasculitis	110 (5.49)
Panniculitis	9 (0.45)
Drug eruptions	424 (21.18)
Morbilliform drug eruption	343 (17.13)
DRESS/DIHS	41 (2.05)
SJS	18 (0.90)
TEN	9 (0.45)
Pustular drug eruption	6 (0.30)
Exfoliative dermatitis	5 (0.25)
Generalized bullous fixed drug eruption	2 (0.10)
Non-infectious inflammatory disorder	22 (1.10)
Neutrophilic dermatoses	22 (1.10)
Pigmentary disorder	32 (1.60)
Diseases of hair	5 (0.25)
Diseases of nail	31 (1.55)
Diseases of sebaceous gland	
Diseases of sweat gland	13 (0.65)
Miliaria	13 (0.65)
Diseases of oral mucosa	-
Genodermatoses	-
Disease of nutrition and metabolism	-
Skin neoplasm	59 (2.95)
Benign tumor	32 (1.60)
Malignant/precancerous tumor	19 (0.95)
Cutaneous metastasis	8 (0.40)
Skin signs in systemic disease	17 (0.85)
Occupational and environmental diseases	-
Psychocutaneous disorders	-
Pediatric dermatology	-
Genital diseases	-
Skin diseases in pregnancy	18 (0.90)

organ-specific and do not typically involve extensive drug administration, the leading diagnoses were eczema, fungal and viral infections, and drug eruptions. Such insights could guide dermatologists in tailoring their approach to each department's unique consultation spectrum.

Across the study's 3 academic years, the prevalence trend of consulted diseases remained static and, despite the ongoing COVID-19 pandemic during the study interval, inpatient consultation numbers consistently rose. In contrast, outpatient cases has declined over a similar period of time.[14] This underscores the pivotal role of inpatient dermatologic consultation despite the on-going COVID-19 situation.

Our Dermatology Residency is the largest dermatology residency program in Thailand. As of the 2023 academic year, 23 board-certified dermatologists contribute to the program with 34 total residents. Thai dermatology curriculum spans 4 academic years. First-year residents rotate in the internal medicine department to acquire comprehensive knowledge and skills from the rotations. While second to fourth-year residents primarily practice within the dermatology department. Residents are required to complete 750 hours of outpatient dermatology clinic. For inpatient requirement, each resident participates in an inpatient dermatology rotation for about 8 weeks per year, targeting 50-60 inpatient consultations per month. The curriculum's main assessment in inpatients is Entrustable Professional Activities (EPA). EPA assesses residents on multiple aspects such as patient care, medical knowledge and interpersonal skills. The EPA for inpatients requires residents to pass nine conditions, with three mandatory conditions to meet: severe drug reaction, severe psoriasis, and severe vesiculobullous disease.[15]

We analyzed the dermatology residency training curriculum at the Department of Dermatology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand[15] to ascertain its alignment with the diseases identified in our study. The curriculum organizes diseases into 3 tiers: conditions dermatologists must know, diseases they should know, and rare or uncommon conditions. Our review found that the current curriculum encompasses all 10 primary diagnostic groups from our study, positioning these diseases in the "must-know" tier. Almost every prevalent lesion in each of the 10 diagnostic groups was already in the "must-know" category, with the exceptions of adverse drug reactions from chemotherapy, cutaneous lymphoma, leukemia/lymphoma cutis, and ulcers/burns. Notably, cutaneous lymphoma and leukemia/lymphoma cutis, while absent from the "must-know" tier, were frequent within the malignant consultation group in our study, accounting for 1.25% of all consultations.

When focus on the number of cases of consultations, the study has shown that there were 1964 consultations in 3 years, averaging approximately 54.5 patients per month. This figure closely aligns with the intended number stated in the curriculum. In addition, severe drug eruption, severe psoriasis, and severe vesiculobullous disease are among the top 10 inpatients diagnoses for inpatient EPA assessment.

Given the rising incidence of cancer in Thailand,[16] our study highlighted that adverse reactions to chemotherapy are common within the drug eruptions category. These reactions, such as hand-foot syndrome, papulopustules, paronychia, irregular hair growth, itching, and dryness from epidermal growth factor receptor inhibitors (PRIDE syndrome), are particularly prevalent in the internal medicine department. These conditions have yet to be incorporated into the current curriculum. We advocate for an update to the dermatology residency curriculum to encompass all routinely encountered conditions.

While dermatology is out of reach for some hospitals, telemedicine consultations could be helpful at hospital training institutes that lack sufficient inpatient consultation services. Dermatologists in the tertiary care facility might therefore share cases with the co-training centers and aid in clinical decision making. It is possible for residents to contribute significantly to telemedicine while still fulfilling their educational requirements.[17]

This study is with some limitations. Given its retrospective chart review design, incomplete or missing data were inevitable. Additionally, given Thailand's primarily universal healthcare system, the easy transfer of patients from secondary to tertiary care facilities not only amplifies the workload in tertiary care hospitals but might also skew disease prevalence. Conducted at Siriraj Hospital one of Thailand's largest tertiary care and referral centers our study's disease prevalence may therefore not be representative, limiting the generalizability of our findings to other institutions. Moreover, this research did not explore other facets of inpatient dermatologic consultations, such as comparison of diagnoses from dermatologists and other medical professionals, economic implications or patient treatment impacts, areas deserving future investigations.

In summary, the prevalence of commonly consulted inpatient dermatologic conditions in our study mirrors previous findings. Nevertheless, we identified equally frequent severe and potentially fatal dermatologic conditions. Without an intricate grasp of these intricate inpatient disorders, dermatologists might fail to provide accurate diagnoses or efficacious treatments. The study

also highlighted that distinct diseases were consulted upon by each department. Additionally, the incessant evolution of therapeutic approaches inevitably results in the emergence of novel dermatologic disorders. Integrating this newfound knowledge into residency programs and subsequent curriculum revisions will undoubtedly benefit future dermatologists and, by extension, their patients.

Funding

None.

Disclosure of interests

The authors declare that there are no conflicts of interest.

REFERENCES

1. Mancusi S, Festa Neto C. Inpatient dermatological consultations in a university hospital. Clinics (Sao Paulo). 2010;65(9):851-5.
2. Noe MH, Rosenbach M. Inpatient Dermatologists-Crucial for the Management of Skin Diseases in Hospitalized Patients. JAMA Dermatol. 2018;154(5):524-5.
3. Vinay K, Thakur V, Choudhary R, Dev A, Chatterjee D, Handa S. A Retrospective Study to Evaluate the Impact of In-Patient Dermatological Consultations on Diagnostic Accuracy in a Tertiary Care Setting. Indian Dermatol Online J. 2021;12(3):417-22.
4. Galimberti F, Guren L, Fernandez AP, Sood A. Dermatology consultations significantly contribute quality to care of hospitalized patients: a prospective study of dermatology inpatient consults at a tertiary care center. Int J Dermatol. 2016;55(10):e547-51.
5. Joseph J, Truong K, Smith A, Fernandez-Penas P. Dermatology inpatient consultations in a tertiary hospital - a retrospective analysis. Int J Dermatol. 2022;61(1):48-53.
6. Milani-Nejad N, Zhang M, Kaffenberger BH. Association of Dermatology Consultations With Patient Care Outcomes in Hospitalized Patients With Inflammatory Skin Diseases. JAMA Dermatol. 2017;153(6):523-8.
7. Lorente-Lavirgen AI, Bernabeu-Wittel J, Pulpillo-Ruiz Á, de la Torre-García JM, Conejo-Mir J. Inpatient dermatology consultation in a Spanish tertiary care hospital: a prospective cohort study. Actas Dermosifiliogr. 2013;104(2):148-55.
8. Fernandes IC, Velho G, Selores M. Dermatology inpatient consultation in a Portuguese university hospital. Dermatol Online J. 2012;18(6):16.
9. Williams A, Bhatia A, Kanish B, Chaudhary PR, Samuel CJ. Pattern of Inpatient Dermatology Consultations in a Tertiary Care Centre from Northern India. J Clin Diagn Res. 2016;10(12):WC07-WC10.
10. Balai M, Gupta LK, Khare AK, Mittal A, Mehta S, Bharti G. Pattern of inpatient referrals to dermatology at a tertiary care centre of South Rajasthan. Indian Dermatol Online J. 2017;8(1):25-8.
11. Peñate Y, Guillermo N, Melwani P, Martel R, Borrego L. Dermatologists in Hospital Wards: An 8-Year Study of Dermatology Consultations. Dermatology. 2009;219(3):225-31.
12. Dantas LD, Bakos L, Balbinot G, Drechsler CE, Eidt LM. Prevalence of dermatoses in dermatologic evaluation requests from patients admitted to a tertiary hospital for 10 years. An Bras Dermatol. 2015;90(5):762-4.
13. Fischer M, Bergert H, Marsch WC. Das dermatologische Konsil. Der Hautarzt. 2004;55(6):543-8.
14. Wamaphutta K, Thasen C, Sereeaphinan C, Chaweekulrat P, Boonchai W. Impact of the COVID-19 Pandemic on Tertiarycare University Dermatology Outpatient Clinic and Dermatology Procedures. Siriraj Med J. 2022;74(12):836-43.
15. Residency Training in Dermatology, Department of Dermatology, Faculty of Medicine Siriraj Hospital. Department of Dermatology, Faculty of Medicine Siriraj Hospital 2019.
16. Absolute numbers, incidence and mortality, males and females in Thailand [Internet]. World Health Organization 2023 [cited 2023 July 18]. Available from: https://gco.iarc.fr/overtime/en.
17. Hammond MI, Sharma TR, Cooper KD, Beveridge MG. Conducting inpatient dermatology consultations and maintaining resident education in the COVID-19 telemedicine era. J Am Acad Dermatol. 2020;83(4):e317-e8.