

Clinical Paper

# Liaison Paediatric Dermatology: A Retrospective Analysis of Consultations in a Paediatric Teaching Hospital and Assessment of Educational Requirements for Paediatric Trainees

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## INTRODUCTION

It has been estimated that 15–20 % of the general population suffer with skin disease. Dermatology input is required for a variety of skin conditions presenting in hospital in-patients with paediatric referrals constituting approximately 12% of Dermatology consults.<sup>1,2</sup> With increasing demands on limited inpatient beds and trends toward ambulatory and outpatient care, the role of the dermatologist is key in ensuring accurate diagnosis and timely management of skin problems arising in children admitted to hospital. The aim of this study was twofold: firstly, to describe the pattern of inpatient paediatric consultations at our tertiary care centre and secondly, to identify learning needs among junior doctors working in non-dermatology specialties.

## METHODS

A retrospective analysis was undertaken of all inpatient paediatric consultations between August 2017 and August 2018 at the Royal Belfast Hospital for Sick Children. These referrals were directed to the dermatology trainee consultation service, ranging from specialty trainee (ST) year 1 to year 4. Consultant dermatologists were involved in the discussion of case presentations and review of cases if clinically indicated.

The data collected included patient demographics, indication for inpatient admission, requesting Paediatric sub-specialty team, diagnosis offered by the admitting team, time lapse from inpatient request to dermatology consultation and whether follow-up in dermatology outpatient was required. The data was stored using a secure hospital Microsoft Excel spreadsheet.

In order to identify learning needs among paediatric trainees, we used a secure online questionnaire to survey current paediatric trainees. We collected data on a number of parameters such as the trainee specialty level, confidence in diagnosing common dermatological conditions, perception of paediatric dermatology workload, awareness of how to make a dermatology referral, whether cases are discussed with more senior staff before requesting dermatology input and if these trainees receive specific paediatric dermatology training.

## RESULTS

A total of 81 (42 males, 39 females) inpatient consultations were recorded during this period, 26% (21/81) were admitted primarily with a dermatology complaint. Mean age was 4 years and 3 months with an age range of 2 days old to 17 years and 3 months.

Dermatology input was requested in the form of a verbal request between the referring paediatric doctor and a member of the dermatology team. A skin diagnosis was offered in 58% (47/81) of cases in the medical notes. The dermatology diagnosis following consultation differed from that of the referring Paediatric team in 42% (34/81) of the consults. The most common dermatological diagnoses included; atopic eczema 10% (8/81), eczema herpeticum 10% (8/81), infected eczema 6% (5/81), drug rash 6% (5/81), urticaria 6% (5/81), contact dermatitis 5% (4/81), impetigo 4% (3/81), sarcoptes scabiei infestation 4% (3/81), cellulitis 4% (3/81), seborrheic eczema 2% (2/81) and tinea capitis 2% (2/81). Other less common diagnoses ranged from non-accidental injury, acute haemorrhagic oedema of infancy, acral pustulosis of infancy, molluscum contagiosum, viral exanthem and infections such as, Panton- Valentine Leukocidin (PVL) staphylococcal skin infection, hand Foot and Mouth disease. One diagnosis of Epidermolysis Bullosa Simplex (EBS) was made. In just over half of cases 52% (42/81), a dermatological condition was the primary diagnosis, whilst 66% (29/81) of patients had other co-morbidities associated with a new skin complaint.

Peak referrals were seen in the months of January and November (Figure 1). There was a notable reduction in referrals in February of the academic year, corresponding to the trainee change-over period. This may reflect a lack of guidance amongst the new junior paediatric doctors about how to refer to the dermatology team during the induction period. Dermatology input was offered within 24 hours of referral in 87% (71/81) of patients, whilst 5% (4/81) were seen on the

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next day and 8% (7/81) were reviewed within 48 hours of referral. In 47% (38/81) of these referrals, investigations were performed. Investigations included; bloods 29% (23/81), skin swabs 28% (23/81), 8% (4/48) biopsy and 4% (3/81) required skin scraping as part of assessment and workup.

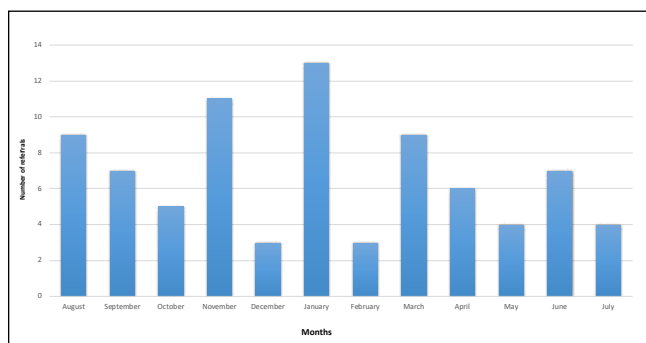


Fig 1. Number of dermatology referrals over the 12month period

The majority of dermatology referrals requested were within 24 hours of paediatric admission 58% (47/81), whilst 12% (10/81) were within 48 hours of admission, 6% (5/81) within 72 hours and 12% (10/81) were within 96 hours of admission. While, 12% (10/81) of referrals were made within 6-50 days of paediatric admission (Figure 2).

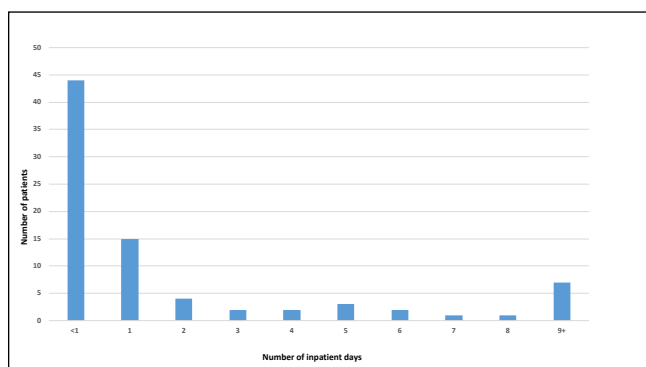


Fig 2. Number of inpatient days before dermatology referral requested

Of the 81 paediatric referrals, 33% (27/81) required one consultation while 65% (53/81) required more than one consultation, as one patient with a rare EBS diagnosis required 13 consultations. The total number of face-to-face consultations over this period was 136. Interestingly, 60% (49/81) did not require follow-up on discharge, while 40% (32/81) were reviewed in the dermatology outpatient settling within 6- 8 weeks of discharge.

The uptake of the online paediatric trainee survey was a total of 20 responses for trainees, ranging from Specialty Trainee ST-1 to ST-6 with 16 females and 4 males. All trainees surveyed were currently on the paediatric training programme. When questioned about specific paediatric dermatology training as part of their rotations, 55% (11/20) of specialty paediatric trainees answered no to receiving dermatology specific training.

Interestingly, the perception of paediatric dermatology related workload was estimated to be almost a quarter by 45%

(9/20) of paediatric trainees, whilst 30% (6/20) of paediatric trainees reported half of their workload related to paediatric dermatology and in 25 % (5/20) of paediatric trainees almost three quarters.

55% (11/20) of trainees reported their level of confidence between 25-50% in diagnosing and managing common paediatric dermatology conditions. A majority of trainee 65% (13/20) reported that dermatology cases they received in the Emergency Department were not discussed with more senior staff prior to making a dermatology referral.

Paediatric trainees' self-reported confidence levels ranged across common dermatology conditions such as eczema (70%), eczema herpeticum (70%), infantile haemangioma (60%), while 50% for conditions such as tinea infections, drug rashes and warts. Interestingly, confidence level was noted to be 80% in diagnosing and managing viral rashes, while for Psoriasis this was reported to be 40%, possibly reflecting less frequent exposure to this condition (Figure 3).

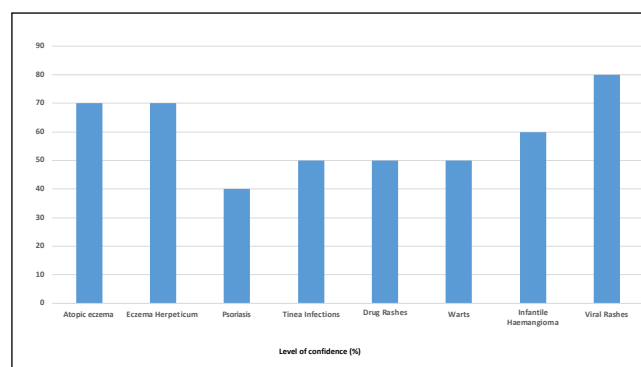


Fig 3. Paediatric trainee level of confidence in common dermatological presentations

## DISCUSSION

Dermatological conditions and skin manifestations in the presence of other co-morbidities can confer a significant and possibly underestimated workload for the dermatology team. Of the Paediatric subspecialties referring to the dermatology service, General Paediatrics was the principle requesting team. This likely reflects the volume of paediatric admissions under the General Paediatric team. Following admission, the majority of patients were seen within a timely manner by dermatology, offering the admitting team a working diagnosis and a treatment plan, improving patient care and, in some cases, facilitating a timely hospital discharge.

A wide variety of skin conditions were referred by the Paediatric team and the most common indication for admission was severe atopic eczema and, in some cases, infected eczema. These severe atopic eczema cases were admitted for intensive topical therapy and intravenous antimicrobials where appropriate. In addition to providing patients with intensive treatment, the hospital inpatient stay allowed both the Paediatric and Dermatology team to provide more detailed parental education on the application of topical and wet wraps. The efficacy of wet wraps in treating severe paediatric cases of eczema has been previously described.<sup>3</sup>



These patients had an average inpatient stay of 4 days, after which they were discharged home with dermatology outpatient input and this seems consistent with other international studies.<sup>4,5</sup>

It is important to note that the consultation process in its current form has some potential limitations, particularly in regards to capturing the quantity and modality of referrals to the Dermatology team. At present, formal referral templates to request a Dermatology consult are not in use in the Paediatric department and so the process relies heavily on telephone referral requests and, in some cases, telephone advice. The referring team sometimes approach a Dermatology doctor directly at the outpatient clinic with a verbal referral or liaise with our Dermatology Nurse. In this review, only referrals made directly to the designated Paediatric Dermatology Registrar were included in our analyses. Referrals made directly to Consultants or the Nurse Specialist either by telephone or e-mail were not captured and thus our data is likely to under-estimate the true burden of inpatient referrals.

Discrepancies were noted between the working diagnosis made by the admitting Paediatric team and that made by the Dermatology team following review. In only 58% (47/81) of cases a differential dermatological diagnosis was offered, which may suggest a lack of confidence amongst trainees with regard to in dermatology diagnosis.

Our study findings demonstrate the importance of dermatology inpatient consultations in terms of making accurate and timely diagnoses. In our experience paediatric inpatient referrals to the Dermatology service represent a significant demand on clinician time, with 65% (53/81) requiring more than one consultation and with 40% (32/81) requiring outpatient dermatology follow-up.

This retrospective study emphasises the importance of continued medical education for junior staff working in non-dermatology specialties. From our online survey findings, we have identified some weaknesses and strengths. The paediatric

trainee confidence levels in diagnosing and managing dermatological conditions correlated to the specialty doctor training level, as for example an ST6 trainee was more confident across all dermatological presentations when compared to an ST1 trainee.

Our analysis offers an insight into the range and complexity of dermatological conditions presenting in the paediatric inpatient setting and the significant and often underestimated workload impact of such cases. Perhaps most importantly, our findings confirm the pivotal role of the dermatologist in diagnosis, management, and clinician education. We now plan to design educational tools such as specific paediatric dermatology study days and a paediatric dermatology handbook to help assist paediatric trainees to further develop their knowledge of common paediatric dermatological conditions. We also plan to formalise the paediatric referral process to help streamline urgent requests and improve the inpatient experience.

Conflicts of Interest: None

Funding source: None

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