

1 **Consultations, prescribed topical treatments and disease severity in children with**
2 **eczema in primary care: analysis of electronic medical records in the BATHE study**

3 **Running head:** Consultations, treatments and eczema severity

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11 **What is already known about this topic?**

- 12 • In countries with well-resourced primary care, most children with eczema are
13 managed by their General Practitioner (GP).
- 14 • Little is known about how often these children are seen or what they are prescribed.

15

16 **What does this study add?**

- 17 • First study to examine consultation frequency and emollients/topical corticosteroid
18 (TCS) prescribing in relation to eczema severity in primary care.
- 19 • Quantity of emollient (mainly creams) and TCS (mostly mild) prescribed are low and
20 not related to age, sex or severity.

21

22 **Abstract**

23 **Background:** In countries with well-resourced primary care, most children with eczema are
24 managed by their General Practitioner (GP) but we know little about how often they are
25 seen or how they are treated.

26 **Objectives:** To describe patterns of consultations and prescribing by eczema severity for
27 children with eczema.

28 **Methods:** Analysis of electronic medical record data from 422/483 participants in the
29 BATHE study. We used descriptive statistics to compare participants characteristics,

1 consultation and prescribing patterns. We explored associations with eczema severity
2 (POEM), age and gender using Poisson and linear regression models.

3 Results: Mean (SD) age 4.8 (2.9) years and POEM 10.0 (5.8). Over 12 months, 386 children
4 had a median (IQR) of 4.0 (2-7) consultations. Of 2049 encounters, 1421 (69.4%) were for
5 an eczema flare. Emollients were the most commonly prescribed item, with a mean of 4.6
6 prescriptions (507.9 g/ml) per child, yet 32.0% were not prescribed any. On average,
7 children were prescribed 1.3 different emollient-types, with cream being most common
8 (79.5% children, 66.5% prescriptions). 51.4% were prescribed a topical corticosteroid
9 (TCS) with a mean of 2.8 prescriptions (50.6 g) per child and a mean of 1.4 different TCS
10 potency-types (mild being the most common 73.3% children, 56.7% prescriptions).
11 Number of consultations but not quantity of emollients and TCS prescribed were
12 associated to age and eczema severity.

13 Conclusions: Children with eczema are seen frequently in primary care but are prescribed
14 less emollient and TCS than might be appropriate for age and severity.

15

16 Introduction

17 Atopic eczema/dermatitis (“eczema”) affects around 20% of children. The majority develop
18 symptoms in the first two years of life and the burden of disease is among pre-school
19 children, although it affects people of all ages.¹ The core treatments are emollients to
20 moisturise the skin and flare control creams (topical corticosteroids, TCS, or calcineurin
21 inhibitors, TCI) to treat or prevent flares. The most common reason for poor eczema control
22 is undertreatment.²

23 The majority of children with eczema have mild-to-moderate disease and in health systems
24 like the UK are managed in primary care.³ However, our understanding of the care provided
25 in this setting is limited. We know from qualitative work that people with eczema perceive
26 primary care management as being of variable standard⁴ and we have some insight into
27 consultation and prescribing patterns.⁵⁻⁸ We know less about how the frequency of
28 encounters, or type and quantity of prescriptions, in relation to age or eczema severity.⁹⁻¹⁰

29 Emollients can be used in one of three ways: as a leave-on treatment, bath additive or soap
30 substitute, although there can be overlap. Clinical guidelines make recommendations on
31 quantity of emollients and type of TCS to be prescribed but there are limited data on real
32 world use, particular in relation to disease severity. For example, NICE recommends 250-
33 500 grams per week of emollient and matches TCS potency (mild, moderate, potent) with

1 eczema severity (mild, moderate, severe).¹¹ However, limited evidence underpins these
2 statements.

3 Using data from a clinical trial conducted in GP surgeries in England and Wales, we sought
4 to describe patterns of consultations and emollient and TCS prescriptions (number and
5 quantity of individual items and type/potency), by eczema severity, for children with
6 eczema.

7

8 **Materials and methods**

9 **Data source**

10 We analysed electronic medical record data from the BATHE study. BATHE has been
11 described in detail previously¹² but in brief it was a pragmatic clinical trial evaluating the
12 effectiveness of bath emollient additives in children with eczema. 483 participants aged 1-
13 11 years were recruited from 96 GP surgeries in England and Wales, and randomised to
14 either bath emollients plus standard eczema care or standard eczema care only. The
15 primary outcome period was over 16 weeks although children were followed-up for one
16 year. There was no difference in the primary outcome, POEM (Patient Orientated Eczema
17 Measure), between the two groups. At the end of the trial, researchers reviewed
18 participants' electronic medical records and extracted data on consultations and eczema-
19 related prescriptions for the 12 months that they were in the study.

20 **Analysis**

21 Eczema severity was assessed by calculating the baseline POEM score.¹³ A categorical
22 version of the POEM score was also used: almost clear (0-2), mild (3-7), moderate (8-16)
23 and severe or very severe eczema (17-28).¹⁴

24 Prescriptions were categorised by treatment type: emollient, topical corticosteroids,
25 topical calcineurin inhibitors (TCI), and antihistamines. Emollients were further classified
26 by type (lotion, cream, gel, ointment or spray) and TCS by potency (UK four group category
27 system: mild, moderate, potent and very potent).¹⁵

28 Descriptive statistics were used to compare the baseline characteristics of the participants
29 with complete electronic medical record data (of prescriptions and consultations) with all
30 children in the trial, and to describe the patterns of prescriptions and consultations within
31 the dataset. We explored how POEM score/categories, age and gender predicted number of

1 consultations and average quantity of emollient and TCS prescribed using Poisson
2 (Incident rate ratios for number of consultations) and linear regression models. Linear
3 regression models for quantity of emollient or TCS prescribed were corrected for the
4 nesting of prescriptions within children (intra-group correlation). Assumptions of linearity
5 were checked visually with scatter and residual plots. Quantity of emollient was log-
6 transformed to reduce skewness; we report back-transformed geometric mean ratios and
7 95% confidence intervals.

8 Analyses were performed in Stata v18 and graphs were created using Microsoft Excel.

9 Ethics

10 The BATHE study was approved by the Newcastle & North Tyneside research ethics
11 committee 1 (14/NE/0098).

12

13 Results

14 Characteristics of participants

15 Electronic medical record data were available on 422/483 (87.4%) participants. Mean (SD)
16 age was 4.8 (2.9) years (range 1 to 11) and POEM was 10.0 (5.8) (range 0 to 28), 84.3% white
17 – similar to the original BATHE participants (Table 1). All 422 participants had prescription
18 data and 386/422 (91.5%) had consultation data (Figure 1).

19 Consultations

20 386 children consulted once or more, leading to a total of 2049 consultations of which
21 1421 (69.4%) were for an eczema flare (Table S1a). The median number of consultations for
22 any reason was 4.0 (IQR 2-7, Table S1a and Figure S1). Young age (Figure 2, Note: Median
23 number of consultations for eczema only was zero at all ages) and more severe eczema at
24 baseline (Figure 3) were associated with a higher number of consultations (Table 5) – a 2%
25 increase in the number of consultations per-unit increase in POEM and 6% decrease in the
26 number of consultations for each year of age.

27 Prescriptions

28 A total of 3,433 prescriptions were recorded. Table 2 summarises the number of children
29 prescribed emollient/TCS and the number of emollient/TCS prescriptions, overall and by
30 eczema severity. For completeness, this includes bath additives and topical calcineurin

1 inhibitor (the top seven items by eczema severity are listed in Table S2). It is noteworthy
2 that antihistamines were prescribed to 13.3% of children and constituted 5.9% of
3 prescriptions.

4 Emollients excluding bath additives

5 Non-bath additive emollients (hereafter “emollients”) were the most commonly prescribed
6 item (1307 prescriptions, 38.1% of all prescriptions), with a mean (SD) of 4.6 (4.5)
7 prescriptions per child (Table S3), yet 32.0% were not prescribed any (Table 2). More
8 children with severe/very severe eczema (75.4%) were prescribed an emollient than those
9 with mild (60.3%) or clear/almost clear (62.5%) (Table 2).

10 Of the 1307 emollient prescriptions, data were available on type and quantity for 284
11 (67.3%) children (Figure 1). Table 3 summarises the number of children, prescriptions and
12 quantity of emollient prescribed by type and disease severity. On average, children were
13 prescribed 1.3 different emollient-types, with cream being the most common (74.3%
14 children, 59.8% prescriptions). The median (IQR) quantity of emollient prescribed was
15 1500 (600-3000) grams or millilitre per child and it was similar across emollient types,
16 highest IQR was for lotions and creams (500-2500) and lowest IQR for ointments (500-
17 2000). The median quantity of emollients prescribed was not related to age, eczema
18 severity or sex (Table 5).

19 Topical corticosteroids

20 51.7% children were prescribed a TCS (Table 2) with a mean (SD) of 2.8 (2.5) prescriptions
21 per child (Table S3). The proportion of children prescribed a TCS increased from 37.5% with
22 clear/almost clear through to 68.4% with severe or very severe eczema (Table 2).

23 Of the 602 TCS prescriptions, data were available on potency and quantity for 211 (50%)
24 children (Figure 1, Table 4). Table 4 summarises the number of children, prescriptions and
25 quantity of TCS prescribed by potency and disease severity. On average, children were
26 prescribed 1.4 different TCS potency-types, with mild being the most common (71.6%
27 children, 54.2% prescriptions, Table 4). The median (IQR) quantity of TCS prescribed was
28 90 (30-150) g per child, being most variable for very potent strength (median 400, IQR 300-
29 500). TCS potency often did not match with baseline eczema severity (Table S5). The
30 median quantity of TCS prescribed was not related to eczema severity, age or sex (Table 5).

1

2 **Discussion**

3 **Summary**

4 Children with more severe eczema consulted their GP more often, most commonly for an
5 eczema flare. Emollients, most commonly creams, were the most frequently prescribed
6 treatment. The median quantity over 12 months was low (1500g per year, around 28.8g per
7 week), although higher (median 2500g, 48g per week) among the 43 children (15%) with
8 severe or very severe eczema. The quantity of TCS prescribed was also low (median 90g
9 over 12 months). The number of consultations, but not quantity (g or ml) of emollients or
10 TCS prescribed, were associated with eczema severity and age.

11 **Strengths and limitations**

12 This is the first study to examine the number of consultations and prescriptions for
13 common topical treatments (including type/potency and quantity) in relation to eczema
14 severity in primary care. Eczema severity was assessed using a validated patient-reported
15 measure (POEM) and prescribing data were obtained from electronic medical records. The
16 characteristics of the 422 children with electronic medical record data, included in our
17 analyses, were similar to the 483 participants in the BATHE trial, who in turn are
18 representative of patients seen in primary care.

19 Eczema severity was captured over the 12-month follow-up yet we based our analyses on
20 baseline POEM scores. Therefore, our study does not take into account how participant's
21 severity may have changed over the course of the study. Emollient type and TCS potency
22 were categorised for analysis but misclassification may have occurred. The BATHE study
23 was a large, high quality randomised controlled trial in which there was no difference in the
24 primary outcome (eczema severity over 16 weeks), but it does mean that we were unable to
25 comment meaningfully on prescription of emollient bath additives (the intervention). In
26 addition, families who took part in the trial may not be representative and allocation to the
27 bath additive group or not may have changed the use of other treatments. Prescribing data
28 does not tell us which treatments are applied where and when on an individual. For
29 example, parents may have used moisturisers bought over-the-counter or treatments
30 prescribed for other people in their household (although children in the UK receive free
31 prescriptions, so it is likely that over-the-counter purchases are not high). As far as we are
32 aware, no children were on systemic medication or receiving prescriptions from other
33 sources but this data were not collected.

1 Comparison with existing literature

2 Data on consultation rates for people with eczema are limited but our findings are
3 consistent with previous findings that over 12 months most children with eczema are seen
4 in primary care.³ Analysis of UK data by Lusignan et al⁵ found the highest consultation rates
5 amongst children under two years old (213.3 eczema consultations per 100 person-years
6 compared with 95.6 among 2-11 years). While there was no breakdown in relation to
7 disease severity, they did note that eczema consultation rates were highest for those in the
8 most deprived quintile, something which we were unable to explore.

9 Previous research has also identified comparable under-use of topical treatments. Jacquet
10 et al⁹ analysed baseline data from a feasibility trial conducted in primary care in England
11 which involved children younger than five years. 56% were using any emollient and 46%
12 reported using one or more strengths of TCS (41% mild, 4% moderate, and 5% potent). In a
13 study based in a dermatology clinic in Jordan, Muhaidat et al⁶ surveyed parents' use of
14 emollients for children less than 12 years old, which varied from 79% at least daily to 4.2%
15 none, with 35% reporting using less than 100g of emollient per month (~3.5g per day): 61%
16 applied creams or lotions, 20% ointments, and 14% a mixture. Among children up to 10
17 years old in Norway, over a median observation period of 38.2 months, Mohn et al⁷ reported
18 a mean of 1.8-2.1 TCS/TCI prescriptions with the mean quantity varying from 122.2g (5
19 years old) to 127.0g (0 years old) – approximately 40 grams per year.

20 In contrast, while still less than recommended quantities, in an analysis of Scottish
21 prescription data Choi et al⁸ observed emollient use of 17.5 grams per day (~122.5 grams
22 per week) and median TCS use was 49.2 grams per month (~590 grams per year). Regarding
23 TCS potency, the proportion of prescriptions were: 37.8% potent, 23.9% moderate, 23.1%
24 mild and 15.3% very potent. However, this study included older children (0 to 15 years) with
25 moderate-to-severe disease only. van Halewijn et al²¹ summarised cohort baseline data
26 from a cohort in The Netherlands. Emollients use in the past week was 96.7% and on a
27 daily basis 53.9%, and TCS use in the past week was 49.0%. The most common TCS were
28 moderate (43.9%) and potent (25.0%). No data on quantity was presented.

29 Implications for research and/or practice

30 The reasons for less-than-expected use of topical treatments, and whether it matters in
31 relation to effectiveness and safety, deserves further exploration. More studies are needed
32 to explore the type, frequency, quantity, and duration of topical treatments in children and
33 young people with eczema with a range of disease severity. Ideally, bought as well as
34 prescribed treatments should be captured. This information could be used to support

1 statements in guidelines about what should be applied to the skin of children with eczema,
2 when and how often.

3 Meanwhile, prescribing clinicians should always ask parents/carers and older children
4 about any previous/current use of topical treatments for eczema and their views about
5 them. Misunderstandings or insufficient knowledge about the role of different therapies
6 ought to be identified and addressed. Acknowledging the lack of evidence in some areas,
7 the effectiveness of treatments and harms of poorly controlled eczema must also be
8 stated. Families should be offered verbal and written information on how and when to use
9 treatments. If practical demonstrations are not possible, children and their carers should
10 be directed to online resources. The website eczemacareonline.org.uk contains written and
11 video resources which has been shown to improve eczema symptoms in children and
12 young people.²²

13

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38

39 **Figure legends**

40 Figure 1 Flowchart of participants and data

41 Figure 2 Median number of consultations in last 12 months by age

42 Figure 3 Eczema severity and median number of consultations and mean number of prescriptions
43 for emollients and TCS

1 Table 1: Characteristics of participants

	BATHE study participants	Participants with EMR data in this study	Participants with consultation and prescription data	With prescription data on emollient type and quantity	With prescription data on TCS potency and quantity	
Number (% row) participants	483	422 (100.0)	386 (91.5)	284 (67.3)	211 (50.0)	
Female n (%)	244 (51.0)	214 (50.7)	199 (51.6)	149 (52.5)	114 (27)	
Mean (SD) age in years	5.3 (2.9)	4.8 (2.9)	4.6 (2.8)	4.6 (2.9)	4.5 (2.9)	
Ethnicity n (%)						
White	397 (84.1)	348 (84.3)	318 (84.4)	222 (79.9)	171 (80.7)	
Asian	31 (6.6)	27 (6.5)	25 (6.6)	22 (7.9)	15 (7.1)	
Mixed	19 (4.0)	18 (4.4)	17 (4.5)	16 (5.8)	10 (4.7)	
Black	15 (3.2)	12 (2.9)	11 (2.9)	12 (4.3)	9 (4.3)	
Chinese	5 (1.1)	4 (1.0)	2 (0.5)	3 (1.1)	3 (1.5)	
Other	5 (1.1)	4 (1.0)	4 (1.1)	3 (1.1)	4 (1.9)	
Eczema severity (POEM)						
Mean (SD)	9.8 (5.8)	10.0 (5.8)	9.9 (5.8)	10.3 (5.8)	11.0 (6.1)	
Categorised n (% col)						
Clear or almost clear	114 (43.2)	24 (5.7)	22 (5.7)	15 (5.3)	9 (4.3)	
Mild eczema		136 (32.2)	125 (32.4)	81 (28.5)	53 (25.1)	
Moderate eczema		119 (45.0)	205 (48.6)	188 (48.7)	145 (51.1)	111 (52.6)
Severe or very severe eczema		31 (11.7)	57 (13.5)	51 (13.2)	43 (15.1)	38 (18.0)

2 EMR = Electronic Medical Record

1 Table 2: Number of children with prescriptions

	Children			
	n*	N	Row %	Col %
Prescriptions, by treatment		422		
Emollients (excluding bath additives)	-	286	-	67.8
Topical Corticosteroids	-	218	-	51.7
Bath additives	-	255	-	60.4
Antihistamine	-	56	-	13.3
Topical calcineurin inhibitor		8	-	1.9
Emollients prescriptions, by eczema severity†		286		
<i>Clear or almost clear</i>	24	15	62.5	5.2
<i>Mild eczema</i>	136	82	60.3	28.7
<i>Moderate eczema</i>	205	146	71.2	51.0
<i>Severe or very severe eczema</i>	57	43	75.4	15.0
Emollient prescriptions, by number of types		286		
<i>One type</i>	-	198	-	69.2
<i>Two types</i>	-	81	-	28.3
<i>Three types</i>	-	6	-	2.1
<i>Four or more types</i>	-	1	-	0.3
Topical corticosteroids prescriptions, by eczema severity†		218		
<i>Clear or almost clear</i>	24	9	37.5	4.1
<i>Mild eczema</i>	136	55	40.4	25.2
<i>Moderate eczema</i>	205	115	56.1	52.8
<i>Severe or very severe eczema</i>	57	39	68.4	17.9
Topical corticosteroids prescriptions, by number of types		218		
<i>One potency-type</i>	-	157	-	72
<i>Two potency-types</i>	-	45	-	20.6
<i>Three potency-types</i>	-	15	-	6.9
<i>Four potency-types</i>	-	1	-	0.5

2 *n is total number of children with data on eczema severity. Categories in italics are mutually-
 3 exclusive.

4 † Categorised POEM

5

1 Table 3: Number and quantity† of different types of non-bath additive emollients prescribed, by
 2 eczema severity (n=284 children, 1300 prescriptions)

Emollient Type	Eczema severity (categorised POEM)												Total		
	Clear or almost clear			Mild eczema			Moderate eczema			Severe or very severe eczema			N	No. pres.	Median quantity (IQR) per-child
	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N (Col %)	No. pres. (Col %)	Median quantity (IQR) per-child
<i>Lotions</i>	1	2 (3.5)	1000 (1000-1000)	4	8 (14.0)	950 (300-1750)		34 (59.7)	1650 (500-2500)	2	13 (22.8)	2650 (500-4800)	17 (6.0)	57 (4.4)	1000 (500-2500)
<i>Creams</i>	10	28 (3.6)	700 (500-3000)	60	195 (25.1)	1000 (500-2100)	109	395 (50.8)	1000 (500-2500)	32	160 (20.6)	2000 (1325-2900)	211 (74.3)	778 (59.8)	1000 (500-2500)
<i>Gels</i>	1	2 (1.2)	1000 (1000-1000)	15	46 (27.2)	500 (500-2500)	30	91 (53.9)	1000 (500-2375)	11	30 (17.8)	1100 (500-2500)	57 (20.1)	169 (13.0)	1000 (500-2375)
<i>Ointments</i>	4	20 (7.2)	2000 (1500-3312.5)	23	43 (15.5)	500 (475-1250)	43	130 (46.8)	1000 (500-3000)	22	85 (30.6)	1312 (500-3000)	92 (32.4)	278 (21.4)	1000 (500-2000)
<i>Sprays</i>	0	0 (0.0)	0 (0-0)	2	9 (50.0)	765 (480-1050)	1	9 (50)	2160 (2160-2160)	0	0 (0.0)	0 (0-0)	3 (1.1)	18 (1.4)	1050 (480-2160)
All types	15	52 (4.0)	1000 (500-3000)	81	301 (23.2)	1100 (500-2500)	145	659 (50.7)	1500 (900-3000)	43	284 (22.4)	2500 (1100-4500)	284 (100.0)	1300 (100)	1500 (600-3000)

3 Pres=prescriptions; N = Number of children. Note that number of children in last row (all types) does not equal sum of number
 4 of children in that column. Emollient types are not exclusive groups, i.e. a child might have been prescribed more than one
 5 type of emollient. The last row displays the total number of children with data on type of emollient and quantity. † calculated
 6 as the median (IQR) total quantity per-child (grams or ml) over 12 months.

1 Table 4: Number and quantity† of different types of TCS prescribed, by eczema severity (n=211
 2 children, 583 prescriptions)

	Eczema severity (categorised POEM)												Total		
	Clear or almost clear			Mild eczema			Moderate eczema			Severe or very severe eczema					
Steroid Potency types	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N	No. pres. (Row %)	Median quantity (IQR) per-child	N (Col %)	No. pres. (Col %)	Median quantity (IQR) per-child
Mild	7	17 (5.4)	45 (15-120)	38	71 (22.5)	30 (30-60)	86	181 (57.3)	45 (30-90)	20	47 (14.9)	60 (30-120)	151 (71.6)	316 (54.2)	45 (30-90)
Moderate	3	5 (3.2)	30 (30-150)	19	35 (22.2)	100 (60-110)	39	64 (40.5)	60 (30-100)	22	54 (34.2)	120 (60-200)	83 (39.3)	158 (27.1)	100 (30-130)
Potent	1	2 (1.9)	60 (60-60)	10	21 (20.2)	75 (60-120)	19	45 (43.3)	80 (30-125)	19	36 (34.6)	60 (30-100)	49 (23.2)	104 (17.8)	60 (30-100)
Very potent	0	0 (0.0)	0 (0-0)	0	0 (0.0)	0 (0-0)	1	2 (40.0)	500 (500-500)	1	3 (60.0)	300 (300-300)	2 (0.9)	5 (0.9)	400 (300-500)
All types*	9	24 (4.1)	30 (30-120)	53	127 (21.8)	60 (30-100)	111	292 (50.1)	60 (30-130)	38	140 (24.0)	120 (60-230)	211 (100)	583 (100)	90 (30-150)

3 Pres=prescriptions; N = Number of children. Note that number of children in last row does not equal sum of no. children in
 4 that column. Steroid potency types are not exclusive groups, i.e. a child might have been prescribed more than one type of
 5 steroid. The last row displays the total no. of contributing children with data on type of steroid and quantity. † calculated as the
 6 median (IQR) total quantity per-child (grams or ml) over 12 months.

7

- 1 Table 5 Participant characteristics associated with consultation
- 2 frequency and average quantity of emollient or TCS prescribed

	Incident rate ratios (95% CI) for number of consultations in last 12 months	P-value
N=386 children, Pseudo R2=3.0%		
Continuous POEM	1.02 (1.01, 1.03)	<0.001
Age	0.94 (0.93, 0.96)	<0.001
Female	1.00 (0.92, 1.10)	0.92
N=386 children, Pseudo R2=3.0%		
Categorical POEM*		
<i>Clear or almost clear</i>	1 (ref)	
<i>Mild</i>	1.19 (0.95, 1.48)	0.13
<i>Moderate</i>	1.30 (1.05, 1.61)	0.017
<i>Severe or very severe</i>	1.61 (1.27, 2.03)	<0.001
Age	0.94 (0.93, 0.96)	<0.001
Female	1.00 (0.91, 1.09)	0.92
	Geometric Mean Ratios (95 %CI) for Quantity of Emollient (grams or millilitres) †	P-value
N=1300 emollient prescriptions, R-squared=0.4%		
Continuous POEM	1.00 (0.99, 1.01)	0.87
Age	1.01 (0.99, 1.03)	0.22
Female	0.99 (0.89, 1.10)	0.78
N=1303 emollient prescriptions, R-squared=1.2%		
N=1300 emollient prescriptions, R-squared=1.2%		
Categorical POEM*		
<i>Clear or almost clear</i>	1 (ref)	
<i>Mild</i>	0.82 (0.55, 1.23)	0.34
<i>Moderate</i>	0.90 (0.61, 1.33)	0.59
<i>Severe or very severe</i>	0.91 (0.61, 1.35)	0.64
Age	1.01 (0.99, 1.03)	0.23
Female	1 (0.9, 1.11)	0.98
	Geometric Mean Ratios (95% CI) for Quantity of TCS (grams or millilitres) †	P-value
N=583 TCS prescriptions, R-squared=2.1%		
Continuous POEM	1.01 (1.00, 1.02)	0.14
Age	1.01 (0.98, 1.04)	0.56
Female	1.06 (0.91, 1.24)	0.42
N=583 TCS prescriptions, R-squared=2.5%		
Categorical POEM*		

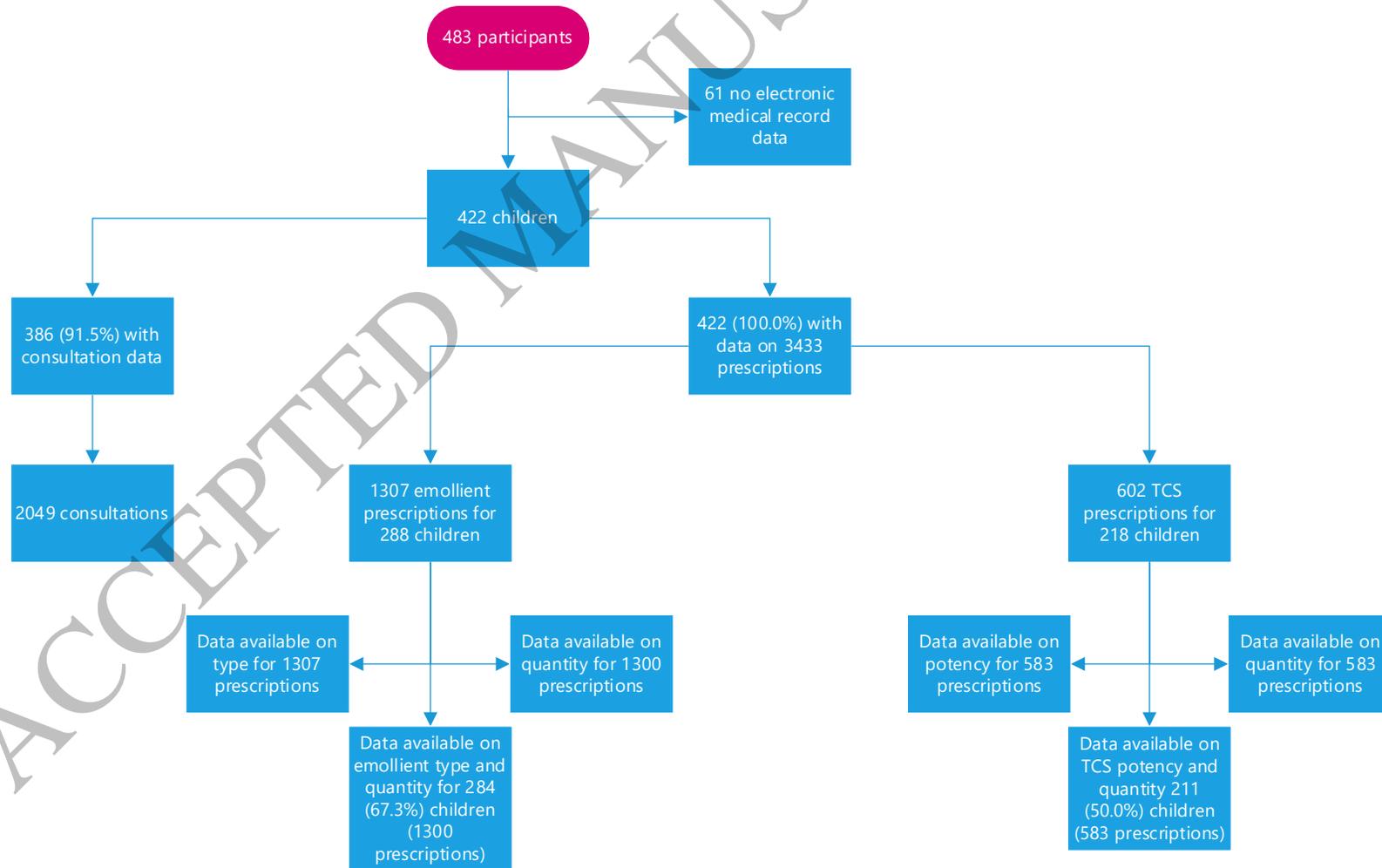
<i>Clear or almost clear</i>	1 (ref)	-
<i>Mild</i>	1.04 (0.73, 1.48)	0.82
<i>Moderate</i>	0.99 (0.71, 1.39)	0.96
<i>Severe or very severe</i>	1.19 (0.81, 1.75)	0.39
Age	1.01 (0.98, 1.03)	0.57
Female	1.06 (0.91, 1.24)	0.44

1 † confidence intervals have been corrected for the nesting of prescriptions within children
2 (intra-group correlation); Total quantity was log-transformed to reduce skewness (Figure
3 S2).

4

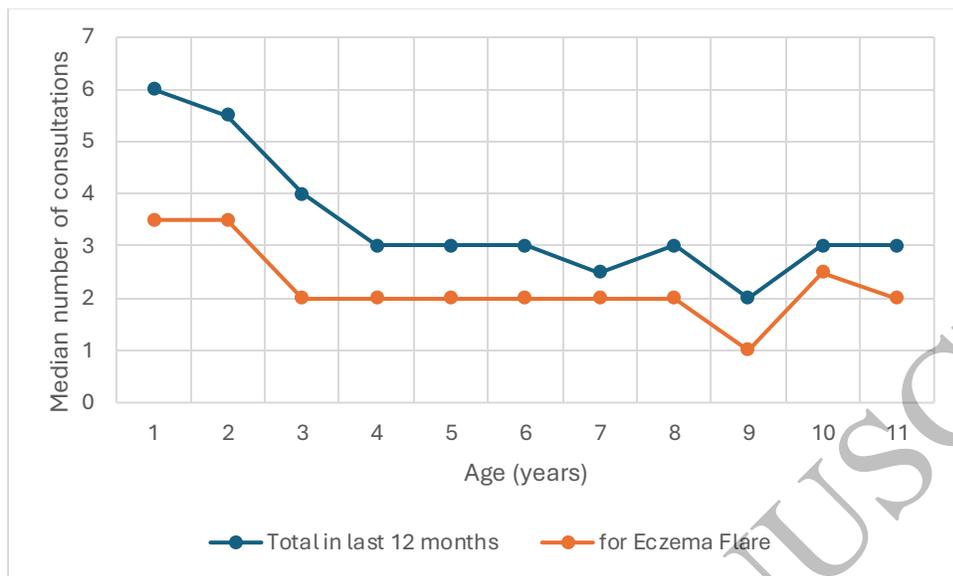
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1 Figure 1 Flowchart of participants and data



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1 Figure 2 Median number of consultations in last 12 months by age



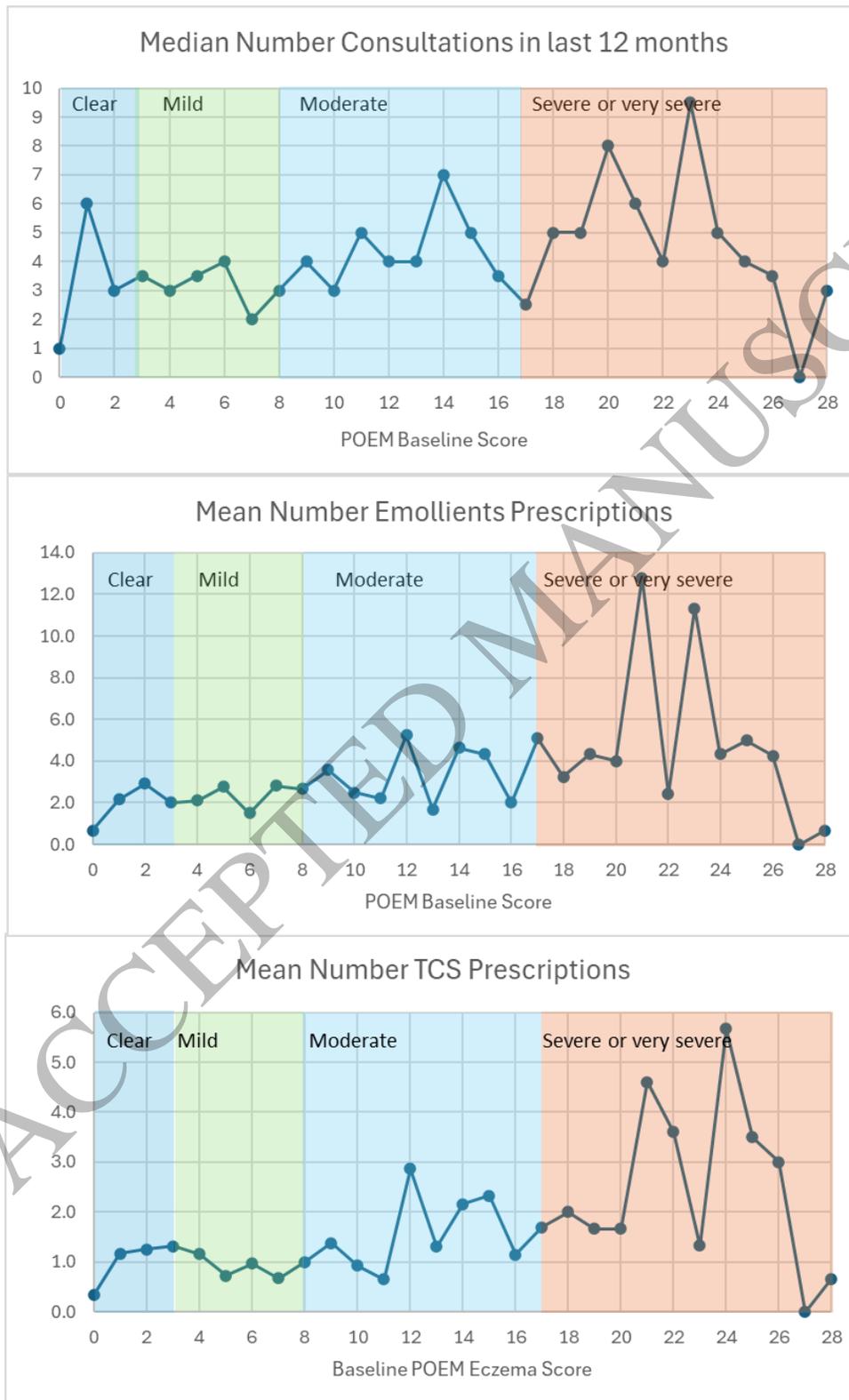
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3 Note: Median number of consultations for eczema only was zero at all ages.

4

5

- 1 Figure 3 Eczema severity and median number of consultations and mean
- 2 number of prescriptions for emollients and TCS



3