

This is a repository copy of *The UK-Irish Atopic eczema Systemic TherApy Register* (*A*STAR*): baseline characteristics of the cohort.

White Rose Research Online URL for this paper: <u>https://eprints.whiterose.ac.uk/223220/</u>

Version: Accepted Version

Article:

Gribaleva, E. orcid.org/0000-0001-5693-8194, Chan, K., Chivardi Moreno, C. et al. (60 more authors) (2025) The UK-Irish Atopic eczema Systemic TherApy Register (A*STAR): baseline characteristics of the cohort. British Journal of Dermatology. Ijaf039. ISSN 0007-0963

https://doi.org/10.1093/bjd/ljaf039

© 2025 The Authors. Except as otherwise noted, this author-accepted version of a journal article published in British Journal of Dermatology is made available via the University of Sheffield Research Publications and Copyright Policy under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/

Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here: https://creativecommons.org/licenses/

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk https://eprints.whiterose.ac.uk/

- 1 The UK-Irish Atopic eczema Systemic TherApy Register (A*STAR): baseline
- 2 characteristics of the cohort.
- 3 Running head: Baseline characteristics of A-STAR patient cohort.
- 4
- 5 Elizaveta Gribaleva,¹ Kaitlyn Chan,¹ Carlos Chivardi Moreno,² David Prieto Merino,^{1,3} Man Fung
- 6 Tsoi,¹ Rebecca Carroll,¹ Bolaji Coker,⁴ Lilia De la Cruz,⁴ Manisha Baden,¹ Paula E Beattie,⁵ Sara
- 7 Brown,⁶ Tim Burton,⁷ Ross Hearn,⁸ John R Ingram,⁹ Alan D Irvine,¹⁰ Graham A Johnston,¹¹ Irene
- 8 Man,¹² Graham Ogg,¹³ Mandy Wan,¹⁴ Richard B Warren,¹⁵ Richard T Woolf,¹⁶ Nick J Reynolds,¹⁷,
- $9 \qquad \text{Andrea Manca,}^2 \, \text{Michael R Ardern Jones}^{18} \, \text{and Carsten Flohr}^1 \, \, \text{on behalf of the A STAR Register Study}$
- 10 Group
- ¹ Unit for Population-based and Paediatric Dermatology Research, St John's Institute of
- 12 Dermatology, Guy's and St Thomas' NHS Foundation Trust and King's College London, UK.
- 13 ² Centre for Health Economics, University of York, York, UK.
- 14 ³ Faculty of Medicine, University of Alcalá, Alcalá de Henares, Spain.
- ⁴ Research and Development Department, Guy's and St Thomas' NHS Foundation Trust, London,
 UK.
- ⁵ Department of Dermatology, Royal Hospital for Children, NHS Greater Glasgow and
- 18 Clyde, Glasgow, UK.
- 19⁶ Centre for Genomic and Experimental Medicine, University of Edinburgh, Edinburgh, UK.
- 20 ⁷ Patient Representative (independent), Nottingham, UK.
- ⁸ Department of Dermatology and Photobiology, Ninewells Hospital, Dundee, UK.
- ⁹ Department of Dermatology, Division of Infection & Immunity, Cardiff University, Cardiff, UK.
- 23 ¹⁰ Department of Clinical Medicine, Trinity College Dublin, Dublin, Ireland.
- 24 ¹¹ Department of Dermatology, University Hospitals of Leicester NHS Trust, Leicester, UK.
- ¹²Department of Dermatology, Surrey and Sussex Healthcare NHS Trust, Surrey, UK.
- 26 ¹³ MRC Translational Immune Discovery Unit, MRC Weatherall Institute of Molecular Medicine,
- 27 University of Oxford.

2	¹⁴ Evelina London Children's Hospital, Guys' & St Thomas' NHS Foundation Trust; Institute of Pharmaceutical Science, King's College London, London, UK.
3 4 5 6	¹⁵ Division of Musculoskeletal and Dermatological Sciences, School of Biological Sciences, Faculty of Biology, Medicine and Health, The University of Manchester; Salford Royal Hospital, Northern Care Alliance NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UK
7	¹⁶ St John's Institute of Dermatology, Guy's and St Thomas' NHS Foundation Trust, London, UK.
8 9 10	¹⁷ Institute of Translational and Clinical Medicine, Newcastle University Medical School and Department of Dermatology and the Newcastle NIHR Biomedical Research Centre, Royal Victoria Infirmary, Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK.
11 12	¹⁸ Faculty of Medicine, University of Southampton, Southampton General Hospital, Southampton, UK.
13	* See appendix 1
14	
15	Corresponding author: Professor Carsten Flohr, carsten.flohr@kcl.ac.uk
16	
17	
18	
18 19 20	Acknowledgements: We are grateful to all patients for their participation in the UK–Irish A- STAR register.
18 19 20 21	Acknowledgements: We are grateful to all patients for their participation in the UK–Irish A- STAR register.
 18 19 20 21 22 23 24 25 26 27 28 	Acknowledgements: We are grateful to all patients for their participation in the UK–Irish A- STAR register. Funding sources: The British Association of Dermatologists Eczema Register Ltd (BADERL) is a registered not-for-profit company within the British Association of Dermatologists, which supports the UK–Irish Atopic eczema Systemic Therapy Register (A-STAR). A-STAR is coordinated by King's College London and Guy's and St Thomas' NHS Foundation Trust, London, UK. BADERL receives income from AbbVie, Eli Lilly, Pfizer, and Sanofi for providing pharmacovigilance services on their therapies. The A-STAR study protocol, study conduct and all decisions concerning data analyses, interpretation and publication are made independent of any industry involvement.

- 1 EuroGuiDerm (guidelines lead) as well as speaker/advisory board honoraria from Abbvie, Apogee,
- 2 Almirall, Bioderma, Pfizer, Regeneron, and Sanofi.
- 3 JRI received a stipend as Immediate past-Editor-in-Chief of the British Journal of Dermatology and
- 4 an authorship honorarium from UpToDate. He is a consultant for Abbvie, Boehringer Ingelheim,
- 5 Cantargia, ChemoCentryx, Citryll, Moonlake, Novartis, UCB Pharma, and UNION Therapeutics and
- 6 has served on advisory boards for Insmed, Kymera Therapeutics, and Viela Bio. He is co-copyright
- 7 holder of HiSQOL, Investigator Global Assessment and Patient Global Assessment instruments for
- 8 HS. His department receives income from copyright of the Dermatology Life Quality Instrument
- 9 (DLQI) and related instruments. He is Treasurer of the CHORD-COUSIN Collaboration (C3)
- 10 dermatology outcomes consortium.
- GO holds patents relevant to inflammatory skin disease. Research funds administered through his
 Institution from UCB and Janssen.
- 13 ADI has received honoraria for consultancy from AbbVie, Arena Pharmaceuticals, Aslan,
- 14 BenevolentAI, Chugai, Dermavant, Genentech, LEO Pharma, Eli Lilly, Menlo Therapeutics,
- 15 Novartis, Pfizer, Regeneron, and Sanofi.
- 16 RTW is a Principal or co-investigator in clinical trials Abbvie, Amgen, Anaptys Bio, Boehringer
- 17 Ingelheim, Bristol Myers Squibb, Celgene, Eli Lilly, Galderma, Janssen-Cilag, Kymab, Leo Pharma,
- 18 Pfizer, Sanofi and UCB. Honoraria from and consultancy work for Abbvie, Eli Lilly, Janssen-Cilag,
- 19 Leo Pharma, Novartis, Sandoz, Sanofi and UCB. Honoraria from NICE (clinical expert).
- 20 GAJ has received educational grants from Sanofi-Genzyme.
- 21 MRA-J has speaker, adviser, honoraria, travel/research/departmental grants (AbbVie, Almirall,
- 22 Amgen, Ducentis, Galderma, Janssen, Leo Pharma, Eli Lilly, Novartis, Pfizer, Regeneron, Sanofi,
- 23 UCB, Unilever).
- 24 All other authors declare no conflict of interest.
- Data availability: The data underlying this article will be shared on reasonable request to the
 corresponding author.
- 27 Ethics statement: A-STAR study has ethical approval of Research ethics Committee as well as
- 28 Health Research Authority and Health and Care Research Wales (REC reference 18/WA/0200, IRAS
- 29 project ID 237309), ISRCTN11210918.
- 30 **Patient consent:** Written patient consent for publication was obtained.
- 31
- 32
- 33

- 1 Dear Editor, Atopic eczema (AE) is a common chronic inflammatory cutaneous disease with a
- $2 \qquad \text{prevalence of up to 20\% in paediatric populations}^1 \text{ and } 10\% \text{ in adult populations}.^2 \text{ The National}$
- 3 Institute for Health and Clinical Care Excellence (NICE) recommendations and the European
- 4 guidelines for the management of AE in children and for adults , respectively, recommend a
- 5 stepped care approach when prescribing AE treatments.^{3,4} Milder cases of AE are usually managed
- 6 with topical anti-inflammatory agents and phototherapy, while systemic immunomodulatory
- 7 agents are recommended for achieving control of AE where other treatment modalities have
- 8 failed.5
- 9 In recent years, real-world studies have become an increasingly important source of data to derive
- 10 evidence on treatment outcomes in routine clinical care, complementing randomised controlled
- $\label{eq:constraint} 11 \quad trial \, data. \, The \, UK-Irish \, Atopic \, eczema \, Systemic \, Ther Apy \, Register \, (A-STAR) \, was \, established \, in \, 2018.$
- 12 A-STAR is a prospective, longitudinal study focused on short- and long-term treatment
- 13 effectiveness, safety, and cost effectiveness of systemic treatments. A-STAR has expanded to over
- 14 46 sites around the United Kingdom (UK) and 4 sites in Ireland, with paediatric and adult patients
- 15 on 11 systemic agents recruited. All adult and paediatric patients either starting or switching to
- 16 another systemic treatment for their AE are eligible to take part. The schedule of events
- 17 recommends following patients up at week 4 (± 2 weeks) and every 3-monthly (± 4 weeks) in the
- 18 first year on treatment, and every 6-monthly thereafter alongside standard of care dermatology
- 19 appointments. A-STAR is aligned with the international TREatment of ATopic eczema Registry
- 20 Taskforce (TREAT) core dataset⁶ and includes information on demographics, co-morbidities, prior
- 21 topical and systemic therapies, effectiveness and safety outcomes, health resource utilisation, as
- 22 well as AE clinical phenotypes (see further information on the study protocol, Clinical Reporting
- 23 Forms, and centres involved here: https://figshare.com/articles/journal_contribution/A-
- 24 STAR_files/27110530).
- As of 10 Sep 2024, 763 patients have been enrolled in the A-STAR UK register, with a median follow
- 26 up of 12.2 months (interquartile range (IQR 3.6-23.5). The mean (±standard deviation, SD) age of
- adults and children in the A-STAR cohort is 37.0±13.9 and 12.4 ± 3.7 years, respectively. 42.8% of
- paediatric and 45.7% of adult cohort are female, with 54.1% and 79.8% of patients being of white
- ethnicity (Table 1). Asthma (paediatric patients: 54.0%, adults: 63.0%), food allergies (62.0%,
- 41.0%), and allergic rhino-conjunctivitis (49.0%, 44.0%) are the most prevalent atopic co-
- 31 morbidities in the cohort. 67.3% of patients have previously been exposed to systemic treatment
- 32 for AE, with an average of 2.2 (SD 1.6) prior systemic medications at baseline. The most commonly
- 33 started systemic medications after enrolment into ASTAR were dupilumab, methotrexate, and
- 34 ciclosporin, followed by upadacitinib, abrocitinib, baricitinib, and tralokinumab.
- 35
- 36 At baseline, patients had a mean (±SD) Eczema Area and Severity Index of 19.2 (12.7), a mean
- 37 Patient Oriented Eczema Measure of 19.0±7.3, a mean (Children's) Dermatology Life Quality Index
- of 14.7 (8.1), and a mean Peak Pruritis Numerical Rating Scale of 6.6 (2.3). 43.5% of patients
- reported losing a median of 10 (IQR 4-30) days of usual activities due to AE in the three months

- 1 prior to enrolment. Within three months before enrolment, 30.2% of patients had been treated in a
- 2 Day Care Unit, while 5.6% of all patients had been hospitalised for their AE during the same period.
- 3
- 4 When assessing a generic health-related quality of life (measured by the EQ-5D) at baseline,
- 5 patients indicated that pain and anxiety/depression (score ≥ 2) made a negative impact on their
- 6 general health, with 85.4% and 70.4% of adults and 84.3% and 68.1% of children experiencing pain
- 7 and anxiety/depression, respectively. 59.5% of adults and 59.2% of children reported AE impacting
- 8 usual daily activities (score \geq 2) (Table 1).
- 9
- 10 One of the important future developments for A-STAR will be its linkage with routinely collected
- 11 data maintained by NHS providers (e.g. Health Episode Statistics, Office for National Statistics).
- 12 This will allow for a more comprehensive collection of safety data and healthcare resource use
- 13 information, as well as the evaluation of risks of cancer and other causes of mortality.
- 14 In summary, A-STAR is an expanding register of adults and paediatric AE patients on systemic
- 15 therapies, collecting high quality data that will facilitate a real-world comparative assessment of
- 16 the effectiveness, safety, and costs of systemic therapies available to manage AE in the UK and
- 17 Irish patients. This includes important comparisons between conventional and novel systemics,⁷
- 18 their optimisation (e.g. determining the most appropriate treatments for specific patients),
- 19 treatment pathways and other questions relevant to patients, clinicians and policymakers.
- 20

21 References

- 22 1. Silverberg JI, Barbarot S, Gadkari A, et al. Atopic dermatitis in the pediatric population: A 23 cross-sectional, international epidemiologic study. Ann Allergy Asthma Immunol. 24 2021;126(4): 417-428. https://doi.org/10.1016/j.anai.2020.12.020 25 2. Langan SM, Irvine AD, Weidinger S. Atopic dermatitis [published correction appears in 26 Lancet. 2020 Sep 12;396(10253):758. https://doi.org/10.1016/S0140-6736(20)31825-0]. 27 Lancet. 2020;396(10247):345-360. https://doi.org/10.1016/S0140-6736(20)31286-1 28 3. National Institute for Care and Excellence. Atopic eczema in under 12s: diagnosis and 29 management. [Accessed 2024 Feb 19]. Available from:
- 30 <u>https://www.nice.org.uk/guidance/cg57</u>
- Wollenberg A, Kinberger M, Arents B, et al. European guideline (EuroGuiDerm) on atopic
 eczema: part I systemic therapy. *J Eur Acad Dermatol Venereol*. 2022;36(9): 1409–1431.
 <u>https://doi.org/10.1111/JDV.18345</u>
- Simpson EL, Bruin-Weller M, Flohr C, et al. When does atopic dermatitis warrant systemic therapy? Recommendations from an expert panel of the International Eczema Council. J Am Acad Dermatol. 2017;77(4): 623–633. <u>https://doi.org/10.1016/J.JAAD.2017.06.042</u>
- Gerbens LAA, Apfelbacher CJ, Irvine AD, et al. TREatment of ATopic eczema (TREAT)
 Registry Taskforce: an international Delphi exercise to identify a core set of domains and

1		domain items for national atopic eczema photo- and systemic therapy registries. Br J
2		Dermatol. 2019; 180(4):790-801. <u>https://doi.org/10.1111/bjd.16714</u>
3	7.	Alexander A, Malek R, Prieto-Merino D, et al. A prospective observational cohort study
4		comparing the treatment effectiveness and safety of ciclosporin, dupilumab and
5		methotrexate in adult and paediatric patients with atopic dermatitis: results from the UK -
6		Irish A-STAR register. Br J Dermatol. 2024; ljae287, https://doi.org/10.1093/bjd/ljae287
7		
8		
9		

	All patients	Paediatric cohort (<18 years old)	. Adult cohort (≥18 years old)	Distribution of EQ-5D-5L scores at baseline in adult AE patients, n=602					
	N=759	N=226	N=533	Level, n (%)	Mobility	Self-care	Usual activities	Pain	Anxiety/ depression
White	550 (72.5%)	124 (54.9%)	426 (79.9%)	1 (no problems)	439 (72.9%)	427 (70.9%)	242 (40.2%)	86 (14.3%)	177 (29.4%)
Asian	88 (11.6%)	38 (16.8%)	50 (9.4%)	2 (slight problems)	91 (15.1%)	79 (13.1%)	153 (25.4%)	188 (31.2%)	170 (28.2%)
Black	36 (4.7%)	22 (9.7%)	14 (2.6%)	3 (moderate problems)	53 (8.8%)	69 (11.5%)	127 (21.1%)	204 (33.9%)	161 (26.7%)
Mixed	13 (1.7%)	7 (3.1%)	6 (1.1%)	4 (severe problems)	15 (2.5%)	23 (3.8%)	55 (9.1%)	93 (15.4%)	60 (10.0%)
Other	72 (9.5 %)	35 (15.5%)	37 (6.9%)	5 (extreme problems)	3 (0.5%)	3 (0.5%)	23 (3.8%)	29 (4.8%)	33 (5.5%)
				Missing	1 (0.2%)	1 (0.2%)	2 (0.3%)	2 (0.3%)	1 (0.2%)
Systemic treatments started at baseline, n (%)	N=763	N=229	N=534	Distribution of EQ-5D-Y scores at baseline in paediatric AE patients, n=179					
Dupilumab	392 (51.4%)	123 (53.7%)	269 (50.4%)	Level, n (%)	Mobility	Self-care	Usual activities	Pain/ discomfort	Anxiety/ depression
Methotrexate	175 (22.9%)	72 (31.4%)	103 (19.3%)	1 (no problems)	119 (66.5%)	106 (59.2%)	72 (40.2%)	28 (15.6%)	57 (31.8%)
Ciclosporin	56 (7.3%)	14 (6.1%)	42 (7.9%)	2 (some problems)	49 (27.4%)	48 (26.8%)	79 (44.1%)	89 (49.7%)	87 (48.6%)
Upadacitinib	37 (4.8%)	3 (1.3%)	34 (6.4%)	3 (a lot of problems)	11 (6.1%)	25 (14.0%)	27 (15.1%)	61 (34.1%)	35 (19.6%)
Abrocitinib	27 (3.5%)	8 (3.5%)	19 (3.6%)	Missing	0 (0%)	0 (0%)	1 (0.6%)	1 (0.6%)	0 (0%)
Oral prednisolone	24 (3.1%)	7 (3.1%)	17 (3.2%)	Hospitalisations and day care attendance *			Total N=759	Paediatric N=226	Adult N=533
Baricitinib	23 (3.0%)	0 (0%)	23 (4.3%)	Patients with a histo	43 (5.6%)	22 (8.7%)	21 (3.9%)		
Tralokinumab	17 (2.2%)	0 (0%)	17 (3.2%)	Median duration of i	stay*, days (IQR)	4 (2-7.25)	3 (1.5-6)	5 (2-8.5)	
Other (AZA, MMF, investigational drug, other)	12 (1.6%)	2 (0.9%)	10 (1.9%)	Patients with a history of day care unit attendance for AE*, n, (%)			193 (25.4%)	29 (12.8%)	161 (30.2%)
				Median duration of day care unit attendance*, days (IQR)			2 (1-2)	2 (1-3)	2 (1-2)

 Table 1. Baseline characteristics of the ASTAR cohort. * Measured within 3 months prior to enrolment. AE atopic eczema, AZA azathioprine, IQR interquartile range, MMF mycophenolate mofetil.

Appendix 1: ASTAR Register Study Group

Michael R. Ardern-Jones, Jerome Baldago, Tracy Bale, Paula Beattie, Sara Brown, Victoria Brown, Michael J. Cork, Sharmela Darné, May Fadhil, Caoimhe Fahy, Leila Ferguson, Carsten Flohr, Ross Hearn, John R. Ingram, Graham A. Johnston, Effi Ladoyanni, Alis on Layton, Claire Leitch, Mark Lunt, Irene Man, Deborah Moffit, Louise Newell, Graham Ogg, Sophia Paget, Gabriela Petrof, Urvi Popli, Catherine Rennie, Nick Reynolds, Nasim Rouhani, Ann Sergeant, Rosalind Simpson, Ben Thompson, Joanne Topliffe, Shyamal Wahie, Hannah Wainman, Richard B. Warren, Aaron Wernham, and Richard Woolf.