

International Severe Asthma Registry (ISAR): the story so far

David B. Price,¹ G. Walter Canonica,² ISAR Study Group

¹Optimum Patient Care, Cambridge, UK; ²Personalized Medicine Asthma & Allergy Clinic, Humanitas University & Research Hospital, Milan, Italy

Background

- Existing severe asthma registries differ in data collected and reflect country- and/or region-specific variability.
- Pooling resources to generate a centralized severe asthma dataset would allow data to be shared seamlessly between countries and institutions.
- This can be done by opening severe asthma registry borders, sharing information gathered at national and regional levels, and optimized by standardizing the variables collected, producing one, over-arching registry.
- The aim of this poster was to:
 - Describe the first international adult severe asthma registry (ISAR)
 - Summarize what ISAR brings to the field of severe asthma
 - Provide a snapshot of data already captured

Methods

What is ISAR?

- The International Severe Asthma Registry (ISAR; <http://isaregistry.org/>) is the first global adult severe asthma registry; a multi-country, multi-center, observational real-life study.
- It is a joint initiative where national registries (both newly created and pre-existing) retain ownership of their data, but open their borders and share data with ISAR for ethically-approved research purposes.
- ISAR's strength comes from collection of patient level, anonymous, longitudinal, real-life, standardized (using a core set of variables), and high-quality data from countries across the world, combined with organizational structure, database experience, inclusivity/openness, and clinical, academic, and database expertise (**Figure 1**).
- Data collection is supported by the use of a dedicated template and integration with existing electronic data capture (EDC) systems (e.g. Open Clinica). These EDC systems ensure data quality via data validation and editing at the point of data entry.
- A collaboration agreement with each country covered method of transmission and storage of data, data security, compliance with data security standards, data protection and privacy, and list of core variables required for extraction from each local registry. Data is transferred quarterly for most countries.
- The aim was to enroll 2,000 new patients into ISAR annually.



Figure 1. What does the International Severe Asthma Registry (ISAR) bring to our understanding of severe asthma?

Methods

Patients included

- Patients in ISAR are aged ≥ 18 years old, received treatment at Global Initiative for Asthma (GINA) Step 5, or had uncontrolled asthma (i.e. severe symptoms or frequent exacerbations) at GINA Step 4 (at inclusion),¹ and provided consent for their prospective data to be included.

Variables included in ISAR

- ISAR initially captured 95 core variables which have been agreed by Delphi consensus, and classified into 13 categories:
 - Asthma severity, patient details, occupation, medical history (e.g. exacerbations, and healthcare resource utilization variables), co-morbidity, blood/sputum, diagnostics, lung function, allergen testing, asthma control, asthma medication, adherence, and management plan.
 - The full list of core variables has already been published.²
- Additional variables have now been added to capture information on severe infection, malignancies, anaphylaxis, additional co-morbidities, time of exacerbation, ICS/OCS dose, and reason(s) for medication switching.

Results

- ISAR already partners with 19 national or regional registries in Europe (Bulgaria, Denmark, Greece, Ireland, Italy, Netherlands Spain, UK), The Americas (USA, Canada, Columbia, Mexico), Asia Pacific (Japan, India, South Korea, Taiwan and the SAWD registry comprising patient data from Australia, New Zealand, and Singapore), and the Middle East (Kuwait, UAE), with planned expansion to other regions of the world.
- Agreements are in process with, Finland, Germany, Iceland, Norway, Sweden, Argentina, Singapore and Saudi Arabia, with many more countries newly engaged from Europe (Estonia, France, Portugal), South America (Brazil) and Russia, giving ISAR a truly global reach (**Figure 2**).
- ISAR currently comprises data from 7,826 severe asthma patients (individual data: n=6432; aggregate data: n=1394) and continues to grow (Table 1).
 - The individual data is prospective for 1,295 patients and retrospective for 5,137 patients.
 - ISAR aims to collect prospective data on at least 13,150 patients worldwide.
- New data are provided regularly, improving generalizability to the wider severe asthma population.
- The size of ISAR means that we have, for the first time, a dataset large enough to discern small clinically significant differences and rare outcomes which, until now, has been beyond our grasp and to allow a better understanding of regional differences.
- A list ISAR core projects and prioritized research initiatives are summarized in **Table 2**.

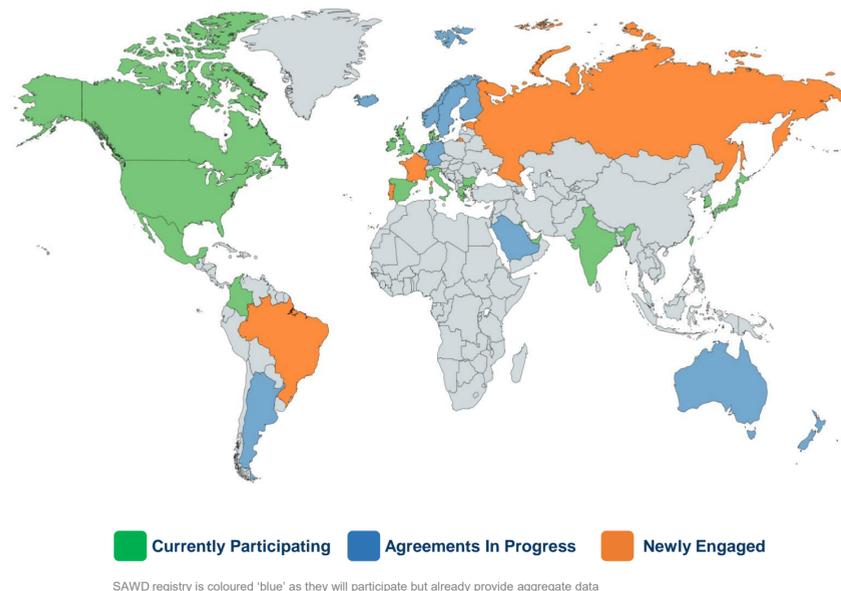


Figure 2. Global coverage of ISAR (current and planned)

Results

Table 1. ISAR Snapshot: May 2019

GLOBAL CORE PROJECTS
Demographic and clinical baseline characteristics of severe asthma patients worldwide
The characterization and comparison of eosinophilic and non-eosinophilic phenotypes
Comparative effectiveness across severe asthma biologic classes (Anti-IL-5 vs. Anti-IgE) in patients eligible for both modalities
PRIORITIZED RESEARCH
Hidden severe asthma patients in primary care
The role of asthma exacerbations on lung function trajectory
Biologics in severe asthma: Utilization patterns, causes for discontinuation and switching, and adverse outcomes
Assessment of the overlap (reliability) of collected biomarkers
Identification of predictors (i.e. biomarkers) of response to biologics
Hidden chronic asthma within the COPD/ACOS population
Age at onset of asthma in severe asthma patients
Relationship between socio-economic status & asthma outcomes
Describe the OCS landscape: annual consumption, prevalence, outcomes and side-effects of long-term OCS users
Outcomes of switching between Anti-IL-5 receptor α chain monoclonal antibody and Anti-IL-5 monoclonal antibody therapy in severe asthma
Characterization of health disparities (burden of illness or mortality) across countries
Criteria for choosing and switching between similar biological treatment options in patients with atopic and non-atopic severe eosinophilic asthma

Table 1. ISAR Snapshot: May 2019

Country/Registry	Sites	Patient data
Bulgaria	10	131
Canada	1	81
Greece	1	28
Ireland	1	55
Italy	64	563
Japan	4	18
Kuwait	1	105
SAWD†	26	259*
South Korea	5	22 439*
Spain	15	272
UK	4	696*
USA	1	5157
Total	124	7,826

* aggregate data.
† SAWD: Severe Asthma Web-based Database (including Australia, New Zealand and Singapore)

Conclusion

- Combining registries from different countries ensures data capture on a broader range of severe asthma patients, intra-operability between registries, and facilitates robust assessment of the impact of therapeutic interventions.
- Such a large dataset, comprising high quality, standardized and individual-level patient data, provides a fertile ground for clinically-relevant scientific study and the potential to publish key findings in international peer-reviewed Journals.
- With such a large dataset:
 - Clinicians** gain information on patient presentation and predictors of treatment success;
 - Scientists** have the opportunity to use the information gathered for ethically approved academic research;
 - Educators** gain deeper insights to facilitate and promote education and training on severe asthma
 - Patients** gain a better understanding of the natural history of their disease (collective data being used to inform treatment guidelines);
 - Payers** get evidence on how treatments are used and their effectiveness in different patient populations; and
 - The **pharmaceutical industry** can assess the real burden of disease and the effectiveness and long-term safety of therapeutic agents in real-life.

References

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