

Severe Asthma Databases: A Global Comparison

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Background: Severe asthma is a heterogenous disease with varying clinical manifestations. Several registries have been developed globally to study the natural history of this disease. However, few studies have compared the information collected by such registries. The aim of this study was to compare the data fields currently captured by severe asthma registries across the globe.

Method: Medline, EMBASE, Web of Science, web searches as well as consultations with leaders of severe asthma research databases were used to identify severe asthma repositories. Investigators were contacted to collect information on data collection specifications. Data dictionaries from respective databases were used for systematic comparison and pooling of variables. A database of data fields (as indicator variables) and countries (as rows or elements of analysis) was created. Categories of variables, such as demographics and diagnostics, were used for ease of reporting, and Stata14 and Microsoft Excel were used to organize and tabulate data fields.

Results: From the eighteen identified databases, data collection specifications from a total of ten severe asthma research repositories, covering 255 sites globally, were received. All country-specific databases collect information on asthma medications as per Global Initiative for Asthma guidelines for severe asthma. Among the non-asthma medications, anti-histamine data was most prevalently collected (seven repositories). With the emergence of novel asthma medications, the Spanish, Netherlands, German and Italian registries collected medication safety information. Sputum eosinophil, blood eosinophil and IgE levels were collected by all research databases, reaffirming the pivotal role these tests play in management of severe asthma. For assessing asthma control, seven used the Asthma Control Test, six used the GINA Asthma Control, and four used the Asthma Control Questionnaire. The approach for ascertaining adherence for inhaled and/or oral corticosteroids differed across countries. The United Kingdom, Australia, the Netherlands, Ireland, Nordics and USA use objective methods such as prescription records and/or blood cortisol levels, while Spain and South Korea use subjective compliance questions (two do not collect data on adherence).

Conclusion: Severe asthma databases across the globe converge on collecting similar data field categories, while they differ significantly on the specific data fields included. A standard list of variables captured across countries will increase the statistical power of future studies by allowing for data interoperability.

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