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## Demographic and Clinical Characteristics of Patients with Severe Asthma in the Asian Pacific Region: data from the International Severe Asthma Registry (ISAR)

Juntao Lyu, PhD<sup>1,2</sup>, Chin Kook Rhee, MD, PhD<sup>3</sup>, Trung N. Tran, MD, PhD<sup>4</sup>, Rohit Katial, MD<sup>4</sup>; Neil Martin, MD, PhD<sup>4,5</sup>, Matthew Peters, MD, PhD<sup>6</sup>, Eve Denton, MBBS(Hons), MPH, FRACP<sup>7,8</sup>, John W. Upham, MBBS, PhD, FRACP<sup>9</sup>, Philip Bardin, PhD<sup>10,11</sup>, Belinda Cochrane, MD<sup>12</sup>, Peter G Middleton, MD, PhD, FRACP, FThorSoc<sup>13</sup>, Paul Reynolds, MBBS, PhD, FRACP<sup>14</sup>, Diahn-Warng Perng, MD, PhD<sup>15,16</sup>, Hao-Chien Wang, MD, PhD<sup>17</sup>, Chau-Chyun Sheu, MD<sup>18,19</sup>, Ming-Ju Tsai, MD, PhD<sup>18,19</sup>, Erick Wan-Chun Huang, MD, PhD<sup>20</sup>, Ying-Chun Chien, MD<sup>21</sup>, Jeng-Yuan Hsu, PhD<sup>22</sup>, Pin-Kuei Fu, MD, PhD<sup>23</sup>, Ching-Hsiung Lin, MD, PhD<sup>24</sup>, Sheng-Hao Lin, MD, PhD<sup>24</sup>, Sheng-Yeh Shen, MD<sup>25</sup>, Shih-Feng Liu, MD<sup>26</sup>, Kang-Yun Lee MD, PhD<sup>20,27</sup>, Kuo-Chin Chiu, MD<sup>28</sup>, Horng-Chyuan Lin, MD<sup>29,30</sup>, Ming-Shian Lin, MD<sup>31,32</sup>, Chu-Kuang Chou, MD<sup>33</sup>, Sundeep Salvi, MD, PhD<sup>34</sup>, You Sook Cho, MD, PhD<sup>35</sup>, Kwang Ha Yoo, MD, PhD<sup>36</sup>, Takashi Iwanaga, MD, PhD<sup>37</sup>, Yuji Tohda, MD, PhD<sup>38</sup>, Hajime Fujimoto, MD, PhD<sup>39</sup>, Hiroshi Tanaka MD, PhD<sup>40</sup>, Kazutaka Nogami MD<sup>41,42</sup>, Kiyoshi Sekiya, MD, PhD<sup>43</sup>, Mayumi Matsunaga MD<sup>44</sup>, Hozawa Soichiro, MD, PhD<sup>45</sup>, Takao Fujisawa, MD, PhD<sup>46</sup>, Tatsuya Nagano, MD, PhD<sup>47</sup>, Tetsu Kobayashi, MD, PhD<sup>39</sup>, Tsuyoshi Oguma, MD, PhD<sup>48</sup> Yoshihiro Nishimura, MD, PhD<sup>49</sup>, Ruth Murray, PhD<sup>50</sup>, Lakmini Bulathsinhala, MPH<sup>1,50</sup>, Indu Joshi, BHMS<sup>1,50</sup>, Neva Eleangovan, BSc<sup>1,50</sup>, Derek Skinner, MSc<sup>1,50</sup>, Victoria Carter, BSc<sup>1,50</sup>, Chris Price, LLB<sup>1,50</sup>, David Price, FRCGP<sup>1,50,51</sup>.

<sup>1</sup>Observational and Pragmatic Research Institute, Singapore, Singapore; <sup>2</sup>Optimum Patient Care, Queensland, Australia; <sup>3</sup>Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, South Korea; <sup>4</sup>AstraZeneca, Gaithersburg, MD, USA; <sup>5</sup>University of Leicester, Leicester, UK; <sup>6</sup>Department of Thoracic Medicine, Concord Hospital, Sydney, Australia; <sup>7</sup>Allergy, Asthma & Clinical Immunology, Alfred Health, Melbourne, Australia; <sup>8</sup>Public Health and Preventive Medicine, Monash University, Australia; <sup>9</sup>Diamantina Institute & PA-Southside Clinical Unit, The University of Queensland, Brisbane, Australia; <sup>10</sup>Lung, Sleep, Allergy and Immunology, Monash Health Clayton, Monash University, Clayton, Australia; <sup>11</sup>School of Clinical Sciences, Monash Health Clayton, Monash University, Clayton, Australia; <sup>12</sup>Campbelltown Hospital, Sydney, Australia and Western Sydney University; <sup>13</sup>Westmead Hospital, Sydney, Australia; <sup>14</sup>Lung Research Laboratory, Faculty of Health and Medical Sciences, University of Adelaide, Adelaide, Australia; <sup>15</sup>School of Medicine, National Yang Ming Chiao Tung University; <sup>16</sup>Department of Chest Medicine, Taipei Veterans General Hospital; <sup>17</sup>Department of Medicine, National Taiwan University Cancer Center; <sup>18</sup>Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Taiwan; <sup>19</sup>Department of Internal Medicine, School of Medicine, College of Medicine, Kaohsiung Medical University, Taiwan; <sup>20</sup>Division of Pulmonary Medicine, Department of Internal Medicine, Shuang Ho Hospital, Taipei Medical University, New Taipei City, Taiwan; <sup>21</sup>Department of Internal Medicine, National Taiwan University Hospital and College of Medicine, Taipei, Taiwan; <sup>22</sup>Division of Chest Medicine, Taichung Veterans General Hospital, Taichung, Taiwan; <sup>23</sup>Department of Critical Care Medicine, Taichung Veterinary General Hospital; <sup>24</sup>Division of Chest Medicine, Department of Internal Medicine, Changhua Christian Hospital, Changhua City, Taiwan; <sup>25</sup>Chest Division, Department of Internal Medicine, MacKay Memorial Hospital, Taipei, Taiwan; <sup>26</sup>Division of Pulmonary and Critical Care Medicine, Department of Medicine, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Taiwan; <sup>27</sup>Division of Pulmonary Medicine, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan; <sup>28</sup>Division of Chest, Department of Internal Medicine, Poh-Ai Hospital Luodong, Yilan, Taiwan; <sup>29</sup>Department of Thoracic Medicine, Chang Gung Memorial Hospital at Linkou, Taoyuan, Taiwan; <sup>30</sup>Department

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of Medicine, College of Medicine, Chang Gung University, Taoyuan, Taiwan; <sup>31</sup>Department of Internal Medicine, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan; <sup>32</sup>Department of Respiratory Care, Chang Gung University of Science and Technology, Chiayi, Taiwan; <sup>33</sup>Division of Gastroenterology and Hepatology, Department of Internal Medicine, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Taiwan; <sup>34</sup>Pulmocare Research and Education Foundation, Pune, India; <sup>35</sup>Department of Allergy and Clinical Immunology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; <sup>36</sup>Division of Pulmonary, Allergy and Critical Care Medicine, Department of Internal Medicine, Konkuk University School of Medicine in Seoul, Korea; <sup>37</sup>Center for General Medical Education and Clinical Training, Kindai University Hospital, Osakasayama, Japan; <sup>38</sup>Kindai University Hospital, Osakasayama, Japan; <sup>39</sup>Department of Respiratory Medicine, Mie University Graduate School of Medicine; <sup>40</sup>Idaimae Minami Yojo Naika Clinic, and Sapporo Cough Asthma and Allergy Center; <sup>41</sup>Department of Pediatrics and Allergy Center, National Hospital Organization Mie National Hospital, Tsu, Japan; <sup>42</sup>Department of pediatrics, Sapporo Medical University, Japan; <sup>43</sup>Clinical Research Center for Allergy and Rheumatology, Sagamihara National Hospital, Sagamihara, Japan; <sup>44</sup>Allergy Center, Mie National Hospital, National Hospital Organization; <sup>45</sup>Hiroshima Allergy and Respiratory Clinic, Hiroshima, Japan; <sup>46</sup>Director, Allergy Center, National Hospital Organization Mie National Hospital; <sup>47</sup>Division of Respiratory Medicine, Department of Internal Medicine, Kobe University Graduate School of Medicine; <sup>48</sup>Department of Respiratory Medicine, Kyoto University Graduate School of Medicine Faculty of Medicine, Kyoto, Japan; <sup>49</sup>Division of Respiratory Medicine, Department of Internal Medicine, Kobe University Graduate School of Medicine; <sup>50</sup>Optimum Patient Care, Cambridge, UK; <sup>51</sup>Academic Primary Care, University of Aberdeen, Aberdeen, UK.

**Background:** The International Severe Asthma Registry (ISAR) shares data from asthma registries across the globe using standardized variables.<sup>1</sup>

**Method:** ISAR collected data prospectively from adult patients with severe asthma from Taiwan, Japan, India, South Korea and Australia from January 2017 and April 2022. Here we describe their baseline demographic and clinical characteristics at the time of biologic initiation or first visit for those who had, and had not, previously received biologic, respectively.

**Results:** A total of 1326 patients from the Asia Pacific region were included (Table). Australian patients had early onset, high exacerbation burden (32.7% with > 3/year), prevalence of fixed airways obstruction (66.7%), and eosinophilic phenotype pre-biologic (78.9%), and subsequent high long-term (>90 days) OCS (40.3%) and biologic use (52.5%). Indian patients typically had uncontrolled asthma (>90%) but low exacerbation rates, poor lung function, low prevalence of long-term OCS (12.0%) and biologic use (1.7%). Japanese and Taiwanese patients typically had well-controlled disease, good lung function, experienced <2 exacerbations/year, with about 25% receiving long-term OCS. While Japanese patients had a high prevalence of biologic use (55.1%) and LTRA (48.3%) add-on, Taiwanese patients were more likely to receive LAMA (46.9%). Patients from South Korea were characterized by low exacerbation burden (<1/year), good lung function, and high prevalence LAMA (41.1%).

**Conclusions:** There is substantial inter-country heterogeneity in the clinical characteristics of severe asthma patients in the Asia-Pacific region, likely a consequence of differences in access to severe asthma services, treatments and/or variability in biologic eligibility and socioeconomic status.

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**Table: Demographic and clinical characteristics of adult patients with severe asthma in Asian Pacific Region**

	AU (n=404)	IN (n=234)	JP (N=205)	SK (N=190)	TW (N=293)
<b>Age, mean (SD)</b>	57.5 (14.6)	44.8 (15.2)	60.7 (14.3)	56.9 (13.8)	59.4 (16.1)
<b>Age of asthma onset, mean (SD)</b>	22.9 (19.8)	30.3 (15.3)	40.4 (17.7)	42.7 (18.7)	44.4 (20.9)
<b>Exacerbations<sup>a</sup></b>	N=262	N=198	N=131	N=176	N=207
Mean (SD)	2.4 (3.3)	0.6 (0.7)	1.9 (3.1)	0.4 (0.9)	1.4 (2.1)
3+, n (%)	107 (32.7)	3 (1.5)	28 (21.4)	7 (4.0)	25 (16.9)
<b>Asthma control<sup>b</sup></b>	N=252	N=65	N=112	N=153	N=202
Uncontrolled, n (%)	143 (56.7)	60 (92.3)	39 (34.8)	70 (45.8)	68 (33.7)
<b>Lung function</b>	N=150	N=102	N=106	N=146	N=205
PB ppFEV <sub>1</sub> , < 80%, n (%)	60 (40.0)	63 (61.8)	59 (55.7)	59 (40.4)	112 (54.6)
FEV <sub>1</sub> /FVC < 0.7, n (%)	100 (66.7)	46 (45.1)	56 (52.8)	85 (58.2)	94 (45.9)
<b>Eosinophilic phenotype<sup>2c</sup></b>	N=57	N=54	N=49	N=55	N=72
Grade 3, n (%)	46 (78.9)	38 (70.4)	30 (61.2)	36 (65.5)	50 (69.4)
Grade 2, n (%)	10 (17.5)	10 (18.5)	11 (22.4)	7 (12.7)	12 (16.7)
Grade 1, n (%)	2 (3.5)	5 (9.3)	7 (14.3)	9 (16.4)	10 (13.9)
Grade 0, n (%)	0	1 (1.9)	1 (2.0)	3 (5.5)	0
<b>Add on to ICS/LABA</b>					
LAMA, n (%)	19 (4.7)	41 (17.5)	38 (18.5)	78 (41.1)	138 (47.1)
Theophylline, n (%)	1 (0.2)	9 (3.8)	41 (20.0)	2 (1.1)	38 (13.0)
LTRA, n (%)	4 (1.0)	56 (23.9)	99 (48.3)	46 (24.2)	112 (38.2)
Macrolides, n (%)	5 (1.2)	28 (12.0)	35 (17.1)	6 (3.2)	11 (3.8)
LTOCS <sup>d</sup> n (%)	163 (40.3)	28 (12.0)	52 (25.4)	39 (20.5)	73 (24.9)
Biologic <sup>e</sup> n (%)	212 (52.5)	4 (1.7)	113 (55.1)	33 (17.4)	105 (35.8)

<sup>a</sup>Total number of exacerbations recorded within 1 year before the biologic initiation visit or the first visit; <sup>b</sup>Assessed by ACQ and ACT scores at biologic initiation visit or the first visit for patients who had never received biologic treatment; <sup>c</sup>ISAR Eosinophilic phenotype grades<sup>1</sup> are calculated based on BEC, FeNO, LTOCS, asthma onset and nasal polyps; <sup>d</sup>Long term (continually use for > 3 months) OCS; <sup>e</sup>Anti-IgE, Anti-IL5/5R, and Anti-IL4; AU: Australia; BEC: blood eosinophil count; IgE: Immunoglobulin E; FeNO: Fractional exhaled Nitric Oxide; FEV<sub>1</sub>: forced expiratory volume in one second; FVC: forced vital capacity; IL: interleukin; ICS/LABA: inhaled corticosteroid/long-acting  $\beta$ -agonist (LABA); IN: India; JP: Japan; LAMA: Long-acting muscarinic antagonist; OCS: oral corticosteroid; LTRA: Leukotriene receptor antagonist; SD: standard deviation; SK: South Korea; TW: Taiwan

## References

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2. Heaney LG, et al. Chest. 2021;160:814–30.

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**Indu Joshi** is an employee of the Observational and Pragmatic Research Institute (OPRI). OPRI conducted this study in collaboration with OPCG and AstraZeneca.

**Neva Eleangovan** is an employee of the Observational and Pragmatic Research Institute (OPRI). OPRI conducted this study in collaboration with Optimum Patient Care and AstraZeneca.

**Derek Skinner** is an employee of the Observational and Pragmatic Research Institute (OPRI). OPRI conducted this study in collaboration with Optimum Patient Care and AstraZeneca.

**Victoria Carter** is an employee of Optimum Patient Care (OPC). OPC is a co-funder of the International Severe Asthma Registry.

**Chris Price** is an employee of Optimum Patient Care (OPC). OPC is a co-funder of the International Severe Asthma Registry.

**David Price** has advisory board membership with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, Teva Pharmaceuticals, Thermofisher; consultancy agreements with Amgen, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Mylan, Mundipharma, Novartis, Pfizer, Teva Pharmaceuticals, Theravance; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Mylan, Mundipharma, Novartis, Pfizer, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Teva Pharmaceuticals, Theravance, UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme, Teva Pharmaceuticals; payment for the development of educational materials from Mundipharma, Novartis; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis, Thermofisher; funding for patient enrolment or completion of research from Novartis; stock/stock options from AKL Research and Development Ltd which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care Ltd (Australia and UK) and 74% of Observational and Pragmatic Research Institute Pte Ltd (Singapore); 5% shareholding in Timestamp which develops adherence monitoring technology; is peer reviewer for grant

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