

Atopic Dermatitis in Latin America: A Roadmap to Address Data Collection, Knowledge Gaps, and Challenges

Arturo Borzutzky, MD,* Jose Ignacio Larco, MD,† Paula C. Luna, MD,‡ Elizabeth McElwee, MPH,§ Mario Cezar Pires, PhD,|| Mariana Rico Restrepo, MD,¶ Marimar Saez-de-Ocariz, MD,# and Jorge Sanchez, MD**

Background: Atopic dermatitis (AD) is a systemic, multifactorial disease that causes significant morbidity and health care burden in Latin America (LA). Data on AD are scarce in LA. Lack of disease registries and non-standardized study methodologies, coupled with region-specific genetic, immunological, and environmental factors, hamper data collection. A panel of LA experts in AD was given a series of relevant questions to address before a conference. Each narrative was discussed and edited through numerous rounds of deliberation until achieving consensus. Identified knowledge gaps in AD research were updated prevalence, adult-disease epidemiology, local phenotypes and endotypes, severe-disease prevalence, specialist distribution, and AD public health policy. Underlying reasons for these gaps include limited funding for AD research, from epidemiology and public policy to clinical and translational studies. Regional heterogeneity requires that complex interactions between race, ethnicity, and environmental factors be further studied. Informed awareness, education, and decision making should be encouraged.

CAPSULE SUMMARY

1. A consensus conference of Latin American experts in atopic dermatitis (AD) was performed to identify knowledge gaps and its underlying reasons and develop a roadmap to creating the first regional AD registry.
2. An annual health expenditure analysis for AD ranked by severity in Latin America was conducted in this review.

Atopic dermatitis (AD) is a systemic, multifactorial disease representing a significant cause of morbidity and health care costs worldwide, including in Latin America (LA).¹ It is more prevalent in children but can begin in or persist into adulthood and has a chronic course that impacts the whole family.² Atopic dermatitis has substantial disease-

related morbidity and disability. This disease has the highest disability-adjusted life years among skin disorders, reflecting the high prevalence and patient burden.^{3,4} It can impact the patient's quality of life (QoL), social, academic, and occupational life. Latin America has more than 652 million inhabitants living in 33 countries,⁵ likely representing the world's most extensive racial and ethnic diversity,⁵ with substantial differences among and within countries regarding climate, cultures, behavior, and socioeconomics.⁶

METHODS

To address the issues related to AD data collection, the Americas Health Foundation identified and convened a 6-member panel of clinicians and scientists from LA. This diverse panel represents

From the *Department of Pediatric Infectious Diseases and Immunology, School of Medicine, Pontificia Universidad Católica de Chile, Santiago; †Allergy Department, Clínica San Felipe, Lima, Peru; ‡Dermatology Department, Hospital Aleman, Buenos Aires, Argentina; §Americas Health Foundation (AHF), Washington, DC; ||Padre Bento Hospital and Servidor Público Hospital, São Paulo, Brazil; ¶Americas Health Foundation (AHF), Bogotá, Colombia; #Department of Dermatology, National Institute of Pediatrics, Mexico City, Mexico; and **Group of Clinical and Experimental Allergy, Clinic "IPS Universitaria," University of Antioquia, Medellín, Colombia.

Address reprint requests to Arturo Borzutzky, MD, Av. Diagonal Paraguay 362 of. 807, Santiago, Chile 8330077. E-mail: aborzutz@uc.cl.

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experts in AD-related disciplines, including allergy, dermatology, immunology, and pediatric dermatology. They are experts in their fields and have published in the AD arena since 2015.

To better focus discussion, Americas Health Foundation staff independently developed specific questions, addressing the salient issues on the subject, for the panel to address. A different panel member initially drafted a written response to each question. During the multiday meeting, the entire group discussed and edited each narrative through numerous drafts and rounds of discussion until consensus was attained. This article aims to create a practical document with standardized recommendations for assessing AD in LA.

SUMMARY OF AD EPIDEMIOLOGY IN LA

Several challenges exist to establishing accurate AD epidemiology, including lack of objective diagnostic tests, severity and diagnostic criteria, and unstandardized nomenclature across clinical trials. Terms, such as eczema, atopic neurodermatitis, and childhood eczema, are often used interchangeably.⁷ This unstandardized terminology is a source of confusion and may result in the inability to compare populations examined in different studies accurately. In addition, study results can be difficult to compare because of variations in designs and sampling methodologies. Moreover, the diversity among and within LA countries impedes, extrapolating the effects of different factors on AD prevalence to the region. Thus, the complex interactions between race, ethnicity, lifestyle, and environmental factors require future AD studies in LA.^{8,9}

The dearth of available epidemiological information can provide important clues to AD epidemiology in broader LA and is outlined hereinafter. Important information has come from large multicenter international initiatives, such as the International Study of Asthma and Allergies in Childhood (ISAAC), a landmark trial that assessed the global prevalence of atopic diseases, including AD.^{10,11} International Study of Asthma and Allergies in Childhood had 3 phases; however, LA participants were only included in phase 1 and phase 3 in 1999¹² and 2005,¹³ respectively.¹⁰ These are the most recent comprehensive epidemiologic data available for AD in LA.

The ISAAC phase 1 demonstrated an AD prevalence that ranged from 4.8% in Mexico to 10.9% in Chile in the 6- to 7-year-old group and from 4.4% in Mexico to 10.8% in Paraguay in the 13- to 14-year-old group.¹⁴ The ISAAC phase 3 included the same centers as phase 1 plus new ones and was more inclusive of LA. Phase 3 found the highest prevalence of 22.5% and 20.9% in Quito, Ecuador, and Barranquilla, Colombia, respectively, for the 6- to 7-year-old group. For the 13- to 14-year-old group, the highest prevalence was 24.6% in Barranquilla, Colombia, and 22% in Santiago, Chile.¹⁴ The lowest prevalence for both age groups was found in Monterrey, Mexico, at 4.1% and 4%, respectively.¹⁴ In addition to ISAAC, the Epidemiology of Children with Atopic Dermatitis Reporting on their Experience (EPI-CARE) study used an open online questionnaire in children ages 6 months to 18 years that measured AD prevalence in patients living in Europe, Eurasia, North America, and LA (Argentina, Brazil, Colombia, and Mexico) using

the same ISAAC criteria, along with self-reported physician diagnosis of AD, Patient Global Assessment, and Patient-Oriented Eczema Measure. Among the evaluated countries, Brazil had the highest prevalence in all age groups, with an overall prevalence of 20.1%. Argentina showed a prevalence of 9.7%, Colombia 10.8%, and Mexico 12.9%. A subanalysis of the LA population has not been performed yet but would be beneficial.¹⁵ The differences between the ISAAC and the EPI-CARE results may be because of different methodologies or selection and measurement bias.

Factors Influencing AD Prevalence in LA

Atopic dermatitis prevalence is driven by a complex relationship among environmental, genetic predispositions, and immunologic factors.¹⁶ Awareness of the environmental diversity is crucial in determining disease expression. Latin American countries have various tropical, temperate, and cold temperatures, which may directly influence the prevalence of AD.^{14,16} Humidity, pollution, ultraviolet ray exposure, average time spent indoors, and allergen exposure vary widely throughout the region and may aggravate AD.¹⁷⁻¹⁹

A critical review of the ISAAC trial showed that the patient questionnaires assessed pruritus but did not adequately evaluate cutaneous lesions, resulting in a prevalence overestimation based on patient reporting compared with physician evaluation.²⁰ Furthermore, the questions were not specific enough to differentiate AD from other common skin diseases,²⁰ an essential factor because of the high prevalence of other pruritic disorders, such as scabies, in tropical countries.²⁰

Globally, AD prevalence increases with socioeconomic status and is usually highest in high-income countries.^{21,22} However, the relationship between income, prevalence, and severity in LA is unclear.¹⁶ Latin America is composed mainly of low- and middle-income countries. Still, AD prevalence is highly independent of socioeconomic status, with variation among and within countries.^{16,22} Furthermore, AD prevalence varies between urban and rural populations.²³ Latin America has many rural areas with limited health care access, likely resulting in an underrepresentation of AD prevalence estimations in these areas.

Comorbidities

Many studies have found significantly higher rates of comorbidities in both children and adults with AD (eg, allergies, mental health issues, skin infections, osteoporosis, and metabolic and cardiovascular diseases).^{24,25} A single-center study evaluating adult patients with AD in Brazil found a high rate of asthma and allergic rhinitis comorbidity with a predominance in women.²⁶ Another Brazilian study found that 39% of adult patients with AD had severe depression, and 23% had moderate-to-severe depression.¹⁶ A Mexican study showed sleep disorders in 89% of patients with AD and 92% of those with severe AD. Of the patients with moderate AD, 60% had depression, and 12% took antidepressants.¹⁷ A small study in Chile showed that sleep quality in moderate-to-severe patients with AD did not necessarily improve even after intensive topical treatment.²⁷ A

multicenter cross-sectional study on a 4- to 10-year-old group with AD from 9 LA countries determined a significant correlation between the Scoring Atopic Dermatitis indexes and sleep disturbances, via Children's Sleep Habits Questionnaire. They concluded that children with AD might be at higher risk for sleep disruptions caused by either a single factor or the interaction of factors related to genetic predispositions, disease severity, and psychological afflictions.²⁸ Despite the studies mentioned previously, further research is needed to comprehend comorbidities at different ages in the population with AD from LA.

KNOWLEDGE GAPS IN AD RESEARCH IN LA

There are several significant knowledge gaps in AD research in LA with many underlying causes. More funding is needed for AD research, ranging from epidemiology and public policy to clinical and translational studies evaluating deep phenotypes and endotypes, in which LA clinicians and translational researchers must be involved. The road is well paved by initiatives, such as the ISAAC and Harmonizing Outcome Measures for Eczema.^{11,29} In addition, the low number of patient advocacy groups (PAGs) focused on AD advocacy in LA likely contributes to these knowledge gaps. These issues provide not only new opportunities but also multiple challenges ahead. The knowledge gaps of AD research facets for the region identified through this review are outlined hereinafter:

1. Updated Prevalence

Although multiple studies worldwide suggest that AD incidence and prevalence are increasing,^{30,31} the paucity of data may have impeded available systematic reviews from confirming this trend in LA. A systematic review of global incidence and prevalence found increasing AD prevalence in Africa, Eastern Asia, Western Europe, and parts of Northern Europe. Still, no clear trends were observed in Central and South America.

2. Epidemiology of Adult Disease

Most local epidemiological studies on AD have specifically addressed prevalence in children and adolescents. Global studies show that at least 1 in 4 AD cases are adult onset.³² Several case studies of adults with AD from São Paulo have been reported since 1992, showing the clinical characteristics of adult AD in Brazil.^{26,33,34} Nevertheless, these publications do not necessarily represent broader LA and do not answer questions on incidence, prevalence, or disease burden in LA adults.

3. Phenotypes and Endotypes

There are few phenotyping and genotyping studies of AD in LA. Studies in White, Asian, and African American populations have shown specific clinical characteristics, skin distribution patterns, genotypes, and molecular markers of AD.^{35,36} Still, there are scant data

on these disease attributes in LA patients. Most information comes from survey-based studies, clinical studies in specific cities,^{34,36,37} and other studies reporting AD treatment outcomes that provide data on clinical characteristics in certain LA countries.^{27,38,39} A recent survey of filaggrin (*FLG*) gene loss-of-function mutations in Chile found that the 2 most common *FLG* gene variants (R501X and 2282del4) are present in 9.3% of Chilean patients, a similar rate to the European population,⁴⁰ whereas another study on *FLG*-2 gene polymorphisms in Brazilian patients found no relationship with AD.⁴¹

4. Prevalence of Severe Disease

The highest burden of AD occurs in the subset of children and adults with severe disease, but detailed information on this subgroup is largely lacking in LA. The EPI-CARE study showed that self-reported severe AD in the region varied from 2.3% to 5.0%, providing insight into this question. However, because of the nature of the study methodology, there are no further discernments into this subset's clinical characteristics or treatments patterns.

5. Specialist Availability and Distribution

Access to specialized AD care throughout LA is uneven because of the geographic maldistribution of health care facilities. Atopic dermatitis is commonly treated in the primary care setting initially, with more severe cases referred to AD specialists when available. Table 1 portrays dermatologists and allergists per 100,000 inhabitants in the countries represented by this panel. However, it is crucial to consider that specialists are often concentrated in larger urban areas, leaving rural areas underserved.^{42,43} The World Health Organization recommends a density of 4 dermatologists per 100,000 population and 1 allergist per 50,000,⁴⁴ which for this calculation

TABLE 1. Number of Dermatologists and Allergists/100,000 Inhabitants in Each Country

Country	No. Dermatologists Per 100,000 Population	No. Allergists Per 100,000 Population	PAGs Advocating for AD
Argentina	8.0	5.7	2*
Brazil	4.6	2.0	1†
Chile	3.1	0.7	0
Colombia	1.3	0.4	0
Mexico	1.2	0.8	0
Peru	1.1	0.2	1‡
Recommended	4.0	0.5	—

The number of dermatologists and allergists per 100,000 and number of PAGs in Argentina, Brazil, Chile, Colombia, Mexico, and Peru as well as the recommended number according to the World Health Organization.

*Asociación de dermatitis atópica Argentina; Asociación Civil para el enfermo de psoriasis.
†Associação de Apoio à Dermatite Atópica.

‡Asociación de pacientes de Psoriasis y artritis psoriásica interés en otras enfermedades estigmatizantes de la piel.

AD, atopic dermatitis; PAGs, patient advocacy groups.

will be taken as 0.5 allergists per 100,000.⁴⁵ Of note, not all allergists and dermatologists specialize in AD management.

6. Public Health Policy

Despite some awareness among policymakers of AD's health and cost burden and its comorbidities in children and adults, there seems to be no research or studies explicitly addressing this situation in LA. Given that AD's impact and health burden in children and adults are frequently underestimated, an urgent need exists to improve public policy regarding AD in LA. The advent of multiple novel target therapies reinforces this need.

ROADMAP TO LA REGIONAL AD REGISTRY

Disease registries are a powerful tool that can provide epidemiological data, describe care patterns (ie, quality and disparities), examine factors that influence disease course and QoL, treatment response, and influence health care planning and policy making.⁴⁶ Properly designed and implemented, a regional AD registry could provide LA with real-world evidence of clinical practice, patient outcomes, and treatment effectiveness and support specific research lines. Developing and maintaining a regional disease registry require substantial effort, coordination, commitment, and funding. This panel aims to provide an initial roadmap to creating the first LA AD patient registry that can be used for clinical, scientific, and health policy purposes in Figure 1.

AD DIAGNOSTIC LANDSCAPE IN LA

Because of the absence of pathognomonic biomarkers or diagnostic tests, AD diagnosis is primarily based on the clinical history and physical examination. The use of diagnostic criteria is vital to improving accuracy.^{47,48} The critical clinical AD characteristics are pruritus, the

presence of eczematous lesions, dry skin, and the typical morphology and distribution of lesions according to age.^{8,46} A careful differential diagnosis must be made to rule out other common causes of pruritus, especially in specific LA communities where scabies, papular urticaria, and helminth infections (which can induce rashes) are frequent.^{8,49}

There are several regional and country-specific clinical practice guidelines (CPGs) for AD management like those for Colombia,⁴⁸ Argentina,⁵⁰ Brazil,⁵¹ Mexico,² and LA⁴⁷ that contain indications representative of the region's different characteristics; however, the level of adoption is not ideal, and international guidelines continue to be used throughout the region.

Importance of Diagnostic Criteria

Although AD diagnosis is usually straightforward for the trained eye, diagnostic criteria, currently used almost exclusively for clinical trials, are highly recommended in clinical practice for systematic patient evaluation and to avoid disease misclassification in patients with atypical phenotypes.^{50,52} Nonetheless, data corroborate the underuse of diagnostic criteria in daily clinical practice in LA. A study on the criteria used by Mexican allergists, dermatologists, and pediatricians found that 54% used general clinical judgment to achieve AD diagnosis, 42% used Hanifin and Rajka criteria, and 4% used Williams criteria.⁵³ In addition, once an AD diagnosis is established, disease severity must be determined through available scores. Both diagnostic criteria and clinimetric tools would benefit from studies to validate them in LA.⁴⁷

ATOPIC DERMATITIS MANAGEMENT LANDSCAPE IN LA

Once an AD diagnosis is achieved, management requires a multidisciplinary approach to comprehensively address the complex interplay

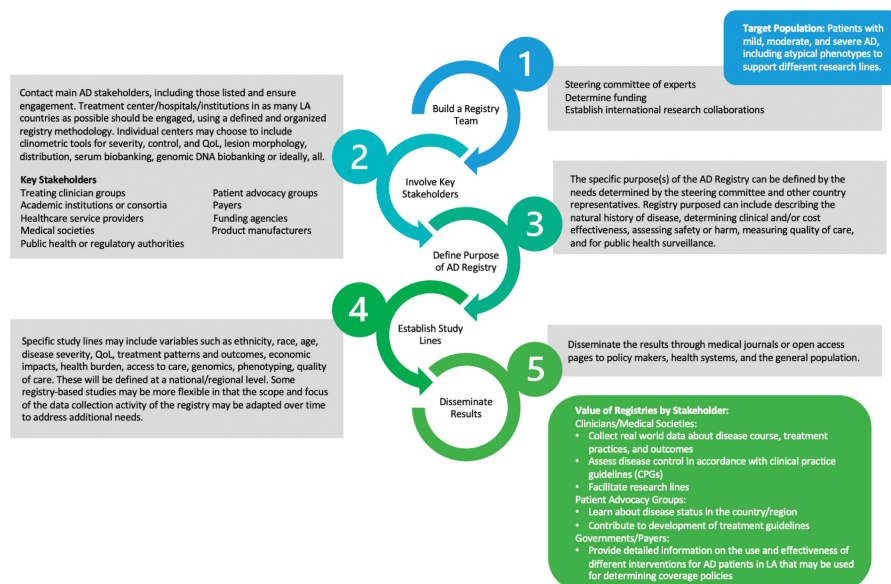


Figure 1. Stepwise approach to disease-specific patient registry for AD in LA. Figure 1 shows an initial roadmap to creating the first LA AD patient registry that can be used for clinical, scientific, and health policy purposes.

among biological, psychological, and dietary factors that affect disease control and the wide range of educational support that patients and families require to manage this condition effectively.⁵⁴ Because of unequal access to specialists in some cases and a lack of awareness in others, this approach is far from the reality of AD clinical practice in LA.

Treatment Considerations in LA

In line with LA's heterogeneity in sociodemographic and income variables, treatment use, availability, and access vary between and within countries. According to the United Nations Comisión Económica para América Latina y el Caribe, LA has the world's highest level of inequity.⁵⁵ These disparities hamper the analysis of use, impact, and accessibility of AD management. For this reason, CPG development would benefit from including payers, government, and PAGs to make these valuable and applicable in local contexts.

Latin American CPGs establish first-line therapy as emollients, baths, and irritant avoidance. Because emollient cost and availability vary extensively, no single emollient is unanimously recommended by all CPGs. Some countries, such as Argentina, Brazil, and Mexico, have developed therapeutic education programs for AD, but these are generally only available in major cities.

Topical corticosteroids and topical calcineurin inhibitors are next in the therapeutic ladder. Topical corticosteroids as a family are widely available and accessible, but they are not all equally effective, and quality and prices vary. This drug class is sometimes the only treatment patients with low income can afford. Topical calcineurin inhibitors are available in most LA countries, but their use is not widespread because of their high cost. Likewise, the high-cost crisaborole, a newer topical nonsteroid drug that has not yet been included in any LA CPG, is now available in Argentina and Uruguay but is not widely used.

Other therapeutic alternatives can be added in patients who do not respond to topical therapies, including phototherapy, systemic immunosuppressants, and biologicals. Although phototherapy is effective and safe, it is not easily accessible in LA, possibly because of limited equipment availability.

Although most systemic immunosuppressants are not explicitly approved for AD in LA, these are widely accessible through off-label use. The only systemic immunosuppressant treatment explicitly approved for AD in Mexico and Argentina is cyclosporine. Other off-label treatments are methotrexate, azathioprine, and mycophenolate mofetil. These systemic therapies have adverse effects that require monitoring by specialists. Depending on coverage and reimbursement, the cost can be a significant access barrier and must be considered when prescribing.

Target therapies have emerged as a new treatment alternative, revolutionizing AD treatment in recent years. Nonetheless, high costs have limited widespread adoption throughout the region. Dupilumab, an interleukin-4/interleukin-13 inhibitor, was approved to treat moderate-to-severe AD in several LA countries, with varying coverage and age indications. Other therapies, such as baricitinib, a JAK1 and JAK2 inhibitor, and upadacitinib, a JAK1 inhibitor, are

approved for AD treatment in Europe and some LA countries. Multiple additional therapies are being considered for approval.

UNMET NEEDS OF AD IN LA

An online survey of 1650 patients with AD (825 adults and 825 children) was conducted by 2 AD PAG in Argentina regarding the patient journey for treatment and symptom control. Although these findings might not represent the whole continent, it is a robust evaluation that can shed light on AD in the region.⁵⁶ The survey showed that 40.5% of patients were highly dissatisfied with ongoing treatments because of out-of-pocket costs of emollients and topical corticosteroids.⁵⁶

Delays in Diagnosis and Treatment

According to the Argentine survey, for adult patients, there was a delay of up to 6 years on diagnosis depending on geographic locations; large cities had very short delays, while rural areas and provinces had the most prolonged delays.⁵⁶ In Colombia, patients with symptom onset before the age of 5 years had an average time of 8 to 12 months from first physician visit and diagnosis. For patients where the primary care physician (PCP) determined the need for specialist referral, the delay to the first specialist visit is 6 to 12 months.⁵⁷

Atopic Dermatitis Education

Some unmet needs in AD diagnosis and treatment in LA are often a result of undertraining in the primary care setting and the lack of multidisciplinary teams in the subsequent disease management. In LA, the patient journey usually begins with a PCP or pediatrician. Well-trained PCPs on clinical diagnostic criteria, testing, and treatment can improve patients' chances of receiving earlier and more accurate care.^{2,47,58} Most mild cases are well diagnosed and well controlled, whereas moderate-to-severe disease usually requires care from an AD specialist and multidisciplinary team. Continued medical education and disease awareness, both in primary and specialized settings, are essential to translate evidence into clinical practice quickly. Patient, family, and caregiver education is equally vital. Therapeutic education empowers the patients with AD and caregivers through the necessary knowledge, skills, attitudes, and self-awareness to cope with the disease and work with their physicians to achieve optimal well-being. Social media (widely used by patients with AD in LA⁵⁹) may be a key tool to access health information and support communities.

Awareness

Atopic dermatitis–focused PAGs play a crucial role in advocating for improved policy, awareness, and funding. The World Atopic Eczema Day, launched in 2018 to raise AD awareness globally, is coordinated by the European Federation of Allergy and Airways Diseases Patients' Associations and the International Alliance of Dermatology Patient Organizations, with the support of the pharmaceutical industry.⁶⁰

Patient advocacy groups for AD in Peru, Brazil, and Argentina have made important advances (Table 1). An Argentine group has successfully participated in government discussions and guideline

creation. In Mexico, legal proceedings led to the creation of a National AD Day to create awareness, guarantee rights, encourage social inclusion, and discourage discrimination.⁶¹

Indirect Costs and QoL

In addition to the economic burden, impacts on physical health include itching and scratching, sleep disruption, pain, and dietary limitations. Atopic dermatitis has the highest disability-adjusted life years among skin disorders, reflecting the high prevalence and disease burden.^{4,62} Emotional consequences include social impairments, behavioral issues, irritability, and isolation. In adults, AD can hinder getting or keeping a job, and QoL detriments primarily impact emotional health rather than social functioning.⁶³ With the introduction of new target therapies, disease control has improved significantly, but with correspondingly high costs.^{64,65} The cost-effectiveness, utility, intervention benefit, and whether these substantial costs can be assumed by society are questions whose answers will vary among countries; these answers depend on different health systems and disease prevalence, among other aspects.

Atopic Dermatitis Cost Assessment for LA

A standardized survey of leading clinicians from Brazil concluded that for patients with severe-to-moderate AD, between 93% and 94% of the cost were direct medical costs.⁶⁶ This finding could be in-

fluenced by the lack of data in the region on indirect costs and QoL impact on patients and their families.

Some studies in Colombia, Argentina, and Brazil evaluated the impact of AD on QoL, according to multiple scales (Skindex, Dermatology Life Quality Index, Infants' Dermatitis Quality of Life Index, Dermatitis Family Impact Questionnaire).⁶⁷⁻⁷⁰ In line with the global findings,⁶³ these studies unanimously agree that QoL and disease activity are correlated. As AD severity increases, QoL decreases, despite expected variations due to population differences.

Not enough information is available to quantify presenteeism, comorbidities, and environmental allergen interventions accurately. Using the limited regional data available, including study databases,^{8,69} national health spending registries, and consulting various LA AD experts, sources of direct and indirect expenses were identified, and annual health expenditures per person with AD were approximated (Table 2). This assessment is not a complete economic evaluation but the first step for future analyses in the region.

RECOMMENDATIONS

High AD costs can create an insurmountable problem for some health systems through the increased burden and low access to diagnosis and treatment. In addition, other variables have not been quantified that can have an incalculable long-term impact, such as

TABLE 2. Cost Analysis for AD by Disease Severity in Colombia, Mexico, Peru, Ecuador, as Well as Some Brazil and Argentina

Variables	Cost/Intervention (2021 USD)	No. Events According to Severity Per Year		
		Mild	Cost/Severity (2021 USD)	Moderate
Topical pharmacotherapy* (per month) (only topical corticosteroids and calcineurin inhibitors)	23 (12-123)	276	276	276
Medical appointment (per event)	50 (4-200)	100	200	200
Absenteeism (per day)†	7.5 (6-12)	7.5	39	67.5
Laboratory test (per event)‡	20 (8-48)	20	20	40
Atopy evaluation§	40 (20-63)	40	40	40
Skin biopsy (per event)	50 (18-78)	0	0	50
Laboratory test for systemic therapy (per event)	15 (12-28)	0	0	15
Urgency (per day)	400 (93-1123)	0	400	800
Hospitalization (per day)	1200 (300-4000)	0	0	4800
Systemic steroids (per 5 d)	12 (4-60)	0	12	72
	Total	443.5	987	6360.5
MTX, cyclosporine, azathioprine, phototherapy (per month)	220 (60-400)	0	2640	
Dupilumab	600 (500-750)	0	7200	

A cost analysis for AD by disease severity in Colombia, Mexico, Peru, Ecuador, as well as some Brazil and Argentina. The AD severity was based on the Scoring Atopic Dermatitis (mild <15 points, moderate 16-40 points, severe >41 points); the value of each intervention was calculated from national health cost registries of Ecuador, Peru, Colombia, Argentina, Brazil, and Mexico (Instituto de Evaluación Tecnologías en Salud, Sistema Integrado de la Protección Social), the information provided in the Tropical Environmental Control for Chronic Eczema and Molecular Assessment cohort, and a panel of experts consulted from each country.

Data in bold represent total cost for each category.

*Topical treatment with at least one topical corticosteroid and/or calcineurin inhibitor.

†Absenteeism was calculated according to the average current minimum daily wage for Colombia, Argentina, Brazil, and Mexico.

‡Hemogram, acute phase reactants.

§Skin prick test or specific immunoglobulin E.

AD, atopic dermatitis; MTX, methotrexate; USD, US dollars.

TABLE 3. Recommendations for Closing AD Knowledge Gaps in LA

	Recommendation	Stakeholder Responsibility
Data Gathering and Collection	Prioritize funding and urge the importance of AD research to generate region and country-specific data ranging from epidemiology and public policy to clinical and translational studies evaluating deep phenotypes and endotypes.	
	Create a regional AD disease registry for LA to address the lack of systematic data registration and gather reliable data on disease characterization and epidemiology	
	Encourage telephone and web-based surveys, population health surveys, multicenter LA cross-sectional studies, translational studies, and prospective observational cohorts, in addition to hospital and primary care medical records reviews to obtain precise local data. ⁷¹ <ul style="list-style-type: none"> Improve clinical records by establishing objective disease criteria and severity through clinometric tools (CROMS+PROMS)⁵⁵ and reevaluating consistently to determine clinical response to therapy 	
	Reevaluate AD prevalence in LA, with special attention to breaching knowledge gaps in adult AD and severe AD	
	Conduct a health economic evaluation for each country to determine the cost-effectivity and cost-benefit of AD therapies, including new high-cost target therapies.	
	Epidemiologic studies in LA should: <ul style="list-style-type: none"> Unify diagnostic criteria and nomenclature Specify diagnostic and severity criteria used Use clinometric tools (CROMS+PROMS)⁴⁷ Consider sociodemographic, environmental, ethnicity and race variables 	
Access to Quality Care	Recognize AD as a national and regional public health problem to increase the allocation of resources to diagnose and treat AD	
	Address the geographic maldistribution of specialists by providing incentives for AD specialists to accommodate underserved areas, and guarantee the necessary resources to provide adequate care	
	Implement telemedicine programs with AD specialists as a solution to bring specialist care to rural areas or overburdened health systems and shorten wait times ⁶⁷	
	Develop national CPGs on AD with unified nomenclature <ul style="list-style-type: none"> Use a multistakeholder approach including medical societies, patient groups, government, payers Include health economic evaluations Systematically updated CPGs to include the most current international recommendations tailored to the country's context Promote CPG adherence among all treating physicians 	
	Optimize dialogues to develop sustainable funding mechanisms that support access to innovative AD therapy to all patients that require them	
Awareness and education	Provide education on AD diagnosis and treatment tailored to each level of care, including PCPs, nurses, specialists, patients, families, caregivers, and teachers	
	Create public awareness campaigns on AD symptoms, health burden, seriousness of disease, and when to seek medical care	
	Create and support AD patient organizations for each country to advocate and raise awareness of AD and its comorbidities among policymakers and the public	

The recommendations created by the panel to close the knowledge gaps in AD. Governments = , academic institutions = , PAG = , medical societies = , specialists = , researchers = , and pharmaceutical industry =

AD, atopic dermatitis; CPGs, clinical practice guidelines; CROMS, clinician-reported outcome measures; LA, Latin America; PCPs, primary care physicians; PROMs, patient-reported outcome measures.

the impact of absenteeism on cognitive development and social skills. To overcome the barriers that AD presents, concerted efforts are necessary by all components of the health system. To facilitate these efforts, knowledge gaps about AD in LA must be breached to foster informed awareness, education, and decision making. With this in mind, the panel proposes the following recommendations in Table 3. We expect these recommendations to set the roadmap for breaching knowledge gaps and overcoming AD barriers in LA with the goal of improving patient diagnosis, treatment, and QoL.

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