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## Global burden of urticaria: Insights from the 2016 Global Burden of Disease Study



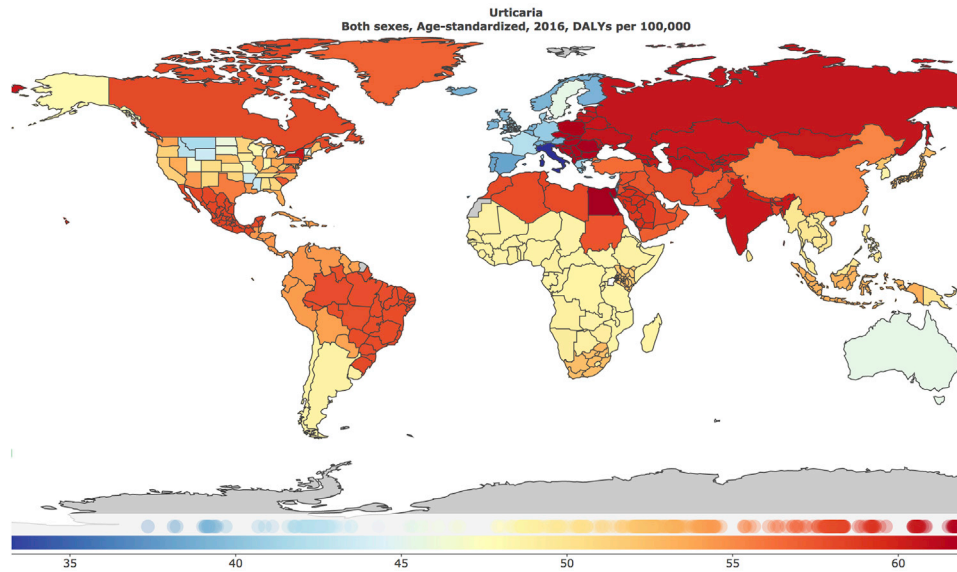
*To the Editor:* Urticaria can be associated with significant functional impairment.<sup>1</sup> While prevalence studies exist, few have explored the burden of urticaria worldwide, and to understand how a disease contributes to morbidity and mortality, measures beyond prevalence and incidence should be considered. The Global Burden of Disease (GBD) Study is a systematic, comprehensive effort to estimate the comparative magnitude of premature death and disability in >195 countries and 300 diseases.<sup>2</sup> To our knowledge, this study is the first effort to present GBD results regarding the burden of urticaria by age, sex, and geography.

Complete details of GBD methodology are available elsewhere.<sup>3</sup> Methods specific to the estimation of urticaria burden are presented here. A systematic review was performed on PubMed and Google Scholar to capture epidemiologic data

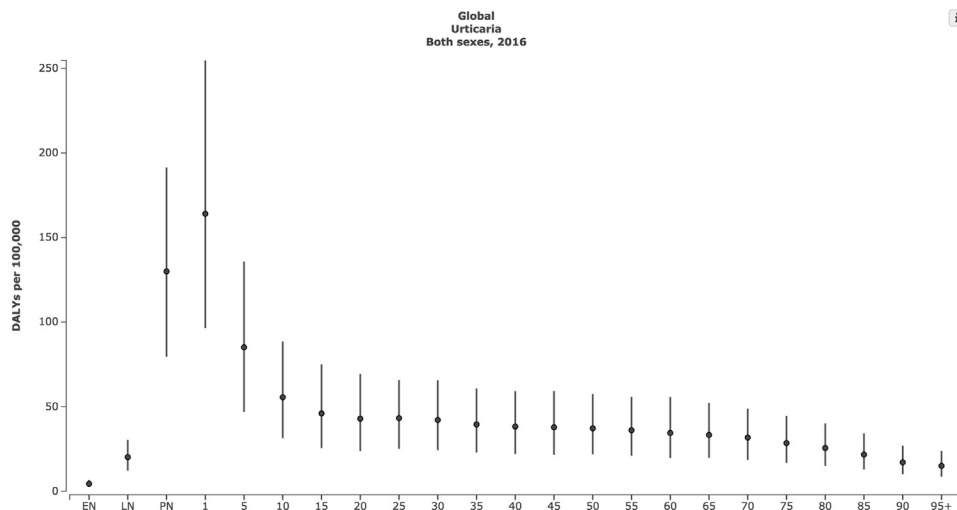
for urticaria, including studies published during 1980-2014. Hospital outpatient and US claims data (using International Classification of Diseases, Tenth Revision, code L50) from 2000, 2010, and 2012 were also included. A Bayesian meta-regression tool, DisMod-MR 2.1, was used to model urticaria epidemiologic data points and estimate prevalence by age, sex, year, and country. Predictive covariates are used to create approximate estimates for countries lacking data. The GBD methods stratify disease-specific prevalence by severity level by assessing varying levels of itch, pain, and worry. Disability weights range from 0 (least disabling) to 1 (most disabling) and were derived from 4 population-based European surveys and an open-access web-based survey of 60,890 respondents.<sup>3</sup> Disease burden is measured by disability-adjusted life years (DALYs), combining morbidity (years lost to disability) with mortality (life-years lost), such that 1 DALY is equivalent with 1 healthy life-year lost.<sup>3</sup>

The global age-standardized DALY rate for urticaria is 55.49/100,000 population. Among skin disease, the global burden from urticaria in 2016 ranks only behind acne vulgaris (214/100,000), dermatitis (152/100,000), viral skin disease (80.02/100,000) and psoriasis (76/100,000).<sup>2</sup> The 3 world regions with the greatest DALY rates for urticaria are Central Europe (61.8/100,000 population), Eastern Europe (60.7/100,000 population), and Central Asia (60.6/100,000 population). Fig 1 depicts the urticaria DALY rate per country. The age-standardized DALY rate for urticaria is 47.4/100,000 population and 62.5/100,000 population in male and female persons, respectively. Analysis of urticarial burden of disease by age group shows that children aged 1-4 years have the highest burden of disease (164.02/100,000 population), followed by postnatal infants (129.98/100,000 persons) and those aged 5-9 years (85.06/100,000 population). Fig 2 depicts the DALY rate for the consecutive age categories studied.

Limitations of the GBD Studies have been previously described.<sup>4</sup> Although the GBD model relies on high-quality analysis and statistics, it is not a perfect prediction model, and the data do not differentiate between chronic and acute episodes of urticaria. Despite the limitations, the GBD data offer a solid base for further studies to build upon. Targeted therapy (anti-IgE) for urticaria has a potential to decreased overall morbidity associated with the disease.<sup>5</sup> The data presented in this study highlight the variation in burden of disease by geography, sex, and age, which can be used to guide further research on targeted therapies, especially for populations heavily affected by urticaria.



**Fig 1.** Geographic distribution of age-standardized DALYs per 100,000 population for urticaria in countries analyzed in the Global Burden of Disease Study. *DALY*, Disability-adjusted life years.



**Fig 2.** Total mean estimates of DALYs lost for urticaria with 95% confidence intervals by consecutive age category. Age categories shown reflect incidence at each year of life. *DALY*, Disability-adjusted life years; *EN*, early neonatal; *LN*, late neonatal; *PN*, postnatal period or the first 6 weeks after birth.

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### Implementation of an outcomes-based curriculum for dermatology clerkships and initial positive perceptions from faculty and students



*To the Editor:* Outcomes-based medical education (OBME) is a recent educational model focused on building a curriculum around desired outcomes.<sup>1</sup> OBME uses competency goals to guide curricular decisions by prioritizing outcomes, defining graduate requirements, and creating milestones, teaching methods, and assessment tools to achieve these outcomes.<sup>2</sup> Similarly, the Accreditation Council for Graduate Medical Education and the American Board of Medical Specialties, in efforts to improve graduate medical education, highlighted 6 general competencies to define essential skills required of graduating physicians.<sup>1</sup> Some residency programs are beginning to implement OBME-based principles.<sup>2</sup>

A need for OBME implementation also exists in undergraduate medical clerkship education. One multi-institutional study evaluated the use of a clinical activities tool (CAT), with recommended skills and faculty feedback to guide clinical work, in obstetrics/gynecology clerkships. The CAT was found to clarify student objectives, provide guidance, and facilitate interactions with residents and faculty.<sup>3</sup> No such efforts have arisen in undergraduate dermatologic education.

In 2013, the American Academy of Dermatology created a standardized online curriculum addressing inconsistencies in dermatology instruction within medical schools. Despite positive student feedback

in the classroom, this resource did not address educational gaps in the clinical setting.<sup>4</sup> We sought to implement an OBME curriculum in a dermatology clerkship and evaluate attitudes of faculty and students regarding the value of OBME-related changes.

The OBME curriculum consisted of a list of objectives and a CAT provided to students at the beginning of the clerkship (Supplemental Fig 1; available at <http://www.jaad.org>). Student self-assessment surveys (SSAS), measuring confidence in 17 dermatology topics, were completed at the beginning and end of the clerkship. Evaluations of the course and the CAT were collected at the end of the clerkship. We compared end-of-clerkship SSAS scores between curriculum groups with an analysis of covariance, using beginning-of-clerkship SSAS scores as the covariate to control for baseline group differences. Average clerkship and CAT evaluation scores were compared with a Wilcoxon rank-sum test and descriptive analyses, respectively.

We examined 12 students before and 63 students after curriculum changes. Evaluations of the clerkship and the CAT were almost exclusively positive (Table I). The new curriculum group showed an increase, albeit not statistically significant, in average clerkship evaluation scores ( $P = .27$ ) and adjusted mean end-of-clerkship SSAS scores (4.83, 95% confidence interval  $-2.55$  to  $12.20$ ;  $P = .13$ ).

Most students have limited exposure to clinical dermatology in medical school. Regardless of specialty choice, graduating medical students should attain a fundamental level of competence with common dermatologic conditions.<sup>5</sup> Through emphasis of relevant topics and a clear framework for curricular planning, OBME can help solidify basic dermatologic education in medical school.

This pilot study provides encouraging preliminary evidence for the potential of OBME in undergraduate clinical dermatology education, with positive feedback from faculty and students. The CAT set up opportunities for faculty and residents to interact productively with students and facilitated student performance evaluation in a clinical setting. Limitations of this study lie in reliance on self-assessment measures. Limited research exists evaluating positive perceptions of educational changes and subsequent student performance in relation to such changes. Future studies should incorporate objective knowledge or capability measures and larger samples to further explore evidence for OBME-based curricula.