user (range, 247-1839 MCQs) during the 15-week period (105 days). Each MCQ was answered 2.33 times. In total, there were 1167 learning days, with 60.8 days per user (range, 15-95 days). The users spent 30,596 min (509.9 h) answering the MCQs, resulting in 1,610 min (or 26.8 h) per user. Furthermore, each user answered 17.5 MCQs and spent an average of 26 min per learning day.

Conclusion: Blended learning is an interactive method to potentially extend learning time over several weeks. However, the success of this technique lies in motivating the participants to continue learning after the event. A quiz duel as a gamification technique proved to be effective in motivating participants to learn daily. In our study, learners spent an average of 27 h, i.e., almost half of the total attendance time of 60 h, learning. Correspondingly, this technique could also replace parts of lengthy face-to-face courses in an attempt to save costs in the future. Information drawn from the MCQs could potentially serve as promising learning analytics.

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THU0651-HPR ONLINE EDUCATION YIELDS SIGNIFICANT GAINS IN RHEUMATOLOGISTS' KNOWLEDGE OF THE ROLE OF ENTHESITIS IN THE DIAGNOSIS AND MANAGEMENT OF PSA

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Background: Physicians face challenges staying up-to-date with the latest research and accessing the ever-growing field of knowledge is time-consuming. Online education can make these clinician's tasks more efficient and less time-consuming.

Objectives: As part of a larger curriculum, we developed an online CME activity titled: "Enthesitis in Psoriatic Arthritis: Disease, Diagnosis and Decisions". The goal of this study was to assess whether this online CME accredited video discussion improves physicians' understanding of the role of enthesitis in the diagnosis and management of patients with psoriatic arthritis (PsA) in clinical practice.

Methods: Rheumatologists participated in an online CME activity (<https://www.medscape.org/viewarticle/910671>) consisting of a 30-minute video discussion between 2 experts with accompanying slides. Educational effect was assessed using a 4-question repeated pairs, pre-/post-assessment. A chi-square test was used to determine if a statistically significant improvement ($P < .05$ significance level) existed in the number of correct responses from the pretest and posttest scores. Cramer's V was used to estimate the level of impact of the education. The CME activity launched on March 28, 2019, and the data were collected through June 7, 2019.

Results: A total of 145 rheumatologists completed the pre- and post activity assessments. Overall the activity had a significant impact ($P < .0001$) on rheumatologists' knowledge of the role of enthesitis in the diagnosis and management of PsA, with a Cramer's V value of 0.153 indicating a noticeable educational impact. The average percentage of correct responses rose from 54% pre-activity to 69% post-activity. A repeated pairs analysis showed that 22% of rheumatologists improved their knowledge and 47% reinforced their knowledge, respectively. The change in percentage of correct responses from pre- to post-assessment for all questions are shown in table. Almost

Table. Impact of education on rheumatologists' knowledge of enthesitis

Question #	Question topic	Aggregated data		Linked Learner Results ^a	
		Average % of correct responses Pre- vs. Post-education	P-value	% Improved ^b learners Pre- vs. Post-education	% Reinforced ^c learners Pre- vs. Post-education
1.	Immunopathology of PsA	75% vs 84%	.0579	12%	72%
2.	Prevalence of enthesitis in patients with PsA	44% vs 68%	<.0001	33%	34%
3.	Clinical trial outcomes in patients with enthesitis	43% vs 56%	.0345	22%	34%

^aEach individual learner tracked pre and post-education

^bIncorrect answer pre-education, Correct answer post-education

^cCorrect answer pre-education, Correct answer post-education

40% of rheumatologists had a measurable improvement in confidence in their ability to evaluate the presence of enthesitis according to a clinical exam or ultrasound.

Conclusion: This online CME activity significantly improved rheumatologists' understanding of role of enthesitis in the diagnosis and management of PsA. However, there is clearly room for further improving physicians' knowledge of clinical trial outcomes with biologics in patients with enthesitis, since 44% of rheumatologists provided incorrect answers to question 3 post-education. This topic can be addressed in future education.

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THU0652-HPR ONLINE EDUCATION YIELDS SIGNIFICANT GAINS IN RHEUMATOLOGISTS' KNOWLEDGE OF BIOLOGICS AND BIOSIMILARS BUT A SUBSTANTIAL GAP REMAINS

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Background: Biologics are complex proteins which have revolutionized the treatment of many serious diseases. Due to their complexity and manufacturing which involves living organisms, it is not possible to create identical versions of reference biologics, but it is possible to create biosimilar drugs. Biosimilars have the potential to yield high cost savings and expand treatment options to meet the growing demand for biological therapies.

Objectives: This study assessed whether the online CME-accredited round-table-discussion titled "Understanding Biologics: from protein to clinical practice" improved physicians' understanding of the inherent variability of biologics and what similarity means in the context of biologics as well as the analytical assessment of quality that applies to both biologics and biosimilars.

Methods: Rheumatologists participated in an online CME activity (www.medscape.org/viewarticle/900121) consisting of a 30-minute video discussion between 4 experts with accompanying slides. Educational effect was assessed using a 4-question repeated pairs, pre-/post-assessment. A chi-square test was used to determine if a statistically significant improvement ($P < .05$ significance level) existed in the number of pre-/post-test correct responses. Cramer's V was used to estimate the level of impact of the education. The CME activity launched on 22 Aug 2018, and the data were collected through 9 Oct 2018.

Results: A total of 622 rheumatologists participated in the educational activity, and 87 completed the pre- and postassessment. Overall the activity had a significant impact ($P < .001$) on rheumatologists' understanding of the inherent variability of biologics and the regulatory requirements for approval of a biosimilar. The Cramer's V value of 0.186 indicates a considerable effect of the education. The average percentage of correct responses rose from 33% pre-activity to 51% post-activity. A linked learning assessment (individual responses matched pre- and post-education) showed that 25% of learners improved their knowledge and 26% reinforced their knowledge. The change in percentage of correct responses from pre- to post-assessment achieved statistical significance ($P < .05$) in 2 of the 3 questions presented: (i) understanding the type of studies needed to demonstrate comparability of a biosimilar to an originator (11% at baseline; 45% post activity), (ii) understanding the type of variability considered acceptable for a biologic (46% at baseline; 63% post activity). However, no knowledge gain was observed regarding basic analytic attributes evaluated to ensure batch to batch consistency (37% at baseline; 38% post activity). Almost 45% of rheumatologists gained confidence in their ability to describe the regulatory requirements for approval of a biosimilar.

Conclusion: This online CME activity significantly improved rheumatologists' understanding of the inherent variability of complex biologic medicines and the role of analytical studies in the regulatory approval of biosimilars. However, there is room for further improving physicians' knowledge, especially of basic analytics of biologics and biosimilars.

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THU0653-HPR BARRIERS FOR THE UPTAKE OF EULAR POSTGRADUATE EDUCATION FOR HEALTH PROFESSIONALS IN RHEUMATOLOGY IN EASTERN EUROPEAN COUNTRIES: RESULTS FROM 3 NATIONAL SURVEYS

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Background: Health professionals play an important role in the care for people with rheumatic and musculoskeletal diseases. In order to improve

and maintain the quality of their work, appropriate professional education is needed. EULAR has developed several educational products and activities specifically targeted at Health Professionals in Rheumatology (HPR), but particularly in Eastern European countries, their uptake is limited. The overarching aim of a EULAR project (named HEE4ALL: Health professionals Education in Eastern European countries for All) is to develop and execute implementation strategies for EULAR educational activities in 3 eastern European countries.

Objectives: The aim of the present analysis was to identify barriers and facilitators for the uptake of EULAR educational activities among HPR in Eastern European countries.

Methods: First, a questionnaire was sent to representatives of national health professionals' or patients' organization in 17 Eastern European countries, in order to determine their eligibility to participate in the implementation project. Eligibility criteria were: Having a national HPR organization; Willing and able to compose a team with HPR, Patients, and Rheumatologists; and Interested to participate in the project. Selected countries (minimum 3) were requested to set up a national implementation team, and conduct a national, electronic survey among HPR on anticipated barriers and needs regarding educational activities. The survey included the following elements: a. characteristics of the responding HPRs; b. Familiarity with EULAR educational offerings; c. Anticipated barriers and facilitators (score 0=no barrier at all to 10 very important barrier); d. Ability to pay for the HPR online course.

Results: Representatives from 10/17 Eastern European countries responded to the first questionnaire, with 3 countries meeting the selection criteria: Hungary, Serbia and Turkey. Subsequently, 216 (H:106, S:42 and T:68) HPR completed the 3 national surveys. In all 3 countries, the majority of the respondents was female (93.1%), and nurse (70.8%) or physical therapist (19.0). Familiarity with EULAR educational offerings was poor, with the lowest proportions of HPR being familiar with postgraduate face-to-face courses (13.9%), educational visits (19.0%) and the EULAR online course for HPR (25.0%). The highest ranked barriers in all 3 countries included the costs of EULAR annual congress, the costs of the EULAR HPR online course and a lack of mastery of English language. The maximum amount of money HPR were able to pay for the EULAR online course was on average €66, €29 and €83 in Hungary, Serbia and Turkey, respectively.

Conclusion: Based on a survey in 3 Eastern European countries, it appears that familiarity with EULAR educational offerings is suboptimal. However, when HPR are aware of the educational offerings, their costs and a lack of mastery of the English language seem to be the most important barriers for participation. Based on these results, the 3 national teams developed implementation plans during a 2-day meeting (October 2019). The implementation plans are now executed and a process and effect evaluation is planned by November, 2020.

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