Highlighting the Diversity of Pediatric Rheumatic Disease

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BACKGROUND

- Patients with skin of color often have worse prognoses and complications from rheumatic diseases[1]
  - Likely multifactorial but in part due to delay in diagnosis from **lack of recognition of characteristic rashes in darker complexions**
- Current medical literature contains images predominantly featuring rashes in very light skin tone[2,3]

OBJECTIVES

To develop and deliver an interactive workshop to **highlight the diversity of mucocutaneous features** in pediatric rheumatic disease

INSTRUCTIONAL GOAL

By the end of the workshop, pediatric residents will **feel more confident in identifying the pathognomonic skin findings** of Lupus (SLE), Juvenile Dermatomyositis (JDM), and Systemic Sclerosis (SSc) in various skin complexions and **initiate an appropriate laboratory and imaging evaluation** after making these visual diagnoses in the ER or general pediatrician's office setting.

METHODS

- Virtual workshop split into one-hour sessions on SLE, JDM, and SSc
- Learners could attend any session of interest
- Delivered after work-hours on April 26-28, 2022
- Incorporated **problem-based learning** with interactive case presentations, photos of physical exam findings in various complexions, **audience-response questions** in the style of Board Certification Exams, and **gamification applications** to solidify knowledge
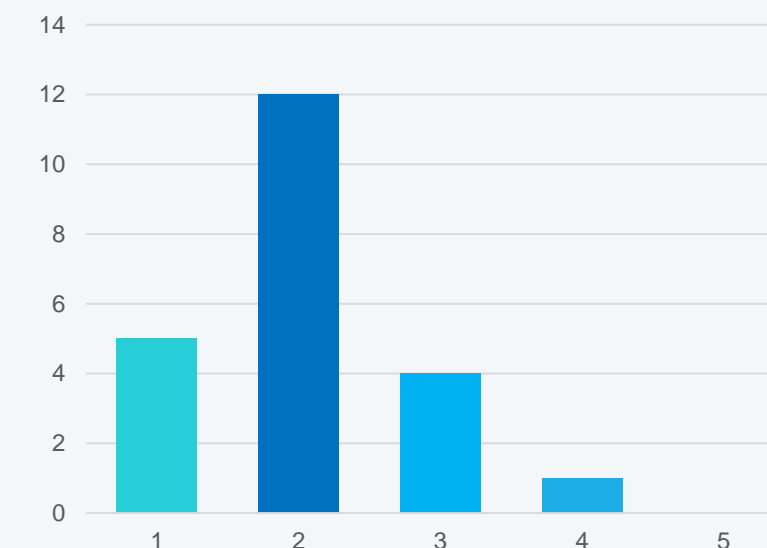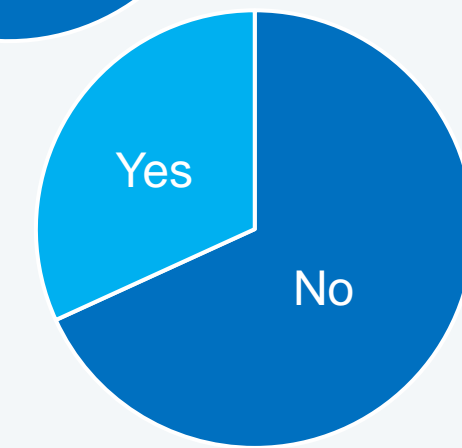
RESULTS

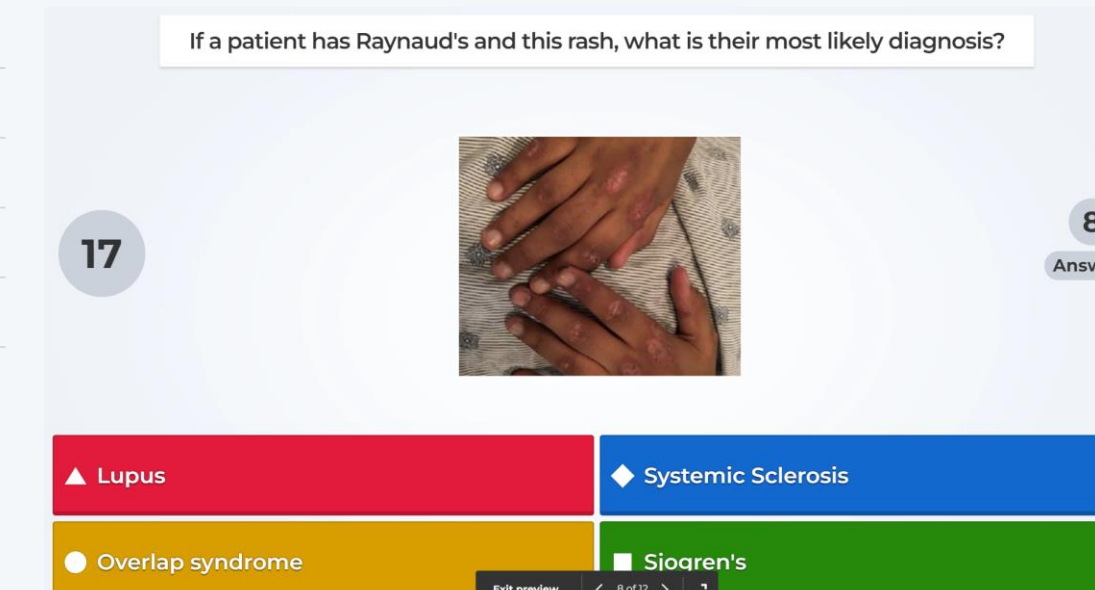**Pre- Workshop Interest Survey:** 22 responses

What year of residency are you?

PGY-1 · PGY-3 · PGY-2
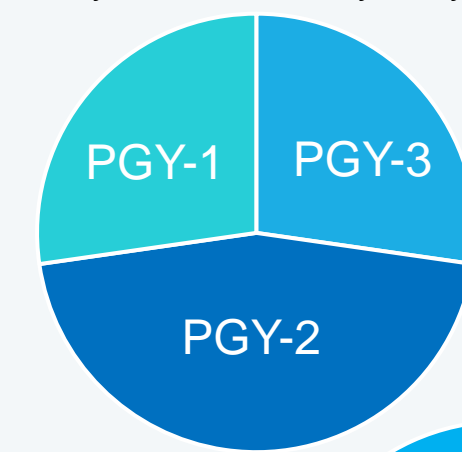
Have you had any formal teaching in pediatric rheumatology previously?

Yes / No

How comfortable do you feel with making rheum diagnoses at this time?*
*5-point Likert scale
(1= very uncomfortable, 5= very comfortable)

Workshop: 15 learners attended at least 1 session
2 attended 2 sessions
1 attended all 3 sessions
11 post-session surveys completed:
5 JDM, 4 SSc, 2 SLE

If a patient has Raynaud's and this rash, what is their most likely diagnosis?

17 / 8 Answers

Lupus · Systemic Sclerosis · Overlap syndrome · Sjogren's

Sample question from interactive Kahoot![4] fast-paced game

Learner Feedback:

"This is one of the best lecture series I have ever watched – and your dedication to showing findings in patients of color is PHENOMENAL and is making me a better doctor."

"Organized, logical and easy to follow lectures!"

"Enjoyed the multiple pictures to bring home the points. Also very much enjoyed playing a game at the end to test our knowledge"

"Interactive but low stress, Appreciated the pictures and clear clinical/practical information. Very clear answers to questions demonstrating educator's comfort with topic"

"Phenomenal lecture with great educational approach"

Pre- and Post- Session Scores for Learning Objectives:

Learning objective	Pre-session mean	Post-session mean	Pre- and Post- Difference
How comfortable do you feel making the diagnosis of Juvenile Dermatomyositis?	2	4	+2*
How comfortable do you feel identifying a Heliotrope rash, Gottron's papules, and nailfold capillaropathy in different complexions?	2.3	4.6	+2.3*
How comfortable do you feel in recognizing features of the history and physical exam that suggest proximal muscle weakness versus distal?	3	4.8	+2.8*
How comfortable do you feel initiating a laboratory and imaging evaluation for JDM?	2.6	4.6	+2*
How comfortable do you feel knowing when to hospitalize a child with suspected JDM?	2.7	4.4	+1.7*
How comfortable do you feel making the diagnosis of SSc?	1.8	3.7	+1.9**
How comfortable do you feel identifying cutaneous features of SSc?	2	3.7	+1.7**
How comfortable do you feel differentiating primary from secondary Raynaud's?	1.8	4.3	+2.5**
How comfortable do you feel initiating a laboratory and imaging evaluation for SSc?	1.5	3.3	+1.8**
How comfortable do you feel knowing when to hospitalize a child with suspected SSc?	3	4.3	+1.3**
How comfortable do you feel using SLICC criteria to support the diagnosis of SLE?	2	3.5	+1.5**
How comfortable do you feel identifying cutaneous features of SLE?	2.8	3.5	+0.7**
How comfortable do you feel initiating a laboratory and imaging evaluation for SLE?	2.5	3.5	+1**
How comfortable do you feel knowing when to hospitalize a child with suspected SLE?	3	4	+1**

*Statistically significant sign test, p<0.05; **Sample size too small for significant statistical analysis

CONCLUSIONS

- The workshop was well-received, and participants enjoyed gamification of knowledge
- Finding a time that fit residents' asynchronous work schedules was a challenge
  - Statistical analysis limited by small sample size and post-survey attrition rate
- **Our curriculum addresses an educational gap that could potentially decrease the time to diagnosis for our diverse patient population**

FUTURE DIRECTIONS

- Awarded the Arthritis Foundation Curriculum Development Solutions to Growing the Diversity in the Rheumatology Workforce 2022-2023 grant
- **Plan to develop our content into interactive online modules**
  - Fundamentals of Richard Mayer's Multimedia Learning
  - Target audience: pediatric and family medicine residents without direct access to pediatric rheumatology
  - Emphasis on diagnosis, interpretation of labs, and indications for referral
  - Pre- and post-assessment scores will be analyzed using the Wilcoxon matched pairs signed rank test
  - Instructional evaluation based on Kirkpatrick's Hierarchy of Evaluation

REFERENCES