Diagnosis and Treatment of ILD with a Progressive Lung Disease Phenotype: Clinical Implications of Emerging Data

CHEST Symposium Final Report
Live and Online Educational Initiative
Grant ID: ME201822863
Attendees at the live symposium:
- 87% prescribers
- 100% from specialty of pulmonology

Respondents to the live evaluation recommended the following topics they would like more information on in future education:
- Practical management of ILD
- New therapeutic options
- HSP Management
- CTD ILD
- Sarcoidosis

Closing the Gap
97% increase in knowledge related to LO 2 - defining ILD with a progressive phenotype in new patients and as the disease changes over time (Q2).
In addition to descriptive statistics, levels of significant and effect size were calculated to demonstrate the impact of the activity.

139% overall relative gain in knowledge from pre to post activity.

89% of learners report that they are somewhat to extremely likely to make changes to their practice based on what they learned.

100% of all questions represented a very large or large effect. All questions demonstrated a significant change in knowledge from pre to post test.

A possible gap persists related to distinguishing the prognosis for CTD-ILD from IPF (Q6) – only 77% answered correctly.

Recommendations for future education:
- Pulmonary Hypertension
- Phenotyping of ILD
- Emerging therapies
- Rare ILD's
CHEST Symposium: Program Faculty

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Thoracic Radiology Interim Chief of Quality
Department of Radiology
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Background
This interactive CME symposium was held in conjunction with the annual American College of Chest Physicians (CHEST) meeting, October 2018 in San Antonio, TX. The goal was to improve the awareness, knowledge and competency of Pulmonologists, Radiologists and Pathologists, in the diagnosis, management, and treatment of ILDs with a progressive phenotype.

Target Audience:
Pulmonologists, Radiologists, and Pathologists

Objectives
1. Describe best practices for classifying ILD subtypes and phenotypes.
2. Define ILD with a progressive phenotype in new patients and as the disease changes over time.
3. Discuss strategies for initial treatment and management protocols for patients with a progressive ILD phenotype.
National Jewish Health is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

**Accreditation Details:** NJH designates this live educational activity for 1.0 AMA PRA Category 1 Credits™.
Outcomes will be measured via participation totals, specialty, designation, pre-test, post-test, clinically based decisions in case simulations, and evaluations.

The metrics will demonstrate participation, satisfaction, engagement, and change in knowledge and competency to achieve Moore’s Level 4 outcomes.
Interim Report: CHEST Symposium
Level 1 Outcomes: Participation

83% of participants

- MD/DO: 87%
- NP/PA: 4%
- PharmD: 2%
- Other: 11%

87% of learners are prescribers
100% of learners in Pulmonology

N=122
## Level 2 Outcomes: Learning & Satisfaction

<table>
<thead>
<tr>
<th>Objective</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting your educational needs</td>
<td>99%</td>
</tr>
<tr>
<td>Reinforcing and/or improving your current skills</td>
<td>99%</td>
</tr>
<tr>
<td>Enhancing your ability to apply the LO’s to practice</td>
<td>98%</td>
</tr>
<tr>
<td>Improving your ability to treat or manage your patients</td>
<td>99%</td>
</tr>
</tbody>
</table>

N=73
Level 3 outcomes were measured by comparing pre- and post-test answers. Attendees’ responses to these questions demonstrated that participants gained knowledge as a result of the activity.

Overall relative knowledge gain from pre- to post activities 23%
CHEST Symposium
Assessment: Pre-Test/Post-Test (Question 1)

Q1: What is the most important factor in determining prognosis for a patient with ILD:

A. The HRCT pattern
B. Making the correct ILD diagnosis ✓
C. Geographic location of the patient
D. Family history
E. History of tobacco use

Pre-test N = 21
Post-test N = 60

5% relative increase in knowledge
Q2: Longitudinal predictors of mortality in IPF include all of the following except:

A. Decline in FVC or DLCO
B. Acute exacerbations
C. Change in 6MWD
D. Ground glass opacities on HRCT ✓
E. Worsening in respiratory symptoms requiring hospitalization

Pre-test N = 25
Post-test N = 53
Q3: The GAP model for predicting outcome in IPF looks at Gender, Age and Pulmonary Symptoms:

A. True
B. False ✓
C. I am not certain

Pre-test N = 26
Post-test N = 33

Despite the noted gain, this remains a possible persistent gap in knowledge – only 36% answered correctly.

140% relative increase in knowledge

36%
CHEST Symposium
Assessment: Pre-Test/Post-Test (Question 4)

Q4: Which of the following has been shown to predict outcome in Hypersensitivity Pneumonitis?:

A. Geographic location
B. Fibrosis on HRCT
C. The ability to find the antigen
D. B and C ✓
E. All of the above

Pre-test N = 17
Post-test N = 32

62% relative increase in knowledge
Connective Tissue Disease (CTD-ILD) in general has a better prognosis than IPF:

A. True ✓
B. False
C. I am not certain

14% relative increase in knowledge

Pre-test N = 39
Post-test N = 32
Q6: The ability to predict outcome in patients allows the physician to do the following except:

A. Refer to transplant in a timely fashion
B. Counsel the patient on what to expect
C. Plan approximately timed follow-up visits
D. Predict 6 month changes in FVC and DLCO ✓
E. Adjust/start pharmacotherapy
CHEST Symposium
Assessment: Pre-Test/Post-Test (Question 7)

Q7: When accounting for baseline physiology, which of the following predicts outcome in patients with RA-ILD:

A. Sex
B. Age
C. HRCT pattern of fibrosis
D. 6 month changes in FVC and DLCO
E. None of the above predict outcome ✓

LIVE ACTIVITY

Knowledge decreased in the live activity, yet significantly increased in the online activity

<table>
<thead>
<tr>
<th></th>
<th>Pre-test N = 29</th>
<th>Post-test N = 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Post-Test</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>
Level 4 Outcomes: Competence

>96% plan to make changes to their practice as a result of what they learned (N=41)

- 44% Change screening/prevention practices
- 68% Incorporate different diagnostic strategies into patient evaluation
- 24% Use alternative communication methodologies with patients and families
- 50% Modify Treatment Plans
CHEST Symposium: Learner Evaluation – Level 4 Outcomes

- **96%** of learners report that they intend to make changes to practice as a result of the activity
- **100%** of learners report that the content presented was evidence based and clinically relevant
- **93%** of learners report that the activity addressed strategies for overcoming barriers to optimal patient care
- **100%** of learners report that the material was presented in an objective manner and free of commercial bias
CHEST Symposium:
Learner Evaluation – Clinical Reference Aid

96% of learners report that they are somewhat to extremely likely to use the clinical reference aid infographic in practice.
**Key Lessons Learned**

- Importance of correct diagnosis
- Early referral for transplant evaluation
- HRCT patterns
- Baseline mild abnormal PFT is not reassuring of slow decline
- Need for a thorough and methodical evaluation in every patient

**Needs for Further Education**

- Predicting outcome in RA-ILD
- New therapeutic options for ILD
- Management of ILD/Immunologic therapies
- Sarcoidosis
- Immunologics in the treatment of pulmonary disease
- Treatment options/combination treatments
CHEST Symposium: Online Program

Launched on myCME November 16, 2018

Launched on Healio May 30, 2019
Background: The online activity is based on the content of the live meeting to extend reach to additional audiences. The presentation includes case-based presentations related to the classification of ILD subtypes and phenotypes led by expert faculty. The presenters will reinforce key learning points by using an infographic clinical reference aid developed for the activity, interactive polling, HRCT images, and HRCT reconstructions/3D animations rendered at NJH.

Target Audience (Online enduring activity): Pulmonologists, Radiologists, and Pathologists, as well as Primary Care Physicians, Nurse Practitioners, and Physician Assistants

Learning Objectives:
1. Describe best practices for classifying ILD subtypes and phenotypes.
2. Define ILD with a progressive phenotype in new patients and as the disease changes over time.
3. Discuss strategies for initial treatment and management protocols for patients with a progressive ILD phenotype.
**Target Audience:** Pulmonologists, Radiologists, and Pathologists, as well as Primary Care Physicians, Nurse Practitioners, and Physician Assistants.

**Educational Outcomes Strategy:** NJH will provide outcomes on Moore’s Outcome Levels 1-4: Participation, Satisfaction, Knowledge and Competence. Pre-tests and post-tests will be distributed to measure the participants’ change in knowledge on the topics covered during this educational initiative, and evaluations will be collected to understand participants’ engagement in the activity, intention to change (competence), and appropriateness of the learning modality and content. The outcomes evaluation data will assist in identifying additional gaps for future educational initiatives.
CHEST Symposium Online: Level 1 Outcomes (Participation)

- **Participants**: 901
- **Completers**: 624
- **Certificates**: 596

**Ongoing Activity**
- **Proposed**: 2,000 learners or 500 completers
- **Exceeded proposed numbers by 20%**

**2616 online learners engaged in the content**
CHEST Symposium Online: Level 1 Outcomes Evaluation (Participation)

N=624

Completers by Designation

- MD/DO: 242
- NP/PA: 225
- RN: 33
- Other: 124

*Other specialties included: Critical Care, Emergency Medicine, Hospitalists and Surgery
CHEST Symposium Online: Level 2 Outcomes Evaluation (Satisfaction)

- Improved your ability to treat/manage patients: 93%
- Enhanced your ability to apply the LOs to practice: 94%
- Reinforced and/or improved your current skills: 96%
- Met your educational needs: 96%
- Met the LOs: 96%

N=624
Level 3 outcomes were measured by comparing pre- and post-test answers. Attendees’ responses to these questions demonstrated that participants gained knowledge as a result of the activity.
Q1: What is the most important factor in determining prognosis for a patient with ILD:

- History of tobacco use: 3% (Post-test) vs 9% (Pre-test)
- Family history: 1% (Post-test) vs 7% (Pre-test)
- Geographic location of the patient: 2% (Post-test) vs 5% (Pre-test)
- Making the correct ILD diagnosis: 94% (Post-test) vs 50% (Pre-test)
- The HRCT pattern: 2% (Post-test) vs 37% (Pre-test)

88% Relative gain in knowledge

P value < .0001
Cohens d = 1.21
Large Effect Size
Q2: Longitudinal predictors of mortality in IPF include all of the following except:

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Pre (N=811)</th>
<th>Post (N=624)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worsening respiratory symptoms requiring hospitalization</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Ground glass opacities on HRCT</td>
<td></td>
<td>42%</td>
</tr>
<tr>
<td>Change in 6MWD</td>
<td>3%</td>
<td>13%</td>
</tr>
<tr>
<td>Acute exacerbations</td>
<td>3%</td>
<td>19%</td>
</tr>
<tr>
<td>Decline in FVC or DLCO</td>
<td>5%</td>
<td>15%</td>
</tr>
</tbody>
</table>

105% Relative Knowledge Gain

P value < .0001
Cohens d = 1.25
Large Effect Size
Q3: The GAP model for predicting outcome in IPF looks at Gender, Age and Pulmonary Symptoms

<table>
<thead>
<tr>
<th>Statement</th>
<th>Pre (N=811)</th>
<th>Post (N=624)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUE</td>
<td>70%</td>
<td>6%</td>
</tr>
<tr>
<td>FALSE</td>
<td>17%</td>
<td>94%</td>
</tr>
<tr>
<td>I am not certain</td>
<td>13%</td>
<td></td>
</tr>
</tbody>
</table>

452% Relative Knowledge Gain

P value < .0001
Cohens d = 2.41
Very Large Effect Size
Q4: Which of the following have been shown to predict outcome in Hypersensitivity Pneumonitis?

- Geographic location
- Fibrosis on HRCT
- The ability to find the antigen
- B and C
- All of the above

<table>
<thead>
<tr>
<th></th>
<th>Post (N=624)</th>
<th>Pre (N=811)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic location</td>
<td>2%</td>
<td>12%</td>
</tr>
<tr>
<td>Fibrosis on HRCT</td>
<td>3%</td>
<td>15%</td>
</tr>
<tr>
<td>The ability to find the antigen</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>B and C</td>
<td>4%</td>
<td>28%</td>
</tr>
</tbody>
</table>

140% Relative Knowledge Gain
P value < .0001
Cohens d = 1.25
Large Effect Size

CHEST Symposium: Level 3 (Knowledge) Outcomes
Q5: The ability to predict outcome in patients allows the physician to do the following except:

<table>
<thead>
<tr>
<th>Option</th>
<th>Post (N=624)</th>
<th>Pre (N=811)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to transplant in a timely fashion</td>
<td>2%</td>
<td>25%</td>
</tr>
<tr>
<td>Counsel the patient on what to expect</td>
<td>3%</td>
<td>12%</td>
</tr>
<tr>
<td>Plan appropriately timed follow-up visits</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Predict 6 month changes in FVC and DLCO</td>
<td>44%</td>
<td>89%</td>
</tr>
<tr>
<td>Adjust/start pharmacotherapy</td>
<td>3%</td>
<td>13%</td>
</tr>
</tbody>
</table>

102% Relative Knowledge Gain

P value < .0001
Cohens d = 1.58
Large Effect Size
Q6: Connective Tissue Disease (CTD-ILD) in general has a better prognosis than IPF.

385% Relative Knowledge Gain
P value < .0001
Cohens d = 1.28
Large Effect Size

Possible persistent gap
Q7: When accounting for baseline physiology, which of the following predicts outcome in patients with ILD.

<table>
<thead>
<tr>
<th>Option</th>
<th>Pre (N=811)</th>
<th>Post (N=624)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>10%</td>
<td>1%</td>
</tr>
<tr>
<td>Age</td>
<td>10%</td>
<td>2%</td>
</tr>
<tr>
<td>HRCT pattern of fibrosis</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>6 month changes in FVC and DLCO</td>
<td>24%</td>
<td>7%</td>
</tr>
<tr>
<td>None of the above</td>
<td>40%</td>
<td>85%</td>
</tr>
</tbody>
</table>

113% Relative Knowledge Gain

P value < .0001
Cohens d = 1.09
Large Effect Size
Online Activity

Level 4 Outcomes: Competence

89% plan to make changes to their practice as a result of what they learned (N=275)

- 33% Change screening/prevention practices
- 30% Incorporate different diagnostic strategies into patient evaluation
- 20% Use alternative communication methodologies with patients and families
- 17% Modify Treatment Plans
Key Take-Aways

- Improved baseline knowledge of ILD
- Prediction of risk for patients with ILD
- Distinguishing prognosis for ILD
- HRCT Patterns
- Helped reinforce treatment options
- Communicating with patients
- Refer to pulmonary early

Recommendations for Future Topics

- Phenotyping ILD
- HRCT pattern recognition
- Hypersensitivity pneumonitis
- Types of IPF
- Pulmonary Hypertension
- Choosing agent to treat UIP

“We [physicians] need to be mentors guiding our patients through their Journey!”
CHEST Symposium: Accreditation

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Accreditation Details: NJH designates this online educational activity for 1.0 AMA PRA Category 1 Credits™.
Thank you for your support of this educational initiative!