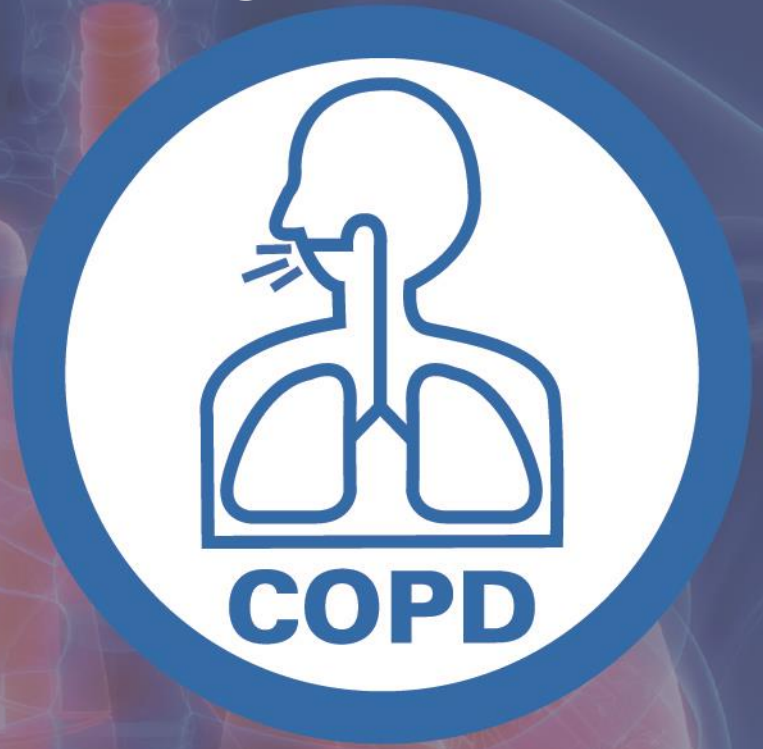
COPD Journal Club: A Pilot Program Delivered Via Twitter and Webinar



JOURNAL CLUB

Final Outcomes Summary: Live Webinar and Twitter Chat Journal Club
August – November, 2021

This educational program is supported in part by independent medical education grants from AstraZeneca Pharmaceuticals and Mylan Specialty L.P.

National Jewish Health®

Breathing Science is Life.®

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Executive Summary

Final Report

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Program Overview

This pilot COPD Journal Club program was delivered via Twitter, live webinar, and endured online. The multimedia COPD Journal Club sessions were developed and moderated by NJH faculty on a monthly basis, with downloadable article summaries that provide the key points of recently published articles in COPD and a group opinion developed by the National Jewish Health COPD Physicians Group. Each article summary issue is archived on a dedicated webpage. Every month, a thirty-minute live webinar led by expert NJH faculty provided a succinct article summary and engaged participants in academic and peer discussion. The recording of each live webinar is endured on VuMedi and made available for a year. A 30-minute structured Twitter chat based on the same article was also offered each month, providing another forum for live interaction with peers and expert faculty, as well as ongoing Tweet exchange for those that cannot attend the live portion.

Program Chair & Faculty

Jake Woodrow, MD
Assistant Professor
Division of Pulmonary, Critical Care & Sleep Medicine
National Jewish Health

Learning Objectives

- Apply critical thinking and research analysis in the review of research and guidelines in COPD.
- Increase awareness and understanding of research, evidence and best practices to inform clinical practice in COPD.
- Engage with an online community of practitioners to share key insights, latest research, and treatment strategies for patients with COPD.

Program Webpage

Launch Date: August 3, 2021
End Date: November 3, 2021
Activity Link:
https://www.nationaljewish.org/copdjournalclub

Target Audience & Accreditation

Target Audience: Pulmonologists, Primary Care and Internal Medicine Physicians, Physician Assistants (PAs) and Nurse Practitioners (NPs) who treat patients with COPD.

Accreditation: National Jewish Health is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. NJH designates each of the 4 live activities (4 live webinars, 4 live Twitter chats) for a maximum of 0.5 AMA PRA Category 1 Credit™.

Activity Format

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National Jewish Health Monthly COPD Journal Club Activities

Article Summary	Article Summary	Live Webinar Journal Club via Zoom	Twitter Journal Club via Tweet Chat	Webinars Endured on Vu-Medi
developed by NJH COPD experts endured on NJH Website	sent to target audience with registration links to Zoom and Twitter Journal Club	30-minute discussion led by NJH COPD expert (CME Credit)	(CME Credit)	
4 **article summaries developed**	**247** **article summary downloads**	**37** **webinar completers (85 registrants)**	**15,249** **impressions**	**1,198** **views**

Educational Impact Summary – Overall Program (Zoom and Twitter)

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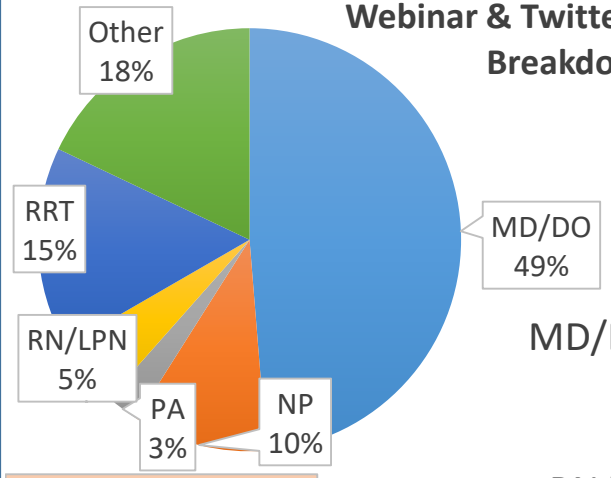
Webinar & Twitter Completer Breakdown



MD/DO=19
RRT=6
NP=4
RN/LPN=2
PA=1
Other=7

Total Completers* = 39

62% of completers were MD/DO, NPs & PAs

MD/DO NP PA RN/LPN RRT Other

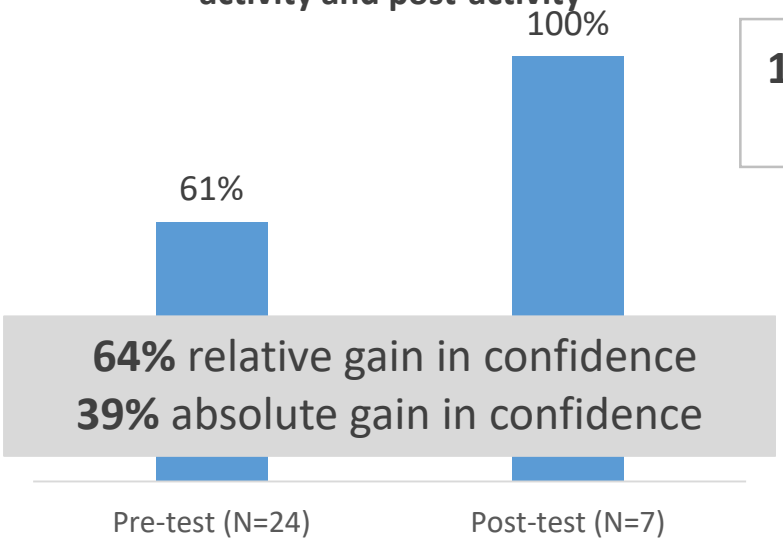
***37 webinar completers (defined as attending the live activity) and 2 Twitter chat completers (defined as claiming credit for live participation)**

Potential Impact To

2,652

Patient Visits This Year

Webinar & Twitter evaluation respondents reported confidence pre-activity and post-activity*



64% relative gain in confidence
39% absolute gain in confidence

***Twitter learners reported post-activity confidence only**

Twitter Chats	
Calendar Adds	153
Tweets	148
Impressions	15,249
Hashtag Usage	162
Replies	65
Likes	116

Webinar & Twitter Evaluation

(N=7)

100% of evaluation respondents stated the learning objectives were met

86% of evaluation respondents increased their knowledge of COPD

86% of evaluation respondents stated activity improved ability to treat or manage patients

86%

N=6

Evaluation respondents intend to make changes to practice as a result of the activity

Program Insights

Final Report

- In this pilot program, we found that most participants are not seeking credit for webinars or Twitter chats, though they are engaging with the content.
- Article downloads and endured video views are relatively high, indicating high levels of participation in the educational content beyond the live activities.
- It appears not all Twitter chat participants are "active" in the live activity. However, based on data for engagements and likes, there are many viewers consuming the education presented without posting comments and actively contributing to the discussion.

> *"It is hard if not impossible to stay on top of all the latest research and be able to quickly tell quality from garbage. Vetting and presenting these studies is very valuable to busy practitioners who otherwise wouldn't have time to comb through journals to find these pearls.*
>
> *These meetings help standardize best practices within the institution so patients aren't getting discrepant opinions between different subspecialties*."
>
> – Jake Woodrow, MD, COPD Journal Club Program Chair

Article Summary

Final Report

247 article downloads

August 2021 Article Summary: Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate to Very Severe COPD (ETHOS Trial) N England J Med 2020; 383:35-48. **View here.**

September 2021 Article Summary: Discriminative Accuracy of FEV1:FVC Thresholds for COPD-Related Hospitalization and Mortality, JAMA. 2019;321(24):2438-2447. doi:10.1001/jama.2019.7233. **View here.**

October 2021 Article Summary: C-Reactive Protein Testing to Guide Antibiotic Prescribing for COPD Exacerbations, N Engl J Med 2019; 381:111-120, DOI: 10.1056/NEJMoa1803185. **View here**.

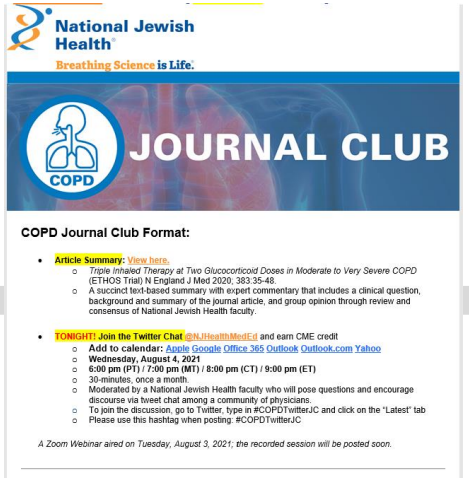
November 2021 Article Summary: Chronic Non-invasive Ventilation for Chronic Obstructive Pulmonary Disease. Cochrane Database of Systematic Reviews 2021, Issue 8. Art. No.: CD002878. DOI: 10.1002/14651858.CD002878.pub3. **View here**.

Audience Generation

Final Report

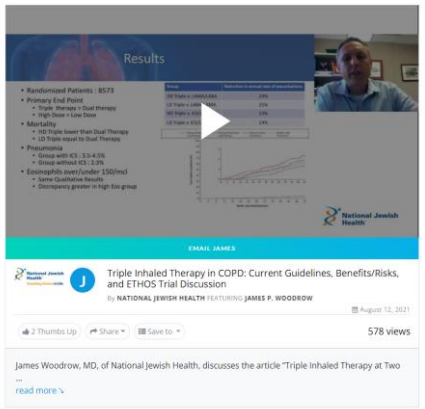
Personalized targeting tools across numerous tactics reach HCPs by leveraging demographic data (such as location, profession, specialty) and behavioral data (such as learner participation history, areas of interest).

Personalized emails and e-newsletters



Social media ads and posts

Personalized + Customized Intelligent Marketing Platform



Branded Channel on VuMedi

CenterTable – Partner who managed a Paid Twitter Follower & Advertising Campaign

Executive Summary – Live Webinars

Final Report

National Jewish Health

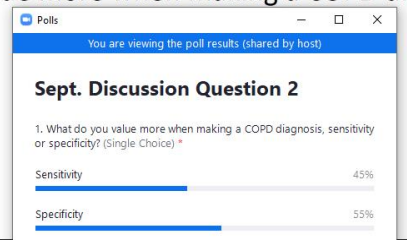
Webinar Date	Article Title	Faculty	Registrants	Completers
8/3/21	Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate to Very Severe COPD	Jake Woodrow, MD	31	8
9/8/21	Discriminative Accuracy of FEV1: FVC Thresholds for COPD-Related Hospitalization and Mortality	Jake Woodrow, MD	30	15
10/5/21	C-Reactive Protein Testing to Guide Antibiotic Prescribing for COPD Exacerbations	Ann Granchelli, MD	12	7
11/3/21	Chronic Non-invasive Ventilation for COPD	Jake Woodrow, MD	12	7
		Total	**85**	**37**

Executive Summary – Live Webinars

Final Report

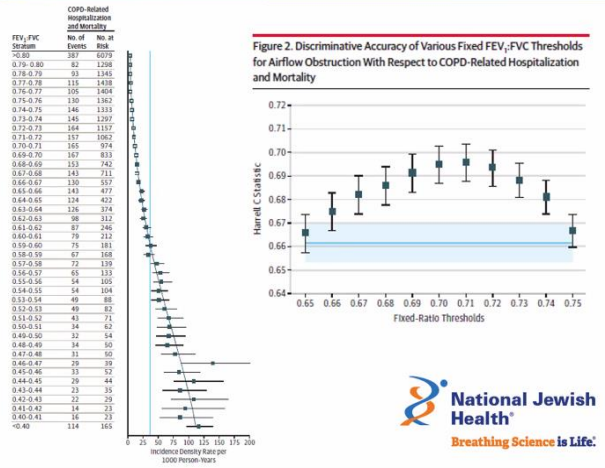
Discussion Questions

1. How important do you consider spirometry when making a COPD diagnosis?
2. What do you value more when making a COPD diagnosis, sensitivity or specificity?



Results

- Prevalence
  - LLN 15% vs FT (0.7) 26%
  - 99.5% of LLN patient met FT criteria
- COPD Related Events
  - elated to FEV1/FVC
  - on point
  - rate Ratio = 0.71
  - more accurate than
- Specificity
  - 89% vs FT (0.7) 79%
  - 52% vs FT (0.7) 66%



Discussion Questions

1. Do you consider point-of-care testing such as CRP when deciding to prescribe antibiotics for COPD exacerbations?
2. Do you think this is a practice that would be practical to integrate into your clinic practice?
3. Do you think this would help in discussions about antibiotic usage with patients?

Level (1) Outcomes: COPD Journal Club Webpage

Final Report

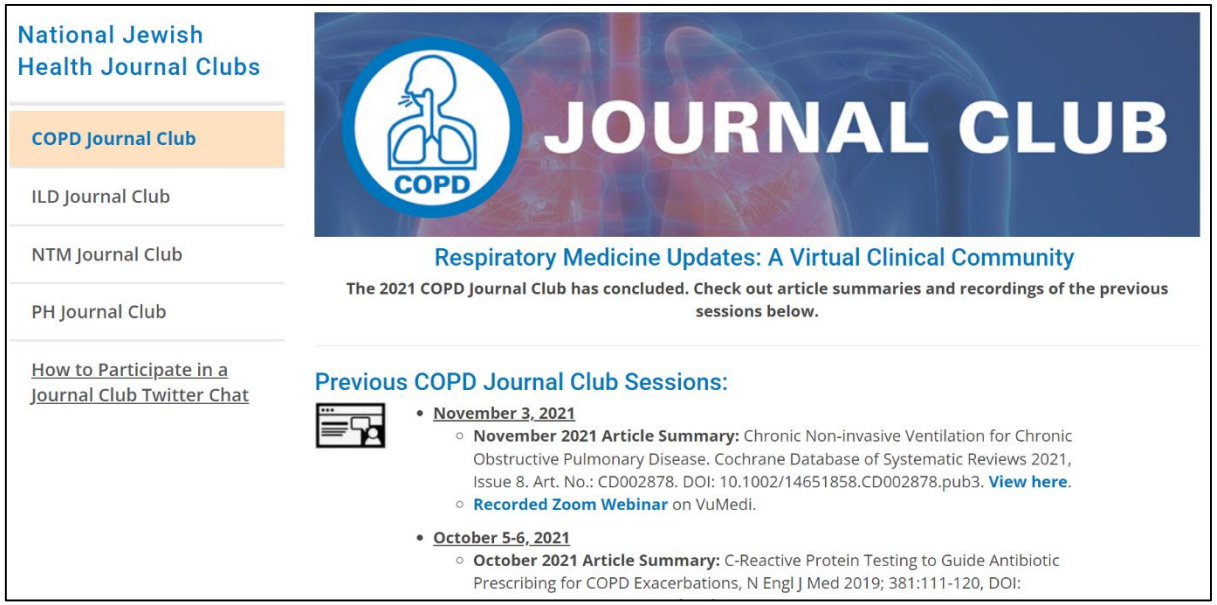
COPD Journal Club Webpage

https://www.nationaljewish.org/copdjournalclub

Page Views
2,052

Unique Page Views
803

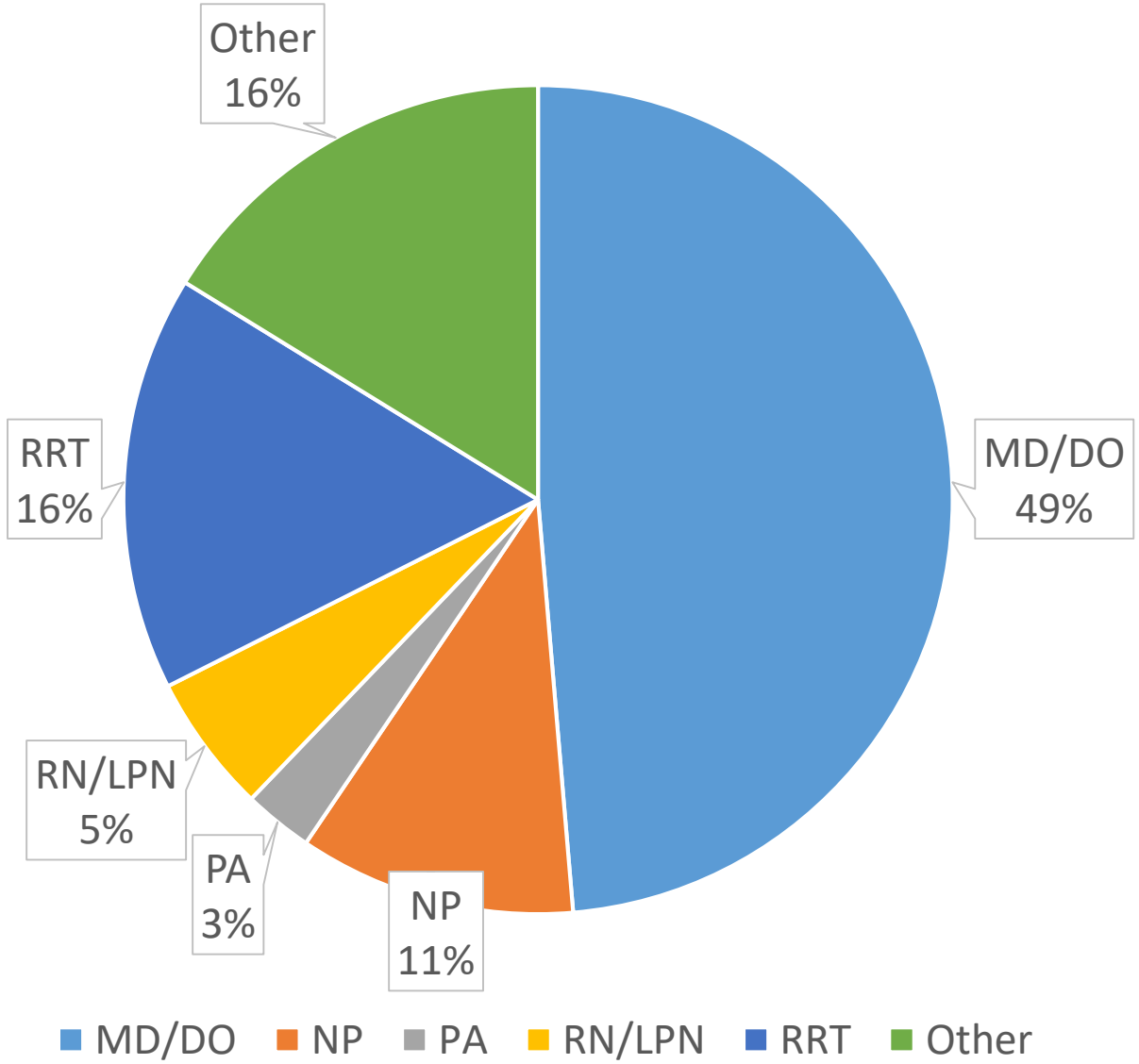
Article Downloads
247



*Data from 7/1/21 – 12/31/21

Level (1) Outcomes: Live Webinars Participation: By Degree

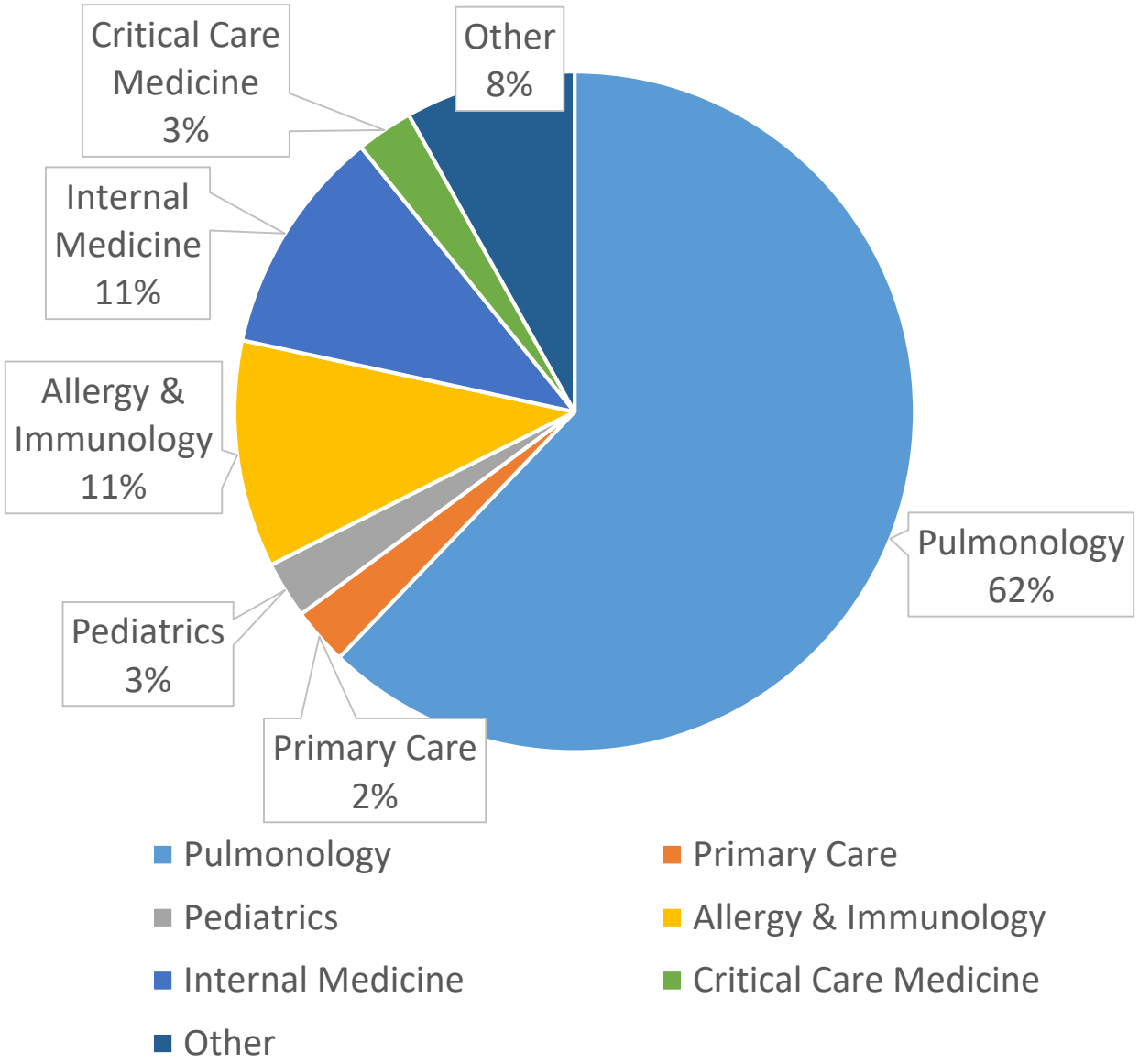
Final Report



Degree	Completer #s
MD/DO	18
RRT	6
NP	4
RN/LPN	2
PA	1
Other	6
Total Completers	**37**

Level (1) Outcomes: Live Webinars Participation: By Specialty

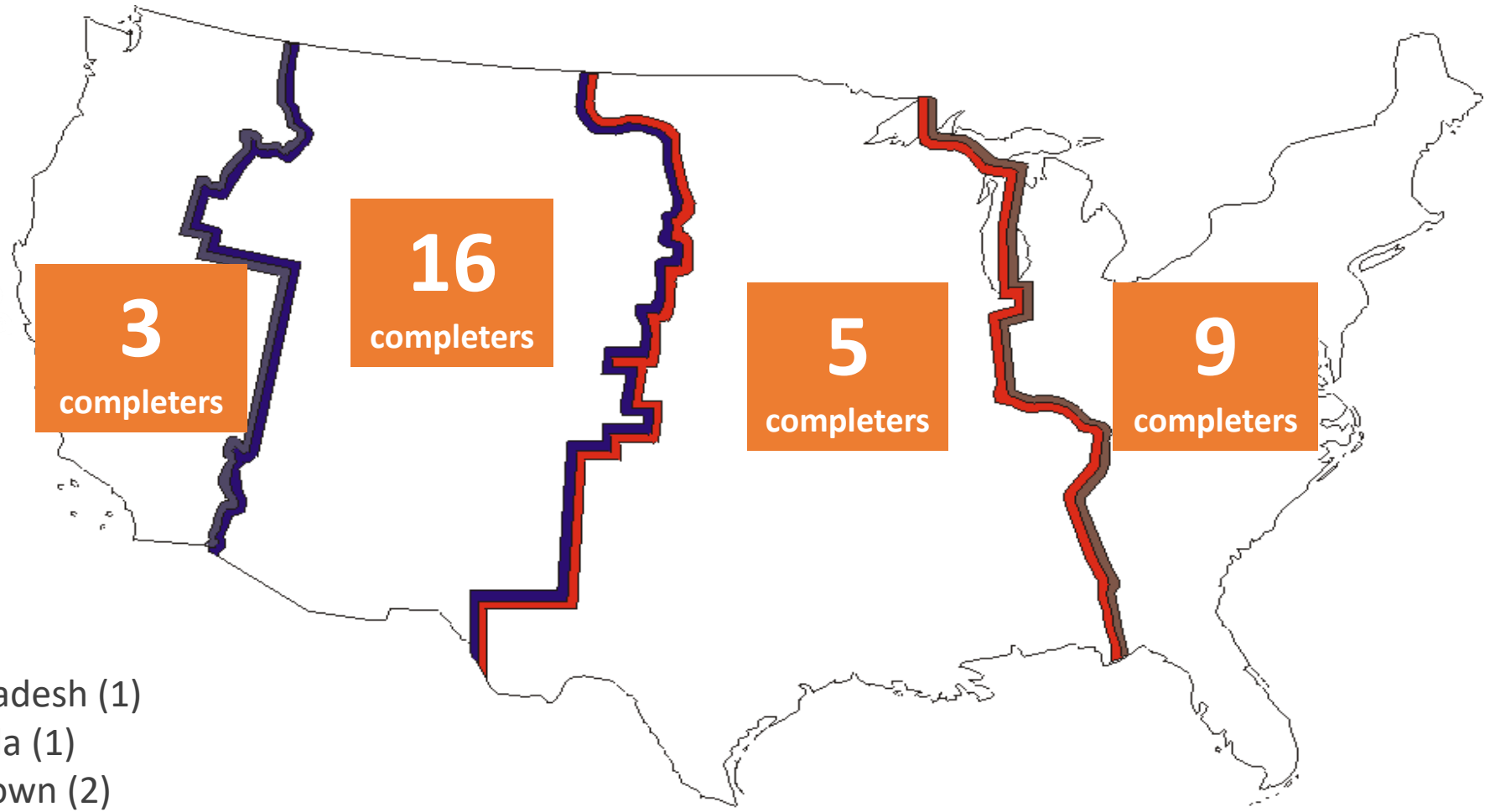
Final Report



Specialty	Completer #s
Pulmonology	23
Allergy & Immunology	4
Internal Medicine	4
Primary Care	1
Pediatrics	1
Critical Care Medicine	1
Other	3
Total Completers	**37**

Level (1) Outcomes: Live Webinars Participation

Final Report



Other

- Bangladesh (1)
- Canada (1)
- Unknown (2)

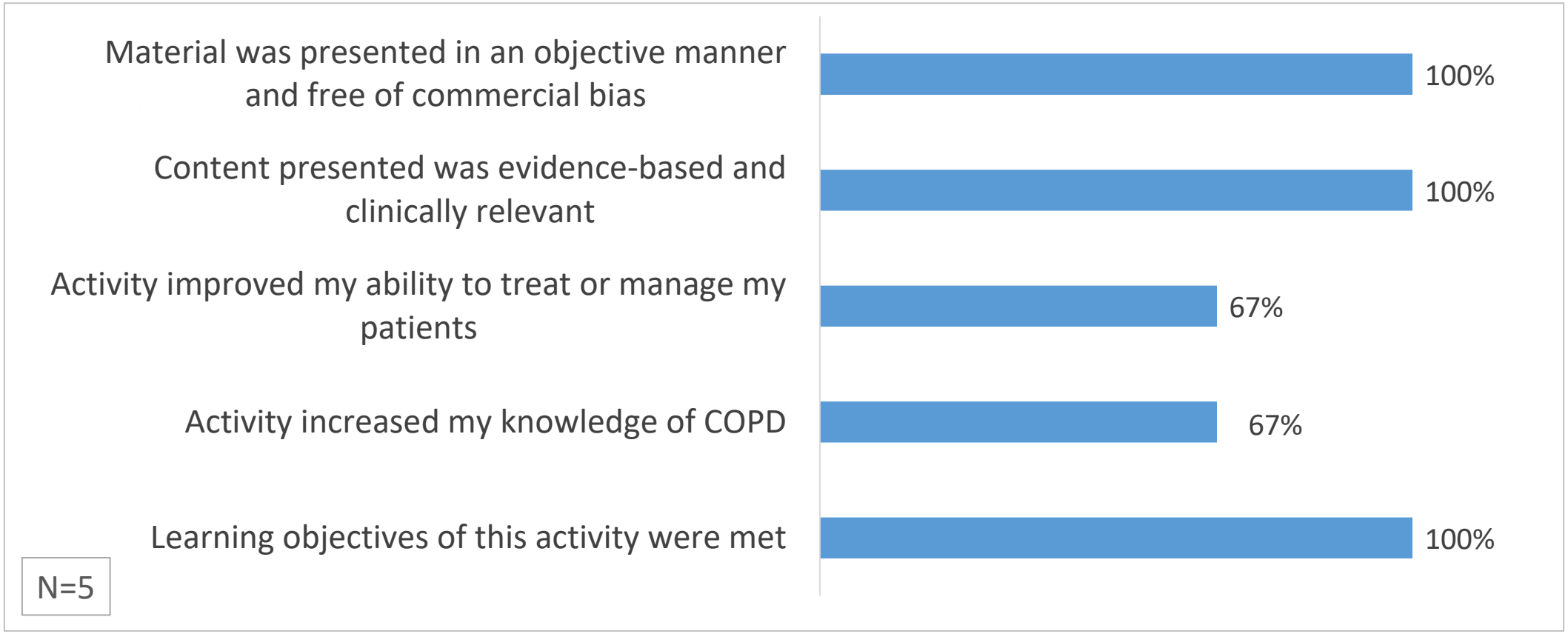
N=37

Level (2&3) Outcomes: Live Webinars Satisfaction & Knowledge

Final Report

National Jewish Health

Evaluation Respondents "Strongly Agree" or "Agree" that:



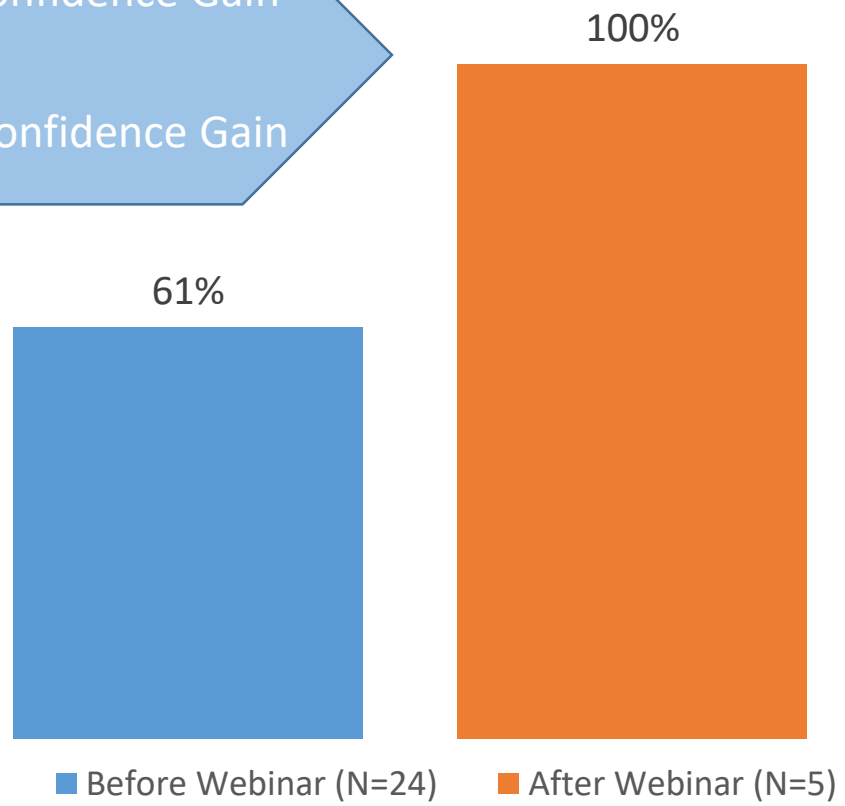
Level (4) Outcomes: Live Webinars Competence

Final Report

Evaluation respondents report they are "Very Confident" to "Somewhat Confident" in their ability to integrate the findings of the research article into clinical practice:

64% Relative Confidence Gain

39% Absolute Confidence Gain



Level (4) Outcomes: Live Webinars Competence

Final Report

An analysis of open-ended comments demonstrates the following changes completers intend to make:

100%

N=4

Evaluation respondents intend to make changes in practice as a result of the activity

Intended Changes by Activity

Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate to Very Severe COPD

- Increase consideration of triple therapy in more complicated patients with COPD
- Withdraw inhaled steroids in patients unlikely to benefit

Discriminative Accuracy of FEV1:FVC Thresholds for COPD-Related Hospitalization and Mortality

- Improve diagnostic accuracy

Chronic Non-invasive Ventilation for COPD

- Use AVAPS instead of Bipap

Outcomes: Live Webinars

Final Report

National Jewish Health

August: Triple Inhaled Therapy

Key Takeaways

- Effectiveness of triple therapy
- Dose in triple therapy arm did not matter in primary endpoint

Questions

- Did they screen for underlying bronchiectasis (HRCT) and secondarily, did they analyze by whether patients were taking daily azithromycin? In patients with COPD/chronic bronchitis/frequent exacerbations who are on daily macrolide antibiotic, does adding an inhaled ICS improve outcomes? My practice in these patients is to add azithromycin before adding ICS…

September: Accuracy of FEV1:FVC

Key Takeaways

- COPD c/f are no less important

Future Topics

- Corticoid induced pneumonia
- Macrolides
- COPD
- Chronic bronchitis
- Bronchiectasis

Outcomes: Live Webinars

Final Report

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October: C-Reactive Protein Testing to Guide Antibiotic Prescribing for COPD Exacerbations

Questions/Comments

- What was the clinical setting? Inpatient vs outpatient?
- I like the idea but tough to get labs quickly in outpatient clinical setting

November: Chronic Non-invasive Ventilation for COPD

Key Takeaways

- Importance of using NIV with COPD patients

Questions/Comments

- What are your thoughts on AVAPS as a better alternative to BIPAP for long-term management of chronic respiratory failure with hypercapnia and ESCOPD?
- Who is doing the blood gas post-discharge?
- Obesity Hypoventilation Syndrome?
- What about patient's baseline CO2 as a guide?

Outcomes: VuMedi Endured Webinar Recordings

Final Report

National Jewish Health

National Jewish Health VuMedi Channel:

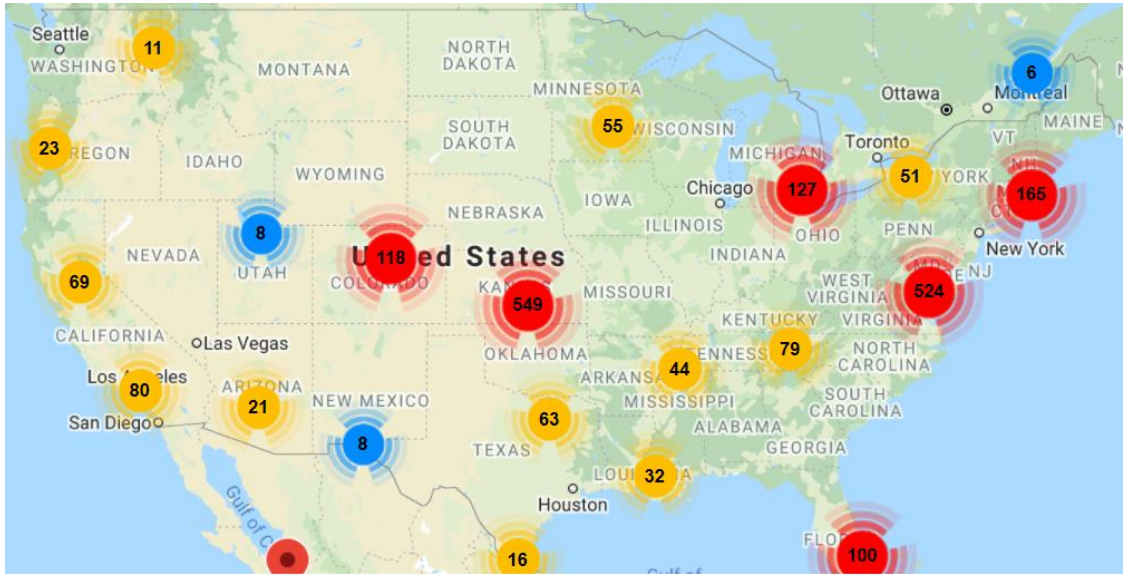
https://www.vumedi.com/channel/national-jewish-health/tab/journal-club/

Month	Impressions	Video Page Views	Unique Page Viewers	Starts	Unique Starts
Aug.	4131	603	378	314	243
Sept.	2544	188	154	81	71
Oct.	4455	209	160	92	82
Nov.	155	198	142	104	88
Total	**11,285**	**1,198**	**834**	**591**	**484**

Data: 8/1/21-12/21/21

About VuMedi

- Nearly 14,000 registered pulmonary specialists and over 96,000 primary care physicians (over 600,000 total)
- Distribution of video content to reach a large physician audience
- Analytics dashboard that shows video views, impressions, geolocation of viewers



Note: Heat map encompasses all 4 NJH Journal Clubs from 8/1/21-11/30/21

National Jewish Health Medical Education Twitter

Final Report

Twitter Handle: @NJHealthMedEd

Hashtag: #COPDTwitterJC

Executive Summary – Twitter Chats

Final Report

National Jewish Health

Twitter Date	Article Title	Faculty	Calendar Adds	Tweets	Retweets	Likes	Hashtag Usage	Impressions	Engagements
8/4/21	Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate to Very Severe COPD	Jake Woodrow, MD	99	42	3	54	40	8266	203
9/8/21	Discriminative Accuracy of FEV1: FVC Thresholds for COPD-Related Hospitalization and Mortality	Jake Woodrow, MD	8	52	8	39	52	3632	143
10/6/21	C-Reactive Protein Testing to Guide Antibiotic Prescribing for COPD Exacerbations	Ann Granchelli, MD	40	27	3	22	43	2151	89
11/3/21	Chronic Non-invasive Ventilation for COPD	Jake Woodrow, MD	6	27	2	1	27	1200	20
		Total	**153**	**148**	**16**	**116**	**162**	**15,249**	**455**

Definitions:

Impressions - the number of impressions on a tweet sent in the selected date range. An impression is the number of times a tweet appears to users in either their timeline or search results

Engagements - the total number of times a user interacted with the tweets sent during the selected date range

COPD Journal Club August Twitter Highlights

Final Report

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Jake Woodrow @JakeWoodrow3 · 28m
Pneumonia was more common (3.5-4.5% vs 2.3%) among groups containing ICS vs those w/out. Primary endpoint results were the same for all subgroups including high/low eosinophils, presence/absence of bronchodilator response, & history of ICS use prior to enrollment. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 27m
Exacerbations were less frequent among patients on triple therapy compared to both dual therapy groups. There was no diff. between low / high dose ICS triple therapy groups. All-cause mortality was lower when high dose group was compared to LAMA/LABA group. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 28m
ETHOS trial enrolled patients with COPD & frequent exacerbations despite use of 2 controller medications. They were randomized into 4 groups: triple therapy with high dose or low dose ICS, LAMA/LABA, and ICS/LABA. Primar endpoint was annual rate of exacerbations. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 29m
GOLD strategy recommendation is to use triple therapy only for COPD with persistent exacerbations despite use of long acting bronchodilators. The ETHOS trial was designed to help identify specific populations that may derive the greatest benefit and optimal dosing. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 30m

Jake Woodrow @JakeWoodrow3 · 54s
Thank you so much for the introduction! I'm excited to chat tonight about the ETHOS trial: Triple Inhaled Therapy at Two Glucocorticoid Doses in Moderate to Very Severe #COPD, Rabe K et al, NEJM 2020; 383: 35-48 nejm.org/doi/full/10.10... #COPDTwitterJC

nejm.org
Triple Inhaled Therapy at Two Glucocorticoid Doses...
Original Article from The New England Journal of Medicine — Triple Inhaled Therapy at Two ...

National Jewish Health Medical Education @NJHealthMedEd · 3m
And now we'll get started and turn it over to tonight's host, Dr. James Woodrow, Assistant Prof, Div of Pulm, Critical Care & Sleep Med at @NJHealth nationaljewish.org/doctors-depart... @JakeWoodrow3 #COPDTwitterJC

National Jewish Health®
Breathing Science is Life.

8,266
Impressions

54
Likes on Tweets

Jake Woodrow @JakeWoodrow3 · 1m
Replying to @NJHealthMedEd
I do counsel patients especially regarding increased risk of pneumonia. I also mention bone health and ocular disease as unlikely but possible adverse effects. #COPDTwitterJC

National Jewish Health Medical Education @NJHealthMedEd · 5m
Q3: Do you counsel patients about potential adverse reactions from inhaled steroids prior to starting an ICS? #COPDTwitterJC

Yes
No

4 votes · 23 hours left

Jake Woodrow @JakeWoodrow3 · 7m
Replying to @NJHealthMedEd
I have trouble deciding on a dose. I will generally start with the higher dose based on the ETHOS trial unless the patient is at high risk for side effects. #COPDTwitterJC

COPD Journal Club September Twitter Highlights

Final Report

National Jewish Health

Q3: If you make a diagnosis of COPD and then spirometry improves to normal, is the diagnosis still accurate? #COPDTwitterJC

Yes 50%
No 50%

4 votes · 6 days left

7:24 PM · Sep 8, 2021 · Twitter Web App

View Tweet activity

National Jewish Health Medical Education @NJHealthMedEd · 13h
Replying to @NJHealthMedEd
For those who answered, could participants share why or why not for the discussion? #COPDTwitterJC

Add another Tweet

Jake Woodrow @JakeWoodrow3 · 13h
Replying to @NJHealthMedEd
A3 This is a tough question but I think if spirometry becomes normal then airways disease is reversible and not consistent with COPD. #COPDTwitterJC

Patricia George, MD @PGeorgeMD · 13h
A3. Question about this: what if they had abnormal spirometry and DLCO, and the spirometry improved to > 0.70 but DLCO still abnml, and they have emphysema on CT scan. Could you label them as COPD? Or emphysema with an reactive airways component? #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 13h
I have had patients like this and I don't think we should be afraid to diagnose people with Asthma + Emphysema. #COPDTwitterJC

Patricia George, MD @PGeorgeMD · 13h
Thank you!

National Jewish Health Medical Education @NJHealthMedEd

Q2: What do you value more when making a COPD diagnosis, sensitivity or specificity? #COPDTwitterJC

Sensitivity 50%
Specificity 50%

4 votes · 6 days left

7:22 PM · Sep 8, 2021 · Twitter Web App

View Tweet activity

Jake Woodrow @JakeWoodrow3 · 13h
Replying to @NJHealthMedEd
A2 Also if you are careful about diagnosing COPD only in the correct clinical context then over-diagnosis can be minimized. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · 13h
Replying to @NJHealthMedEd
A2 I think sensitivity is more important which is why I use the fixed ratio a opposed to LLN. I think there is more harm in underdiagnosis than over. #COPDTwitterJC

143
Engagements

3,632
Impressions

National Jewish Health Medical Education @NJHealthMedEd

Q4: How would you diagnose a patient with emphysema and normal spirometry? Type your response starting with A4 and use #COPDTwitterJC

7:26 PM · Sep 8, 2021 · Twitter Web App

View Tweet activity

Jake Woodrow @JakeWoodrow3 · 13h
Replying to @NJHealthMedEd
A4 There is controversy here but in my opinion emphysema by itself without demonstrable airflow limitation is not COPD. Important because these patients are not enrolled in COPD trials so I don't know if they benefit from therapies or not. #COPDTwitterJC

Patricia George, MD @PGeorgeMD · 13h
Ah this makes sense. I appreciate your thoughts. #COPDTwitterJC

National Jewish Health Medical Education @NJHealthMedEd

How important do you consider spirometry when making a COPD diagnosis? #COPDTwitterJC

Very important 80%
Somewhat important 20%
Neutral 0%
Not important 0%

5 votes · 6 days left

7:17 PM · Sep 8, 2021 · Twitter Web App

View Tweet activity

Jake Woodrow @JakeWoodrow3 · 13h
Replying to @NJHealthMedEd
A1 In my opinion and based on the GOLD strategy is required to confirm a diagnosis of COPD but should only be used in the appropriate clinical context (typical symptoms, risk factors). #COPDTwitterJC

COPD Journal Club October Twitter Highlights

Final Report

National Jewish Health

National Jewish Health Medical Education
@NJHealthMedEd

Q1: What do you use to determine which patients are treated with antibiotics for COPD exacerbation? Type your response starting with A1 and use #COPDTwitterJC

7:20 PM · Oct 6, 2021 · Twitter Web App

View Tweet activity

Jake Woodrow @JakeWoodrow3 · Oct 6
Replying to @NJHealthMedEd
A1 I still use change in sputum character/volume along with other signs of infection (wbc , fever , etc)
1 1

Patricia George, MD @PGeorgeMD · Oct 6
A1. Agree with @JakeWoodrow3

Q3: Do you use CRP in clinic when considering antibiotics for COPD exacerbations? #COPDTwitterJC

Yes 0%
No 100%

3 votes · 1 day left

7:25 PM · Oct 6, 2021 · Twitter Web App

View Tweet activity

Q4: Would you consider adopting this practice in your clinic in order to decrease antibiotic use? #COPDTwitterJC

Yes 33.3%
No 66.7%

3 votes · 1 day left

7:28 PM · Oct 6, 2021 · Twitter We

View Tweet activity

National Jewish Health Me
Replying to @NJHealthMedEd
Please comment why or why n ng with A4 and use #COPDTwitterJC

Add another Tweet

Jake Woodrow @JakeWoodrow3 · Oct 6
Replying to @NJHealthMedEd
A4 I would use POC testing acutely but I'm not sure CRP is the right lab #COPDTwitterJC
2

89 Engagements

2,151 Impressions

Q2: How often are point of care labs used in acute care visits? Would this be a limiting factor to applying this study? Type your response starting with A2 and use #COPDTwitterJC

7:23 PM · Oct 6, 2021 · Twitter Web App

View Tweet activity

Jake Woodrow @JakeWoodrow3 · Oct 6
Replying to @NJHealthMedEd
A2 I don't know that we have POC CRP or any other labs available in clinic. I would use it #COPDTwitterJC
2

Patricia George, MD @PGeorgeMD · Oct 6
Replying to @NJHealthMedEd
A2. And a question to those who treat more COPD - do you ever use procalcitonin? @JakeWoodrow3 @Denverlungdoc
1

Ann Granchelli @Denverlungdoc · Oct 6
Not routinely outpatient. Time delay with lab would be biggest barrier. Inpatient I use frequently. Would not be unreasonable to obtain especially for patients with frequent exacerbations when trying to determine bacterial vs non. #COPDTwitterJC
1 1

Patricia George, MD @PGeorgeMD · Oct 6
Thank you!

COPD Journal Club November Twitter Highlights

Final Report

Jake Woodrow @JakeWoodrow3 · Nov 3
IPAP should be started at 15-18 and then increased to at least > 18 and ideally to reduced PaCO2 by 20% (or even to normal if possible) #COPDTwitterJC

National Jewish Health Medical Education @NJHealthMed... · Nov 3
What settings do you use to initiate NIV? How do you subsequently titrate the settings? Type your response starting with A3 and use #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
I find it easier to titrate BiPAP (pressure targeted) . There is no evidence that volume targeted modes are superior #COPDTwitterJC

1,200
Impressions

National Jewish Health Medical Education @NJHealthMed... · Nov 3
Which mode of NIV do you use more commonly for COPD? #copdtwitterjc

Volume targeted 0%
Pressure targeted 100%
3 votes · Final results

Jake Woodrow @JakeWoodrow3 · Nov 3
I recommend NIV for patients with COPD and HyperCO2. I use PaCO2 of 52 as a cutoff based on CMS criteria and this review. #COPDTwitterJC

National Jewish Health Medical Education @NJHealthMed... · Nov 3
Which COPD patients do you think benefit most from NIV? Type your response starting with A1 and use #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
All patients treated with NIV should have IPAP increased to at least 18mmHg and higher as tolerated to achieve a 20% reduction or even normalization of PaCO2. Whether or not volume targeted vent modes are superior to pressure targeted mode (BiPAP) is not clear #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
This review and prior studies support the use of NIV for patients with stabl COPD and chronic hypercapnia (PaCO2 > 52). Patients post hospitalizatic for COPD exacerbation should also be treated with NIV if PaCO2 remains elevated 2-4 weeks after discharge. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
Post exacerbation patients treated with NIV also had a significantly reduc PaCO2 at 3/12 mo (3.0/3.9 mmHg mean reduction). Admission free surviv was reduced but not overall exacerbation rate or all cause mortality, suggesting a delayed time to readmission. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
Stable COPD patients treated with NIV had a significantly lower PaCO2 at 3 / 12mo (4.5 / 3.5mmHg mean reduction). All cause mortality was also reduced in the NIV group (HR 0.78, 95% CI 0.58-0.97). Effect was limited to high IPAP and high baseline PaCO2 groups #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
This Cochrane Analysis included RCTs that enrolled patients with COPD and hypercapnia and compared NIV (min 5 hr/night) to standard of care. Studies were divided by patients with stable COPD and patients post COPD exacerbation requiring hospitalization. #COPDTwitterJC

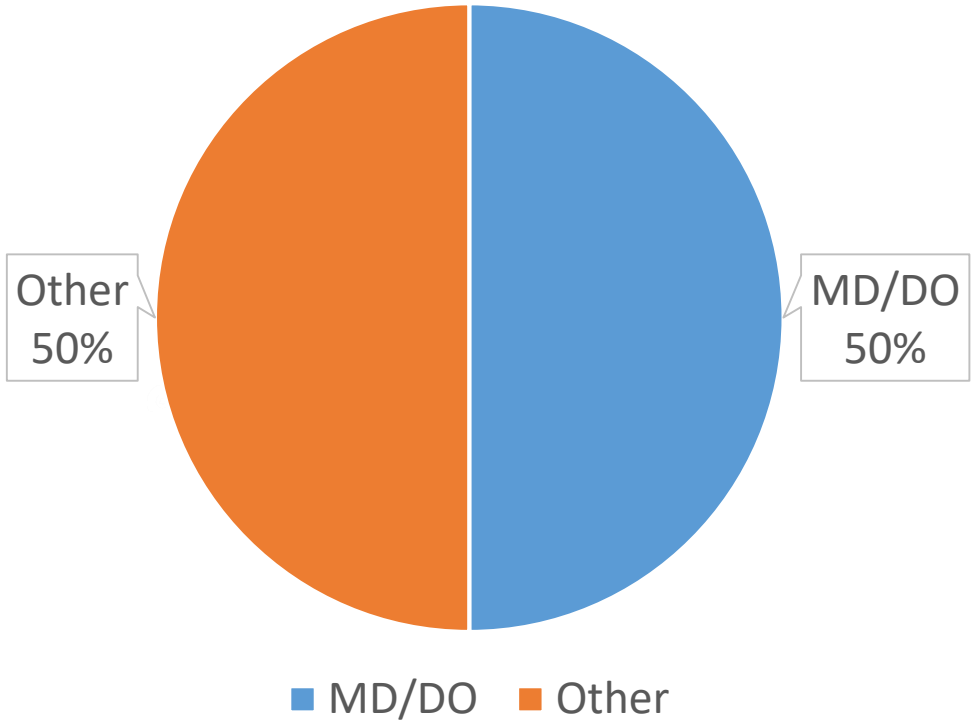
Jake Woodrow @JakeWoodrow3 · Nov 3
COPD pathophysiology predisposes to retention of CO2. Morbidity/mortality is high for this subset of patients. Non-invasive ventilation (NIV) is often used in this setting but data regarding efficacy is conflicting and practice patterns are variable. #COPDTwitterJC

Jake Woodrow @JakeWoodrow3 · Nov 3
First, I will touch on the high points of the article and then @NJHealthMedEd will pose some discussion questions about clinical implications of the article #COPDTwitterJC

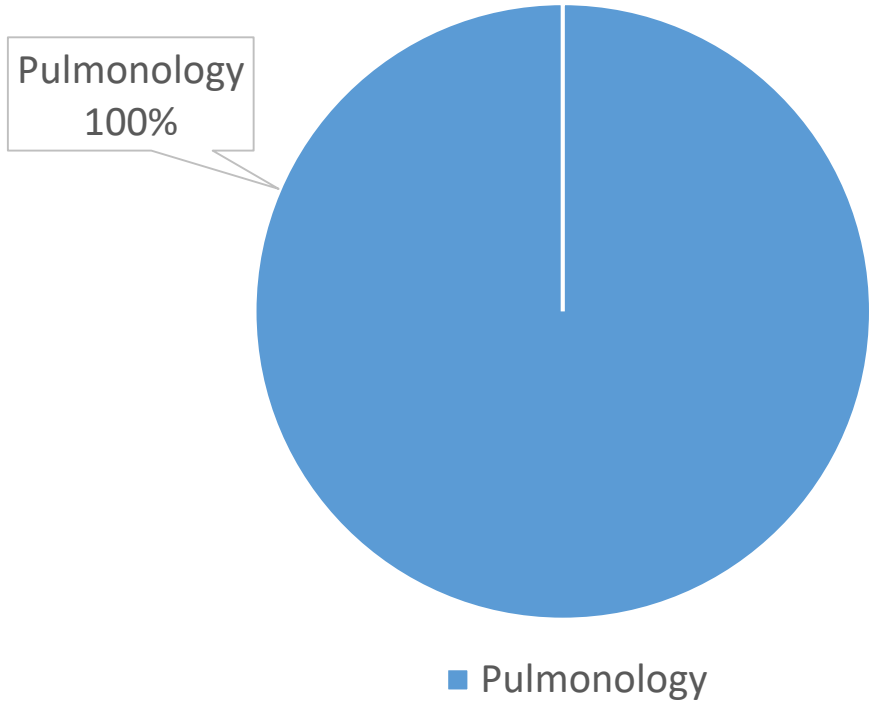
Jake Woodrow @JakeWoodrow3 · Nov 3
Thank you so much for the introduction! I'm excited to chat tonight about discussing Chronic Non-invasive Ventilation for Chronic Obstructive Pulmonary Disease. DOI: 10.1002/14651858.CD002878.pub3. #COPDTwitterJC

Level (1) Outcomes: Twitter Chats Participation By Degree and Specialty

Final Report



Degree	Completer #s
MD/DO	1
Other	1
Total Completers	**2**

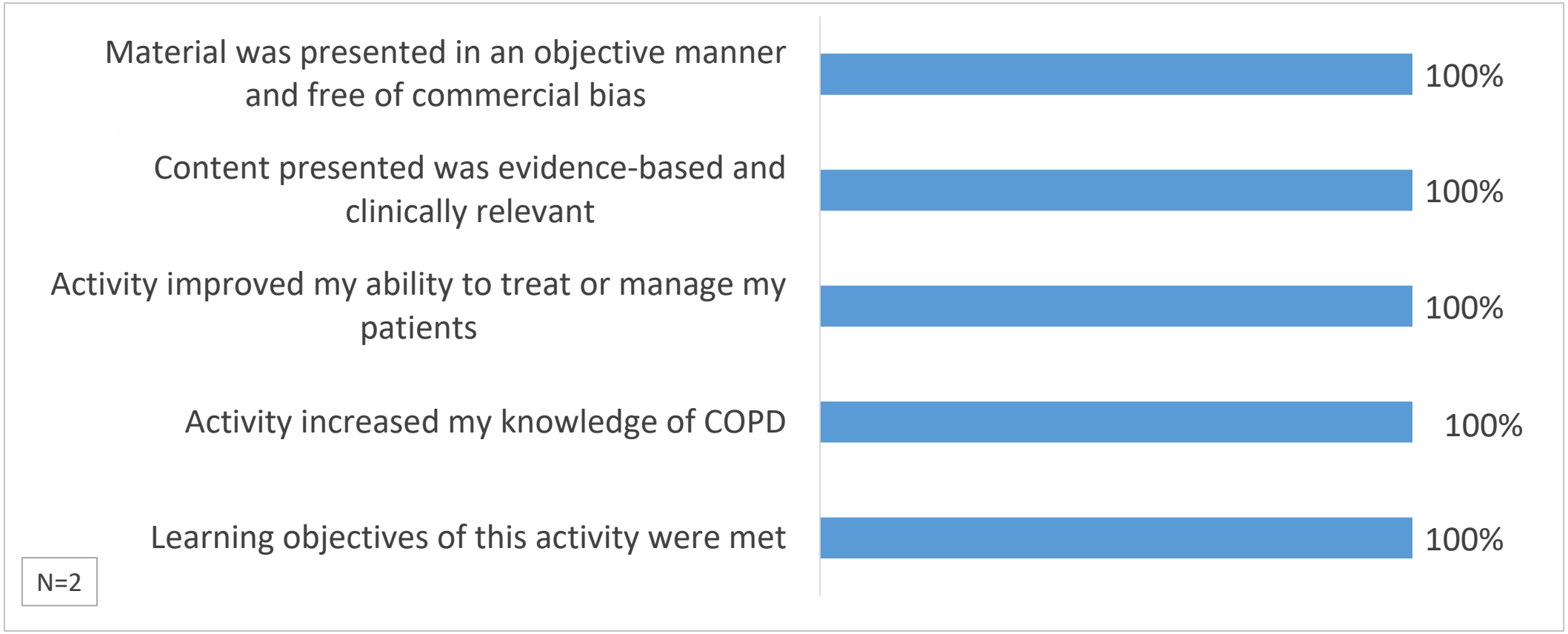


Specialty	Completer #s
Pulmonology	2
Total Completers	**2**

Level (2) Outcomes: Twitter Chats Satisfaction

Final Report

Completers report they "Strongly Agree" or "Agree" that:



Level (4) Outcomes: Twitter Chats Competence

Final Report

An analysis of open-ended comments demonstrates the following changes completers intend to make:

100%

N=2

Completers intend to make changes in practice as a result of the activity

Intended Changes

- Antibiotic stewardship

Key Takeaways

- Unless symptoms suggestive, CRP can rationalize antibiotics

100% of completers reported they are "Very Confident" to "Somewhat Confident" in their ability to integrate the findings of the research article into clinical practice after the activity

N=2

Accreditation

Final Report

National Jewish Health is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The National Jewish Health Office of Professional Education produced and accredited this program and adhered to the updated ACCME guidelines.

Live Webinars

National Jewish Health designates each live activity for a maximum of 0.5 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Live Twitter Chats

National Jewish Health designates each Other activity (social media discussion) for a maximum of 0.5 *AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.