

Background

- The rapid pace of drug development has created 2 parallel challenges for clinicians treating patients with chronic hepatitis C virus (HCV) infection: *synthesizing* the data on new treatments and *applying* these data to clinical practice
- To meet these challenges, Clinical Care Options (CCO) used a “flipped classroom” educational approach, where learners reviewed online homework in advance (prework) and then spent their live classroom time applying knowledge and skills through the use of case scenarios. Reinforcing didactic material was also presented in the live classroom

Methods

- We compared learning for individuals who completed homework before the live workshop or Webinar (flipped learners) vs those who did not complete homework (live-only learners)

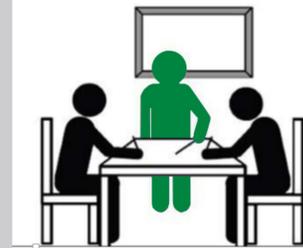
Synthesis: Foundational Homework



Self-directed review of didactic education

- Online, text-based, CME-certified activity on hepatitis C management with slide thumbnails and level 4 outcomes assessment, including reinforcement after posttest
 - Core faculty: Mark S. Sulkowski, MD; Nancy Reau, MD
- To increase completion, preregistrants were reminded to complete this foundational homework to get the most out of the upcoming live education

Application: Live Workshop or Webinar

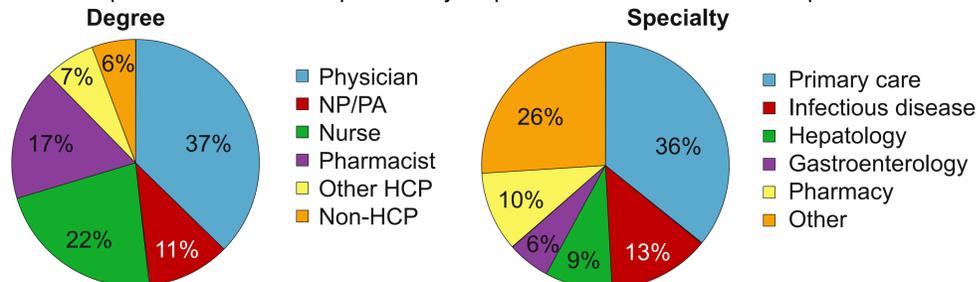


Faculty-led skill development, discussion, and interaction with peers

- Case-based CME-certified workshops, including polling audience questions and level 4 outcomes assessment, held as in-person, local and regional meetings across the United States, as well as live Webinars for learners unable to attend in person
 - Core faculty: Mark S. Sulkowski, MD; Nancy Reau, MD; Ira M. Jacobson, MD
- Learning was assessed using objective level 4 outcomes with questions measuring competence immediately before and immediately after the live workshop or Webinar
 - Competence was assessed for each of 3 learning objectives; results were pooled among 2 cohorts who participated in a live workshop or Webinar in either the spring (cohort 1) or fall (cohort 2)
- Learning was also compared among individuals who participated live in-person vs those who participated in live Webinars

Participant Demographics

- 879 US clinicians, mostly physicians, attended one of the live in-person workshops or Webinars (May-October 2015)
- 639 of these learners completed a baseline and postactivity response to at least 1 outcomes question

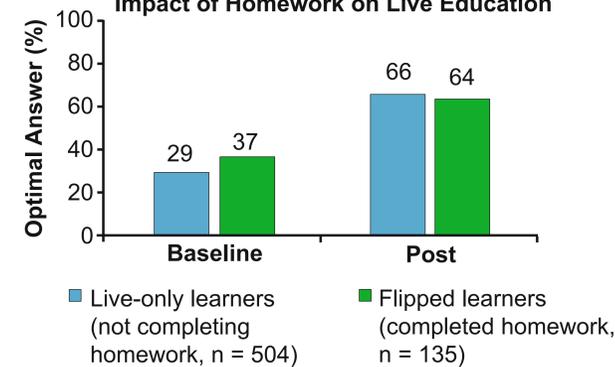


- 21% of the live in-person workshop or Webinar participants indicated they had completed the online foundational homework
 - In a similar CCO flipped classroom activity for oncology nurses, 45% of learners completed self-directed homework comprising 4 interactive, CE-certified online video segments^[1]

Impact of Foundational Homework

- Learners who completed foundational homework were better prepared to answer questions related to program objectives at the start of the live workshop or Webinar
 - Higher baseline competence at live events in flipped learners vs live-only learners
- No substantial difference in immediate posteducation scores among flipped learners vs live-only learners

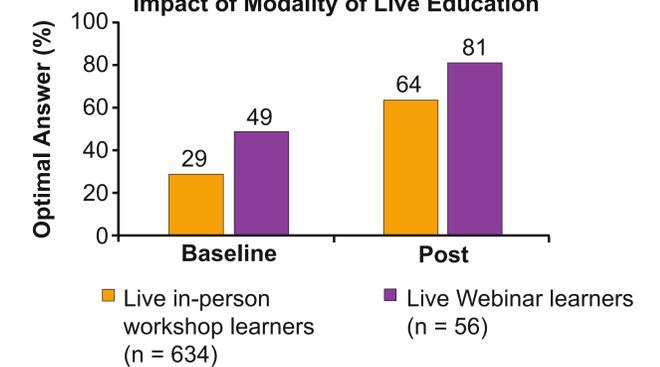
Impact of Homework on Live Education



Impact of In-Person Workshop vs Webinar

- Learners who participated in live Webinars demonstrated higher competence both before and immediately after the live education than did learners who participated in live in-person workshops

Impact of Modality of Live Education



Results by Learning Objective and Cohort

Learning Objective

Integrate data from clinical trials, approved indications, and expert guidance to select optimal HCV regimens for harder-to-treat HCV patients

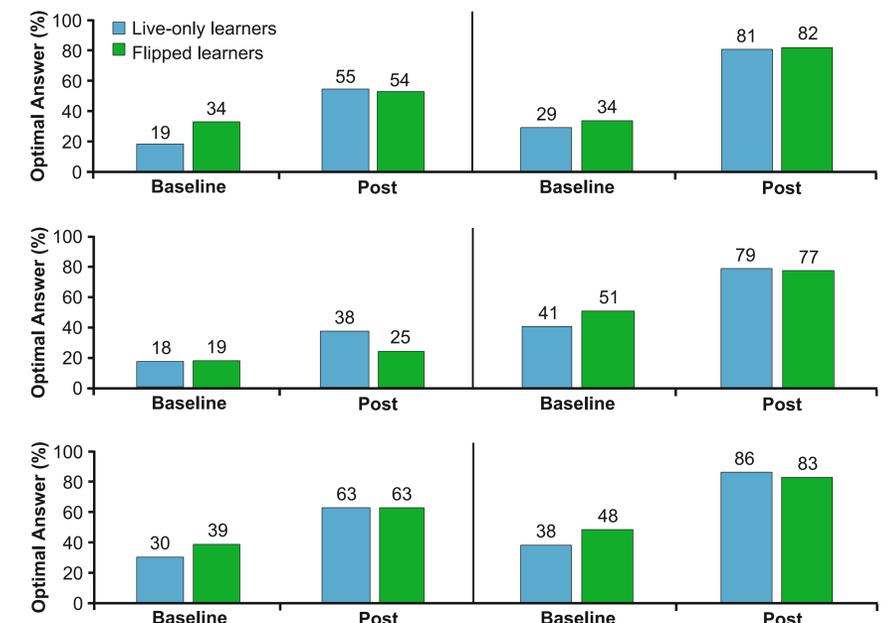
Modify HCV management strategies in specific populations to reflect practice-changing developments in a timely manner

Implement practical on-treatment management strategies to manage adverse events and optimize outcomes with HCV therapy in difficult-to-treat HCV patients

Cohort 1

Cohort 2

Impact of Homework on Live Education—Results by Question



Conclusions

- Flipped classroom homework better prepared clinicians for live education
 - Future studies could examine persistence of competence in flipped learners vs live-only learners
- Participants in live Webinars had higher competence post education than did participants in live in-person workshops
 - Live Webinars may be a good option for flipped classroom education or standard education
 - Future studies could examine whether live Webinar learners are more likely to complete online foundational homework
- Demographics showed higher rate of homework completion in CCO oncology flipped classroom program (*video-based* homework and *nursing* audience) than current CCO hepatology flipped classroom program (*text-based* homework and *physician* audience)
 - Among physicians, different approaches may be needed to increase completion of foundational homework, such as incentives, competitions/leaderboards, or scheduled time to complete homework before the live education