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## Faculty Scholarship

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# Hepatology Mentorship: A Bold Idea

*Data From the Emerging Liver Scholars Program*

Christina C. Lindenmeyer<sup>1</sup> and Elizabeth May<sup>2</sup>

## Introduction

*(Elizabeth May)*

I can still vividly recall the first national meeting I attended as a medical intern. Several personable dynamic hepatologists (Drs. Tavill, McCullough, and Mullen) guided me as the mentee among others who were also presenting research data. That first experience subsequently led me into a career in academic hepatology. Their efforts also set the stage early on for my desire to be a mentor. So many colleagues have their own versions of this same story. This common experience is the essence of and gave birth to the American Association for the Study of Liver Diseases (AASLD)-sponsored Emerging Liver Scholars (ELS) Program in 2011. Dr. Lindenmeyer and I are AASLD Membership and Mentorship (M&M) Committee members. Dr. Lindenmeyer is also a 2013 ELS awardee and a 2014, 2015, and 2016 Fellow Ambassador awardee. She is currently a Transplant Hepatology fellow and a recipient of one of this year's AASLD Foundation Advanced/Transplant Hepatology Fellowship awards. We brought an idea to Hepatology Communications' editor to enlighten you, the readership, of the AASLD mentorship initiative and its results. This commentary reviews the features of the ELS applicants

and awardees since 2012 and briefly highlights evolving ELS outcomes. The two author perspectives, one as mentee, another as mentor, provide a program assessment.

## Historical Perspective

The concept of a mentor as advocate is very popular in our current culture. Yet, evidence to support the concept can be traced to the earliest recorded time with older members of a tribe providing the youth with wisdom and experience in finding shelter, food, and methods of survival. A specific character named Mentor is found in Greek mythology in Homer's epic poem *The Odyssey*. He is a trusted adviser to Telemachus, son of Odysseus, king of Ithaca, while Odysseus was away fighting the war at Troy.<sup>(1)</sup> The concept of mentor as teacher is broadened in the 1699 French novel *Les Aventures de Telemaque* (*The Adventures of Telemachus*) attributed to the author Fenelon. This popular epic prose presents Mentor as an unspoken hero who rebukes the aristocracy of the time and favors the egalitarian culture of ancient Greece.<sup>(2)</sup> It spoke of the brotherhood of man and was a favorite reading of many well-known leaders, including Jean-Jacque Rousseau and Thomas Jefferson. The word mentor has come to mean trusted counselor, guide, teacher, or coach.<sup>(3)</sup> Mentoring

*Abbreviations: AASLD, American Association for the Study of Liver Diseases; CV, curriculum vitae; ELS, Emerging Liver Scholars; M&M, Membership and Mentorship.*

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with apprenticeship became the process of transfer of social and trade skills from the Middle Ages through modern times.<sup>(4)</sup> Medicine incorporates mentoring with apprenticeship in clinical rotations, internships, residencies, and fellowships. Mentoring is an integral part of experiential clinical learning.

## ELS Program

In 2010, AASLD leadership acknowledged a relative shortage of hepatologists, both in the short and long term, despite ongoing efforts to stimulate interest in the subspecialty.<sup>(5)</sup> This need presented the opportunity to offer uncommitted medicine trainees exposure to the field of liver disease. The governing board elected to continue the time-honored tradition of mentorship and to offer young trainees a first experience similar to their own by offering attendance, accompanied by a mentor, to the annual Liver Meeting. Nationwide, AASLD members are asked to help identify and recruit candidates with an interest in liver disease but who may also be undecided as to their final career trajectory. Candidates include residents in internal medicine, surgery, pathology, radiology, and pediatrics and are varied in years of training and degree of prior exposure to hepatology. Each candidate is asked to identify a physician AASLD member who will commit to actively mentoring them through the program and to guiding them through their first Liver Meeting. The first ELS class, comprised of 17 trainees, was awarded in time to attend the 2012 Liver Meeting. Over the years, the program has grown dramatically. In 2017, 127 applications were received and 29 trainees received awards. Concurrent with its growth, the program's directives have also evolved in order to provide enhanced support for trainees in the long term, especially in their early career. A key program goal is to provide unique trainee leadership opportunities that will strongly favor academic careers in the field of liver disease.

## ELS CANDIDATES

Applicants submit (electronically by April 1) a brief application inclusive of a personal statement, a curriculum vitae (CV), and a supportive letter of recommendation from their identified mentor. The mentee's personal statement should outline their reasons for interest in the Liver Meeting, a desire for further hepatology learning, and future research interests or career directions. A strong desire to pursue an academic career is favored. The CV should include organization memberships, identify past or current leadership positions, and describe research activity. Most successful applicants will have authored either an abstract or publication; many will be first authors. The letter of recommendation authored by the mentor should succinctly highlight mentee strengths, reasons why their applicant merits the award (providing information beyond what is listed in the applicant's CV), and anticipated goals for the mentor-mentee relationship. A strongly supportive letter from the mentor is essential as the selection process is rigorous.

## ELS SELECTION

Applications are reviewed by staff for completion before each is individually reviewed by two or more AASLD M&M Committee members. Each application is scored according to a rubric, taking into account the candidate's potential for a career in academics (including research interest and research productivity), leadership potential, motivation and self-direction, and strength of the mentor's letter of recommendation. Final selection of the awardees is made by a conference call with the entire M&M Committee. New ELS awardees are notified in mid-May.

## ELS AT THE LIVER MEETING

In addition to funding for travel, lodging, meeting registration, and course fees, each ELS awardee can expect

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FIG. 1. ELS 2013 group photograph.

individualized guidance and advice from their mentors, from AASLD staff and members, and from other trainees. Following awardee notification, trainees are familiarized through a series of e-mails and a special summer webinar. During the annual webinar, which is hosted by AASLD staff, M&M Committee members, social media, and technology experts, the awardees are oriented regarding travel arrangements, events, and the rigors of the 5-day Liver Meeting. Mentors and mentees meet for an orientation dinner the evening before the official start of the meeting and a breakfast the next morning. These two orientation events give the ELS an opportunity to map out their approach to the meeting in congress with their mentors and network with AASLD leadership and staff (Fig. 1). The Liver Meeting kicks off with Trainee Day on Friday, a day inclusive of special events specifically suited to trainees' current and future academic needs. The morning sessions include the AASLD/International Liver Transplantation Society Liver Transplant Course, the Research Workshop, and the AASLD/North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition Pediatric Symposium. The afternoon sessions include the Career Development Workshop, the Academic Debates, and the Trainee Reception. Subsequent days bring the AASLD Postgraduate Course, early morning workshops, meet the professor luncheons, oral and poster presentations, and plenary sessions.

The Young Investigator Lounge is a recent addition to the Liver Meeting. This unique space hosts research presentations by revered physician scientists throughout the weekend and small-group discussions among

early career investigators; it offers prospects for networking and collaboration. Special ELS-specific breakfasts and evening events (including a dessert reception) are offered as additional opportunities to interact with AASLD leadership, AASLD fellows, and fellow trainees. Throughout the meeting, the ELS are encouraged to interact closely with their mentors in an effort to foster long-term synergetic relationships.

## ELS AFTER THE LIVER MEETING

All trainees, including ELS awardees, benefit from AASLD trainee membership status at reduced rates for the duration of their training. Trainee membership provides access to AASLD journals (including *Hepatology*, *Liver Transplantation*, online *Clinical Liver Disease*, and *Hepatology Communications*) and access to *LiverLearning* (AASLD's e-learning portal). In addition, trainee membership offers the opportunity to join AASLD's special interest groups and national leadership committees. In fact, a new missive from the AASLD leadership directs that every national committee include a trainee member. Serving the organization on a national level as a trainee enhances leadership training and provides for unique opportunities for networking outside of the trainee's home institution.

In order to further foster academic pursuits of the ELS scholars, AASLD's online journal *Clinical Liver Disease* has invited scholars, in concert with their respective mentors, to submit short reviews of current trends in liver disease for publication. Fifteen publications ensued



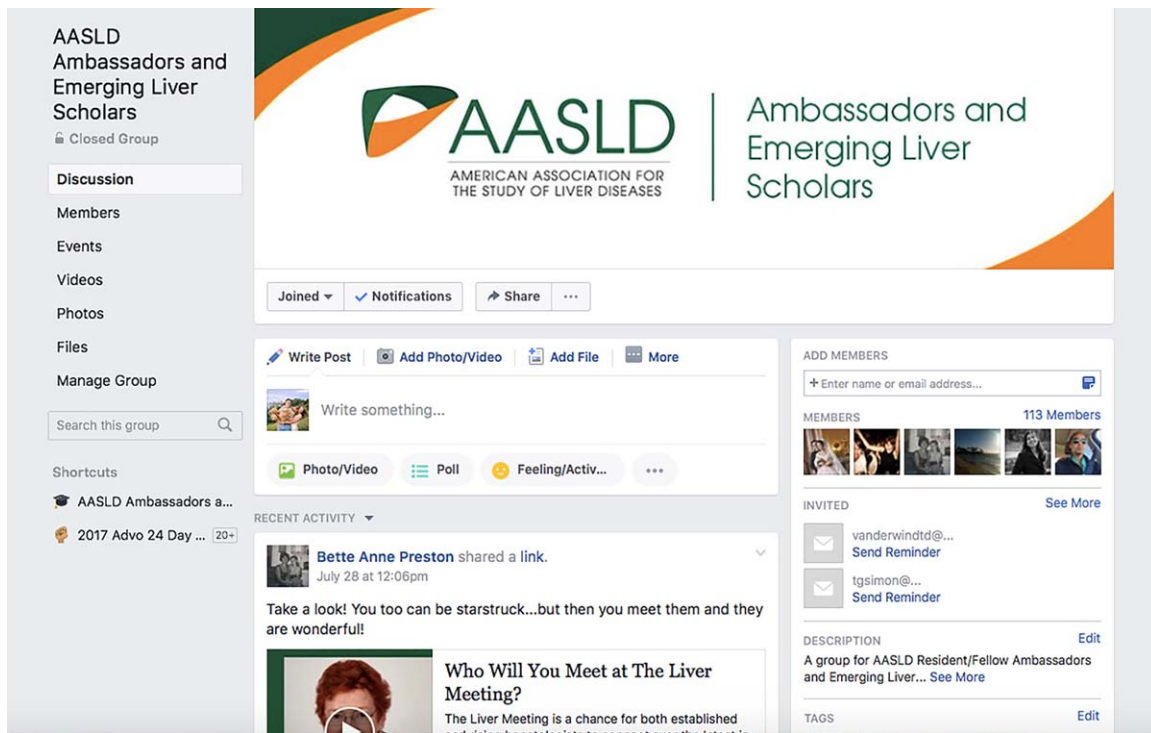


FIG. 2. Facebook screen grab.

in 2016, and 25 recent scholars are currently preparing manuscripts for submission to *Clinical Liver Disease*.

## Resident/Fellow Ambassador Program

In the continued spirit of mentorship, AASLD created the Resident/Fellow Ambassador Program in 2014 as a vessel for maintaining active relationships with previous ELS. The Ambassador Program was envisioned as a tool to continue to engage with highly motivated trainees and has evolved into a powerful outreach tool for AASLD. Recipients of the Ambassador award receive special funding to provide educational sessions designed for medical students, residents, fellows, and faculty at their home institution. Awardees are encouraged to communicate Liver Meeting highlights, to hold interactive and instructive conferences, or to present liver case studies for their colleagues. Since 2014, the Ambassador Program has successfully funded innovative and impactful educational events around the country, including Visiting Professor lecture series, “Stump

the Expert” case conferences, and interactive physical diagnosis rounds for medical students. In addition to funding food, fun, and education, the Ambassador Program also functions to foster the Ambassador’s own skills as a mentor for the next generation of physicians (and hopefully, liver disease specialists).

Funds are provided within 1 year of attending the Liver Meeting, and most successful events follow the age-old adage: “If you feed them, they will come!” The application for the Ambassador award is online, and the trainee’s proposed events should be detailed. Creativity is encouraged. The AASLD M&M Committee reviews all applications, and Ambassador awardees are notified by mid-June. Travel expenses to a subsequent Liver Meeting are included for the top recipients of the Ambassador award.

In 2015, former ELS Dr. Omar Mousa and Dr. Christina Lindenmeyer created the AASLD Ambassadors and ELS Facebook site in an effort to actively maintain the collegial networks formed at the Liver meeting. In addition, the Facebook group is used to provide ongoing education for former scholars and ambassadors. Each month, AASLD committee members and former scholars are asked to prepare and post liver-related articles, including clinical pearls and

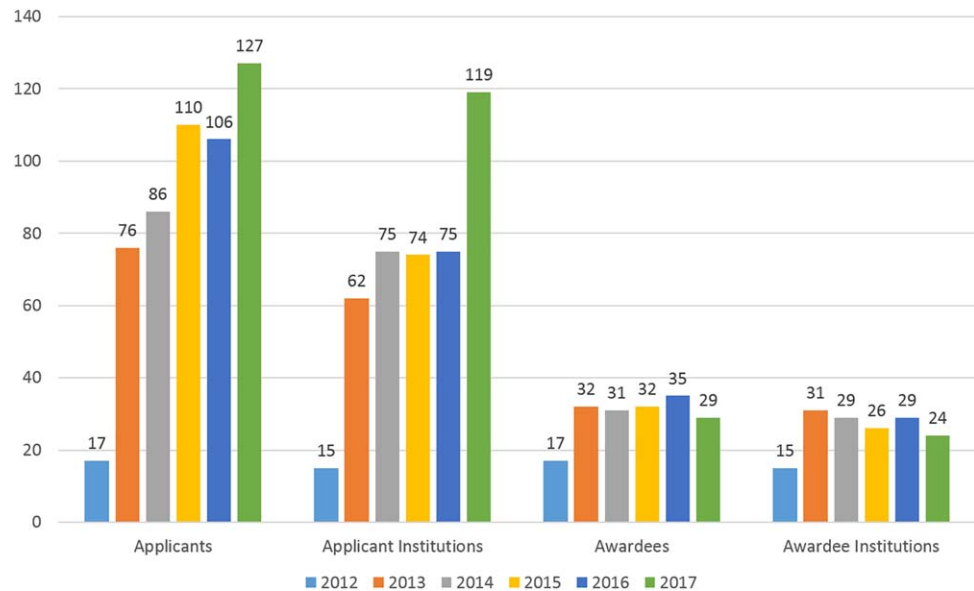


FIG. 3. ELS characteristics.

teaching points (Fig. 2). As evidence of the ELS and Ambassador's continued desire for engagement in the society and in the field of liver disease, they also envisioned and implemented a public forum, Journal Club, which is shared bimonthly through the Facebook group.

## Mentor Benefits

Serving as an ELS advocate and facilitating a mentee's career development brings intrinsic rewards and assists AASLD in the development of the future work force. Guidance may continue after the meeting. As an ELS mentor, the Liver Meeting registration fee is waived.

## ELS Applicant and Awardee Characteristics: Data Analysis

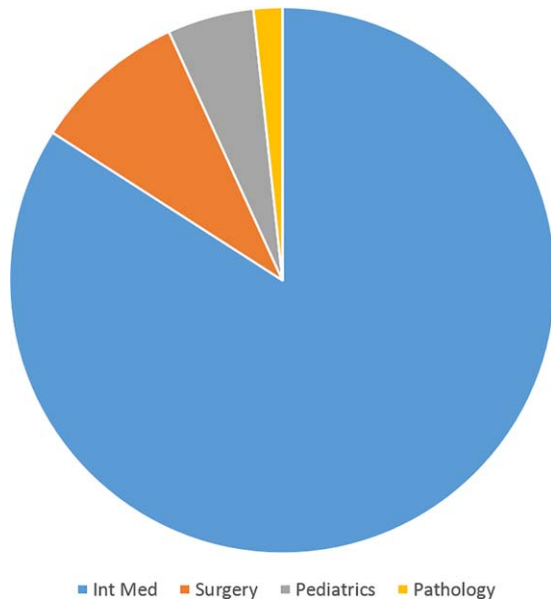
The applicant pool continues to rise from 17 in 2012 to 127 this year. The disciplines of the 2012 applicant pool were 86% internal medicine, 12% surgery, and 2% pediatrics, with no radiology nor pathology participants. The distribution of discipline types for applicants over the subsequent 5 years has varied slightly (Fig. 3). Although the application information is directed toward second-year residents, 37% consistently apply as post graduate year 1 level trainees.

Overall, 45% of applicants and 43% of ELS awardees are female individuals. The distribution of disciplines for ELS awardees over the 6 years is similar to the applicants: 84% internal medicine, 9% surgery, 5% pediatrics, and 2% pathology.

The number of training programs for the applicant pool has also grown from 15 in 2012 to 119 in 2017. The ELS Program has received a total of 522 applications since inception. Budgetary limitations cap the maximum annual awardee number to roughly 30 individuals. A total of 176 scholars (and therefore 176 AASLD member mentors) have received the ELS award since inception. Six years of data regarding the ELS applicants, awardees, and their training programs are summarized in Fig. 4.

## ELS and Ambassador Outcomes

Outcomes from the first 5 years of the ELS Program are summarized in Table 1. Sixty of 112 (54%) of the ELS awardees from 2012-2015 are in subspecialty fellowship training. Twenty-one ELS have chosen Transplant Hepatology or surgical Liver Transplant fellowship training, and 2 scholars are now basic science research fellows. A vast majority (87%) of former scholars continue to be AASLD members, demonstrating a high retention rate. Eleven former scholars now serve on AASLD committees, and 5 ELS



**FIG. 4.** Distribution of ELS awardees by discipline. Abbreviation: Int Med, internal medicine.

recipients have received research funding, either from outside organizations or from the AASLD Foundation. A 2012 ELS received this year’s AASLD Foundation Alan Hofmann Clinical and Translational Research Award in Liver Diseases. Two of the five 2017 AASLD Foundation Career Development awards for the Advanced/Transplant Hepatology Fellowship are secured by previous ELS. Three former awardees are now practicing hepatologists; one of these holds an academic faculty position. As the ELS Program and its recipients continue to grow (in numbers and in age), the numbers of trainees committing to academic hepatology can be expected to increase.

The AASLD Resident/Fellow Ambassador Program was conceived in 2014 in an effort to maintain the momentum developed at the Liver Meeting and to challenge former ELS recipients as active members

of AASLD to “get the message out.” Fourteen Ambassador applications were submitted in the first year. Eight awarded Ambassador-designed programs in 2015 reached nearly 600 medical students and residents at five academic institutions. Three hundred of these attendees were granted free access to *Liver-Learning* for 6 months, and 4 attendees secured trainee AASLD membership for a year as a door prize. The Ambassador Program continues to march forward in its success with outreach to medical students, residents, fellows, and faculty. Data collection regarding outcomes associated with the Ambassador Program, including retention rates, new members, and ELS applications inspired by Ambassador events, is early and ongoing.

## Summary

Data from the ELS and Ambassador programs suggest that even an application to the ELS Program places these trainees, who are highly motivated and sometimes undecided as to their career paths, in a critical mentee role during the early stages of career development. The opportunity for increased individualized mentorship may have unrecognized value. Efforts to follow these applicants would provide more understanding. Knowledge of the ELS Program offering continues to spread as former ELS share their positive experiences and the Ambassador Program reaches younger generations of physicians. As a result, the applicant pool and the number of training programs they are derived from has grown. Efforts to include women and trainees from more training programs should continue to broaden the outcomes of exposing undecided physicians to the field of liver disease, to advancing academic careers in hepatology, and to fostering diversity in our workforce. AASLD members, AALS D fellows, residency program directors, and fellowship program directors are well suited to identify potential applicants. The increasing number of applicants demonstrates that there is rising interest in this

**TABLE 1. EMERGING LIVER SCHOLAR OUTCOMES 2012-2016**

Award Year	# In Subspecialty Fellowship	# In Transplant Fellowship	# In AASLD Committees	# In Postdoctoral/Research Fellow	# With Funding	# Practicing Hepatologist
2012	6	7			2	3
2013	24	8	3		2	
2014	16	2	2			
2015	13	4	2		1	
2016	1	0	4	2		
Total	60	21	11	2	5	3

program. Early outcomes for these ambitious scholars appear promising, but time will tell more. Certainly this new mentorship program has witnessed unforeseen benefits and merits replication in other critical areas of medical and research needs. As a testament to AASLD's ongoing commitment to the next generation of liver disease specialists, the AASLD Foundation has now taken the ELS Program under its umbrella, with plans to expand funding and opportunities for these exceptional trainees.

## Epilogue: A Trainee Perspective (Christina C. Lindenmeyer)

I have been fortunate to be influenced by mentors in hepatology (from medical school, to residency, and now in fellowship) who facilitated my development as a clinician, educator, and investigator. It was only as a result of the encouragement of my great mentors that I pursued opportunities to work within the community of scholars of the AASLD. I was first accepted to the AASLD's ELS Resident Program and subsequently given the opportunity to obtain funding for liver-related outreach at my home institution through the Ambassador Program. This innovative funding program provided for experiences that fostered my passion for resident and medical student education and nurtured my skills as a mentor in my own right. It was through the immersive mentored experiences of the ELS and Fellow Ambassador programs that I

first recognized the importance of service on a national level. After witnessing (and experiencing!) the impact of early mentorship, I was inspired to evolve my passive membership in AASLD as a young trainee into active engagement within the society. I have now had the opportunity to serve on several AASLD committees and task forces, experiences that have allowed me to give back to the organization and its membership.

As a direct result of AASLD's trainee programs, I, along with many of my colleagues, have found a home in the field of liver disease and in AASLD.

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*\*Correction added on December 14, 2017, after first online publication on December 12, 2017: Affiliation for Christina C. Lindenmeyer was added.*

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