FACING THE FUTURE:
A CALL FOR HIGHER EDUCATION IN SLEEP MEDICINE

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Many professions are facing dramatic changes in workforce. To some extent, sleep medicine is a poster child for these changes. In many markets, home sleep testing has replaced a portion of laboratory sleep studies for the diagnosis of obstructive sleep apnea in patients assessed to be at high risk, resulting in decreased overnight sleep study positions for sleep technologists. For some, this led to dire predictions about the future of the field of sleep technology. For others, including members of the Board of Directors of the American Association of Sleep Technologists (AAST), a new direction was necessary to stay viable in the face of changing technology. The mission of the AAST is to promote sleep wellness and lead the sleep technology profession through education, resources and advocacy.

This process began with the AAST’s Summit on Sept. 21, 2013. The discussion can be summarized by the statement that “there was a broad consensus that the technologist of the future will need a higher level of education and skills to provide value to potential employers and be competitive in the job market.”(p. 592-3) The AAST subsequently hosted Education Taskforce Meetings with invited members of AAST, the Board of Registered Polysomnographic Technologists (BRPT), American Board of Sleep Medicine (ABSM), the Committee on Accreditation for Polysomnographic Education (CoA PSG) and instructors of both accredited certificate and associate polysomnographic education programs. At around the same time, Wells and Vaughn2 published the results of a survey of sleep, EEG and respiratory therapy program directors. The survey indicated a need for higher-level training for sleep technologists – at the bachelor’s degree level – although at the time training programs were limited to associate degrees and certificates. (There are currently two accredited baccalaureate programs). In an accompanying editorial, Kirsch wrote, “Current sleep technologists should focus on learning new sleep-specific skills to keep pace with the evolving climate in sleep medicine, buffering them against the potential loss of overnight sleep technologist jobs.”

A positive view of increased educational requirements is unsurprising for a survey that focused on a sample of educators. But the majority of sleep technologists, and the majority of AAST members, learned sleep technology through on-the-job training. The AAST sought the input of its membership and other stakeholders, such as those who employ sleep technologists. Did this more diverse group feel that technologists should seek a higher level of education? Is it worth the time and effort for technologists to go back to school? Would raising the educational requirement for sleep technologists improve or worsen job prospects?

To evaluate this, the AAST engaged McKinley Advisors, an independent consulting firm, to conduct research with stakeholders.
to assess how this proposed educational requirement would affect the field. The research began with in-depth telephone interviews of a stratified sample of 24 respondents. Their responses informed the development of an online survey that could be widely distributed. Surveys were sent to a convenience sample of AAST members, former AAST members, members of state sleep societies, sleep center directors, CAAHEP program directors and A-STEP sleep technology educators. McKinley used an online survey over a period of 16 days between Feb. 15 and March 2, 2017. As is typical with this type of survey, the response rate was low. The 41-question survey was sent to 10,369 contacts and 776 respondents completed or partially completed the survey for a response rate of 7.5 percent. The completion rate was 75.1 percent. This report was completed in April 2017.4

IN-DEPTH TELEPHONE INTERVIEWS
As part of this research, McKinley conducted 24 in-depth telephone interviews between October 2016 to February 2017, including a diverse representation of both active and inactive members of the Association, who were further segmented into sleep technologists and center owners and directors, as distributed below.

• Active Sleep Center Owners and Directors (3 participants)
• Active Sleep Technologists (15 participants)
• Inactive Sleep Center Owners and Directors (2 participants)
• Inactive Sleep Technologists (3 participants)
• BRPT Board member (1 participant)

Overall, respondents agreed across the board on the importance of education in the sleep technologist field and are appreciative of AAST’s efforts in proactively considering education improvements and providing accessible educational resources to its members. Several participants highlighted, in particular, AAST’s free continuing education credits as a valuable resource they rely on. However, opinions were split when it came to whether the benefits of implementing an associate’s degree requirement would outweigh the potential downsides and place certain populations of sleep technologists at risk. Some respondents pointed out that such a requirement may ultimately alienate sleep technologists who lack the resources or time to pursue a level of education beyond what is currently required. Others wondered whether requiring an associate’s degree would be enough to help bridge the knowledge and skill gaps that exist in the field today, or if a focus on specialties and/or clinical experience would better equip sleep technologists to provide quality patient care, as well as address the challenges sleep technologists face each day.

Sleep center owners and directors noted three key areas that are critical to the success of a sleep technologist. These are as follows:

• Technological skills: Although technology has become more user-friendly, owners and directors noted the importance of being able to use and even fix technological equipment. One director noted that he has seen a decline in technologists’ technical and troubleshooting skills in the past 10 years.
• Clinical skills: Sleep technologists must be able to assess

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Please Rate Your Level of Agreement or Disagreement With the Following Statements.

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<tr>
<th>Statement</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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<tbody>
<tr>
<td>Sleep technology practitioners vary significantly in their level of skill and competency</td>
<td>83%</td>
<td>8%</td>
<td>10%</td>
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<tr>
<td>My facility is highly selective when hiring sleep technology practitioners</td>
<td>78%</td>
<td>11%</td>
<td>11%</td>
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<td>My facility has difficulty recruiting qualified applicants for sleep technology positions</td>
<td>63%</td>
<td>13%</td>
<td>24%</td>
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<tr>
<td>My facility provides financial support to employees seeking additional education and/or training</td>
<td>60%</td>
<td>9%</td>
<td>30%</td>
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<td>My facility has difficulty retaining employees in sleep technology positions</td>
<td>25%</td>
<td>17%</td>
<td>58%</td>
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<tr>
<td>My facility has difficulty training applicants for sleep technology positions</td>
<td>22%</td>
<td>28%</td>
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Figure 1. Perspectives on technologist hiring and retention
patients and participate in “active monitoring”. It was also noted that sleep technologists benefit from having clinical knowledge in related fields to provide additional job security.

- Communication/interpersonal skills: Patient interaction and education is a critical piece to the success of a sleep technologist. It requires the ability to understand and translate clinical knowledge and make a patient feel comfortable.

The majority of sleep center owners and directors agreed that education plays a vital role in the success of sleep technologists. Two respondents mentioned that they have noticed that technologists with a background in healthcare education are more successful, especially when treating patients with more severe conditions or complicated comorbidities. However, practical clinical experience and compassion for patients were noted as equally important in providing quality patient care. Conversely, one sleep center manager noted that she prefers to train inexperienced sleep technologists stating, “I prefer when a sleep tech comes in and we do their training so we train them our way. A lot of techs have a lot of experience and they’re set in their ways. Protocols vary at different labs.”

Each sleep technologist interviewed has a unique education background, which includes some combination of high school education, community college, associate’s degree, bachelor’s degree and/or certification. The majority had, or were in the process of obtaining, some form of higher education and certification. Only one of the respondents with an associate’s degree received a degree specifically in polysomnography while most of the remaining interviewees received their advanced degrees in other related health fields. AAST, BRPT, AASM and state conferences were the most common venues for obtaining continuing education in the sleep technologist arena. A handful of interviewees noted that they had completed the A-STEP program through AASM. Many technologists preferred to obtain their continuing education credits at conferences and meetings as they provide opportunities to both learn from peers and have “hands-on learning.” Over half of the respondents across all segments reported that they complete their continuing education credits (CECs) online, with the majority specifically turning to AAST.

For most, education was noted as having a significant impact on their professional success, helping respondents acquire clinical knowledge and develop critical thinking skills. Unsurprisingly, respondents with bachelor’s degrees seemed to find more value in their education than those with an associate’s degree. One respondent with an associate degree went on to share that they have reached the limit of what they can achieve with their current education. On-the-job training was also indicated as providing valuable experiences in terms of practical applications in patient care, as one sleep technologist stated, “What has helped me more is direct patient care, shadowing physicians, things I’ve done on my own.”

CHARACTERISTICS OF SURVEY RESPONDERS

Most respondents were AAST members (63 percent) and, on average, reported being a member for six to 10 years. The modal age was in the 46- to 55-year-old range and 32 percent of respondents reported being in sleep technology for more than 20 years. Thirty percent held a bachelor’s degree and 26 percent an associate’s degree. These demographics indicate an experienced, senior level sleep technologist was most likely to respond to the survey.

Most survey respondents (70 percent) reported that their facility is accredited by the American Academy of Sleep Medicine (AASM); 16 percent noted that their facility is accredited by another body; 12 percent reported that their facility is not accredited and 2 percent were unsure of their facility’s accreditation status. Respondents noted a median of six beds per facility with 39 percent of respondents reported that their facility has six to 10 beds while 32 percent reported three to five beds in their facility. Most respondents indicated that their facility employs at least one staff member with the RPSGT credential (70 percent). Respondents also noted employing staff members with the RRT credential (41 percent), RPSGT/RRT credentials (41 percent), and the RST credential (31 percent). When asked to indicate the educational level of employees at their facility, 60 percent of respondents noted that their facility employs at least one staff member with a bachelor’s degree and 54 percent offered that their
facility employs at least one staff member with an associate's degree. When asked to indicate their supervisory responsibilities, just under half of respondents (48 percent) reported that they currently directly or indirectly supervise sleep technology practitioners.

**NEEDS ASSESSMENT**

Respondents were asked a series of questions to assess their views on hiring and retaining sleep technologists. Figure 1 shows data from some of these questions.

Most respondents said that their sleep center is selective when hiring and 63 percent reported difficulty recruiting qualified applicants. Most said their centers provided financial support for additional education and did not have trouble training or retaining employees.

Respondents were asked to identify the most critical skills, knowledge and credentials as important for a sleep technologist to be hired over the next five years. These are shown in Figure 2.

Professional ethics and values were more important, and were rated extremely important by 93 percent of respondents. Most technologists work without direct supervision, and trust is a key issue for many employers. Communication and interpersonal skills were listed as the second most important, reflecting the importance of technologists establishing a rapport with patients. Technical skills and knowledge were listed as a high priority by 89 percent of the respondents. This suggests that those entering sleep technology from other health care professions will need training in the knowledge and skills of sleep technology. Eighty percent of respondents listed credentials and certification as a critical factor. This also suggests that technologists' skills and knowledge will form a basis for the future, but will not be sufficient. Although education was endorsed as important by 61 percent of respondents, the skills and knowledge ranked as having higher importance would be expected to be learned as an integral part of a formal educational program.

The survey also asked respondents to evaluate sources for the skills identified in Figure 2. Most respondents indicated that advanced modular training courses would be helpful (82 percent); that there is a need for specialty training for night technologists (81 percent); that there is a need for specialty training for patient educators (78 percent); that the concept of stackable credentials should be evaluated (63 percent); and there is a need for more accredited schools (61 percent). Only 40 percent indicated that students are well-prepared for today's professional environment.

Respondents were asked whether raising the educational requirement for sleep technologists to an associate's degree would have a beneficial effect on sleep technology. A majority thought it would benefit sleep technology professionals in general (63 percent) with fewer saying it would benefit themselves (48 percent). Respondents thought the change would be beneficial to patients (63 percent) and to schools (74 percent). Most thought an associate's degree would allow candidates to distinguish themselves when competing for jobs (76 percent) but would have negative consequences such as decreasing the number of qualified practitioners (64 percent) and increasing costs associated with sleep technology services (62 percent).

**RECOMMENDATIONS**

Sleep technology is not the only allied health profession undergoing transformation. One of the reasons that the AAST engaged McKinley
was to draw on their experience with other similar professions and to have them recommend solutions that have proven beneficial for others. The AAST survey results showed that sleep technologists vary significantly in their level of skills and competency, with less than half of the respondents believing that students today are well-prepared to work in today’s professional environment. New entrants to the field of sleep technology should be advised to obtain a higher level of formal education that will provide long-term advantages in a competitive job market. There are currently several different career pathways that lead to positions in the sleep technologist field along with varying levels of education among its practitioners.

Sleep centers expressed a need for more well-rounded technologists that can use both their soft and hard skills that allow them to not only perform diagnostic tests but also be involved in the provision of care, patient education, and long-term follow-up. By analyzing survey data such as that presented here and by working with other stakeholders in technologist education through the Education Task Force, the AAST can enhance and standardize competencies. As a first step, McKinley developed a preliminary enhanced competency model highlighting potential “core tenets” of becoming a successful sleep technologist (Figure 3). The AAST has worked to update job descriptions and educational curricula for students entering the field of sleep technology. An enhanced competency model provides dual benefits for the association and user, acting as a framework for content development and packaging of educational offerings, as well as a guide for members to assess skills and identify gaps. This, in turn, supports the advancement of the entire field.

But what can the AAST do to support experienced technologists currently working in the field? Many of the survey respondents are well established and are struggling to keep up with industry trends. These technologists indicated a need for specialty-focused training. Today, sleep technologists and sleep centers rely on a variety of sources to meet their educational needs with little standardization across or within sleep centers. This has resulted in inconsistencies across the profession. McKinley Advisors recommended the development of “stackable” or “sequential” credentials. For example, credentials in coding, regulatory compliance, reimbursement issues and insurance practices could be “stacked” to indicate competence in business practices. Experienced technologists who are already competent in clinical practices or other elements of the core competencies would not need to repeat those elements of training.

As an example of a communications skills set, the AAST has recently developed a Patient Education Curriculum for the Sleep Health Educator. This document provides learning goals for the patient educator including an introduction and background; general patient education requirements; discussion points for the first visit after diagnosis; key elements of follow-up visits; documentation using a standardized care plan; and a list of references for additional information. An example case study is provided. The curriculum is intended to provide a standard for educational programs to use. The AAST intends to develop a variety of educational resources to support the curriculum. These materials will include reference texts, case studies, clinical simulations and self-assessment tools.

Given the variability in training and competence among practicing sleep technologists, the AAST will work to offer self-assessments and brief aptitude tests that will identify educational gaps. Experienced technologists will have areas of expertise that do not require updating or remediation. Gaps that are identified will be used to direct learners to training modules that fill those gaps and provide “micro-credentials” or “digital badging” in highly specific areas such as advanced PAP platform use or sleep disorders in cardiovascular disease. Successful completion of a learning module and post-test will provide the technologist with a credential or badge that serves as evidence of advanced education. This will be helpful for employers as they seek to cross-train technologists for new roles in patient care.

Figure 3. An enhanced core competency model