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A Technologist's Guide to Performing Sleep Studies

Designed as an introductory resource, the *Technologist's Guide to Performing Sleep Studies* provides step-by-step instructions for collecting sleep study data from patients. It includes sections that cover suggestions for putting the patient at ease, reviewing the patient's symptoms and medications, attaching the sensors, preparing to record, biological calibrations, artifact detection and correction, and documentation.



Guide to Performing Sleep Studies eBook in the AAST Learning Center



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President's Message

Preparing for the Future of Sleep

By J. Emerson Kerr, III, MBA, RRT, FAAST

If your 2024 is anything like mine, it has been busy from week one! There are so many changes happening in our industry and beyond, it seems like we are learning of some new technology for sleep, waking or behavioral health every day. Can we predict the future of sleep technology? No, but we can prepare.

Joe Petrolla with Delta Sleep in Northern Ohio once told me, "Prepare because you can't predict." Knowing what tools we have at our disposal is crucial. If the idea of Moore's Law (technology doubling every two years) is remotely true, preparing is essential.

Understanding all facets of artificial intelligence (AI) is a critical part of our ongoing education and our patients' education. In this issue you will learn about the chatbot ChatGPT and its impact on medical education materials. If your company is like mine, you most likely hear about security risks associated with AI; however, what we need to understand is how to harness this new technology for our patients. AI in all its forms can be a tool for good or bad when left to the self-educated patient. In the pages to follow, you

Success in our personal and professional lives depends heavily on our ability to measure ourselves against something we want to achieve.

will learn how to utilize Al both for yourself as individual and as a tool for educating your patients on opportunities and challenges for diagnosis and treatment. That said, even the best tools need a plan.

Walt Kelly's quote, "Having lost sight of their objectives, they redoubled their efforts," speaks loudly to the urgency

of planning. You will also read in this issue about the extraordinary importance of goal setting and maximizing the world around you. Success in our personal and professional lives depends heavily on our ability to measure ourselves against something we want to achieve.

Lastly, I'd like to remind you that AAST is your professional partner. As your professional organization, we have built a tremendous number of tools to aid you with your professional development. This issue provides both an overview and deep dive into how we are uniquely positioned to aid you on your amazing journey as a sleep-care professional.



From AAST Making the Most of Your AAST Membership

With the start of a new year, AAST wants to ensure you are able to make the most of your 2024 membership. Brush up on the exclusive benefits that come with your AAST membership below and if you have questions, reach out to AAST headquarters at info@aastweb.org or 312.321.5191.

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$A_{2}Zzz$

Read A_ZZZ, released quarterly, for technical education, forward-thinking perspectives and thought leadership from industry leaders. Members receive two CECs per issue by completing a short knowledge assessment in the Learning Center.

AAST CCSH Modules

Gear up for the CCSH exam with access to the AAST <u>Certification in Clinical Sleep Health (CCSH) Modules</u> at a discounted rate. These modules were developed to allow those with their RPSGT to become eligible to earn their CCSH.

Member Directory

Stay in touch with fellow sleep-care professionals and AAST colleauges through the AAST Member Directory. Members can access the directory by logging into the AAST website.

Job Board

Take your job search in the right direction by visiting the AAST Job Board, which features positions with various levels of experience across multiple disciplines. Interested in hiring a rockstar sleep-care professional to join your team? Members receive a discounted rate for posting job listings to the Job Board.

The Sleep Scene

Stay on the pulse of the sleep industry. Read the latest industry updates, research, insights and more on AAST's content hub, *The Sleep Scene*.

AAST Awards

Members are able to apply for all <u>AAST</u> <u>Awards</u> and be recognized in front of their peers.

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Instructions for Earning Credit

AAST members who read A_zZzz and claim their credits online by the deadline can earn 2.00 AAST Continuing Education Credits (CECs) per issue, for up to 8.00 AAST CECs per year. AAST CECs are accepted by the Board of Registered Polysomnographic Technologists (BRPT) and the American Board of Sleep Medicine (ABSM).

To earn AAST CECs, carefully read the entirety of the Q3 issue of A_2Zzz and claim your credits online in the Learning Center. You must go online to claim your credits by the deadline of **June 30, 2024**. After the successful completion of the learning assessment, your certificate will be available in the My CEC Portal acknowledging the credits earned.

COST

The A_zZzz continuing education credit offering is an exclusive learning opportunity for AAST members only and is a free benefit of membership.

STATEMENT OF APPROVAL

This activity has been planned and implemented by the AAST Board of Directors to meet the educational needs of sleep-care professionals. AAST CECs are accepted by the Board of Registered Polysomnographic Technologists (BRPT) and the American Board of Sleep Medicine (ABSM). Individuals should only claim credit for the issues they read in full and evaluate for this educational activity.

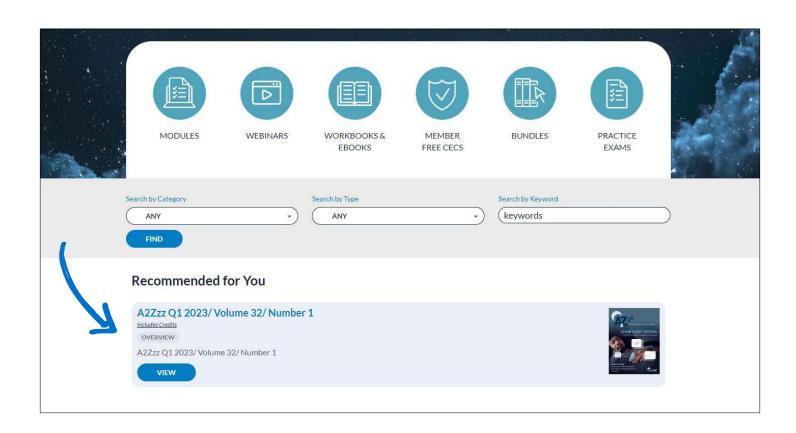
STATEMENT OF EDUCATIONAL PURPOSE & OVERALL EDUCATIONAL OBJECTIVES

 A_2Zzz provides current sleep-related information that is relevant to sleep-care professionals. The magazine also informs readers about recent and upcoming activities of AAST. A_2Zzz should benefit readers in their practice of sleep or in their management and administration of a sleep disorders center.

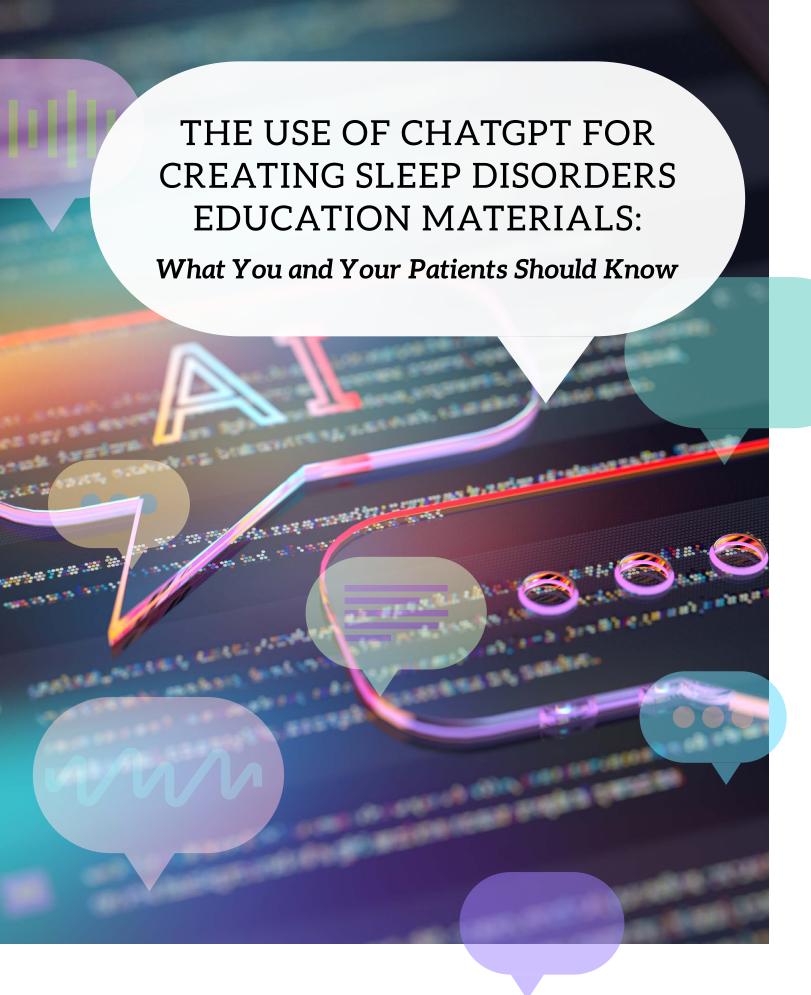
READERS OF A₂ZZZ SHOULD BE ABLE TO DO THE FOLLOWING:

- Analyze articles for information that improves their understanding of sleep, sleep disorders, sleep studies and treatment options
- Interpret this information to determine how it relates to the practice of sleep care and medicine
- Decide how this information can improve the techniques and procedures that are used to evaluate sleep disorders patients and treatments
- Apply this knowledge in the practice of sleep care and medicine

You must go online to claim your CECs by the deadline of **June 30, 2024**.



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n Nov. 30, 2023, the artificial intelligence (AI) research organization OpenAI (San Francisco, California) released ChatGPT, a language model that was designed for interactive prompt-and-response conversations with users. Its popularity has rapidly grown because the interactivity of ChatGPT allows people to quickly search for information, write and

create content and stimulate creativity, among other uses. A drawback is that ChatGPT sometimes provides plausible-sounding but incorrect answers, which can be problematic for patients looking for medical information such as information on a sleep disorder.

Sleep researchers have recently begun investigating the feasibility of using ChatGPT to generate patient education materials on sleep disorders. Although their findings confirm that ChatGPT is not always accurate, sleep researchers believe the tool can potentially be used to educate patients about sleep disorders.

Al in the Medical Field

The concept of using computers to simulate intelligent behavior and critical thinking (i.e., AI) has been around since 1950.¹ By the 1970s, in the medical field, advances in computer science and AI led to the development of the MYCIN system at Stanford University (Stanford, California), which aided physicians in making a medical diagnosis of infectious blood diseases.² Physicians would input a patient's symptoms into the MYCIN system, which, based on the input, would provide a list of possible bacterial pathogens and recommend antibiotic treatment options. This advancement stimulated further research and development in the use of AI in health care.

Since the 2000s, AI has been increasingly incorporated into medicine, owing to advances in computer hardware, software programs and digitalized medicine (i.e., the combination of information technology, electronic systems and computational tools to enhance the delivery of medical services, patient care and health care management).³ For example, Pharmabot, a chatbot developed in 2015 by researchers in the Philippines, has been used to assist in educating pediatric patients and their parents about the proper intake, dosage, drug reaction, precaution and indications for generic medications.⁴

ChatGPT, although not created by OpenAI specifically for the medical field, seems promising in areas such as quickly creating patient education materials.

Breaking Down ChatGPT

ChatGPT, although not created by OpenAI specifically for the medical field, seems promising in areas such as quickly creating patient education materials. It is an outgrowth of OpenAI's development of language processing tools that can generate, classify and summarize text with a high level of coherence and accuracy. In 2019, OpenAI introduced its first version of the generative pretrained transformer, called "GPT-2, and was capable of

generating coherent, contextually relevant text in response to prompts. In 2020, OpenAI released an improved version of the model, GPT-3, which had greater capabilities in various natural language processing tasks such as chat-based conversations.

ChatGPT stands for Chat Generative Pretrained Transformer. Chat refers to the prompt-and-response feature of the program. That is, a user gives input (e.g., asks a question) to which the program gives an output (e.g., a response specific to the question). A transformer is a type of neural network architecture (i.e., a type of virtual artificial brain) and is designed to process sequences of data (e.g., patterns in sentences). A neural network architecture mimics the way the brain processes information, which allows ChatGPT to "learn" (i.e., predict an appropriate response, based on existing data) and perform tasks such as creating written content. "Pretrained" refers to the fact that a substantial amount of data is first collected and ultimately used to "train" the model to perform a specific task (e.g., responding to questions). "Generative" refers to the fact that it can create (i.e., generate) human-like text based on the patterns it learned during training.

Thus, a generative pretrained transformer is a type of computer program that has "learned" from previously inputted data, which it uses to generate new text in response to a new input (e.g., a user's question). ChatGPT allows more natural responses to a user's question, much like actually "chatting" with a computer.

By contrast, a search engine such as Google (Alphabet Inc., Mountainview, California) or Bing (Microsoft, Redmond, Washington) uses certain words within a user's query to guess which webpages may be appropriate. It can not take a user's

query and respond with a summary of the data. For example, with ChatGPT, a user can request: "Write a 100-word summary of sleepwalking with two citations," and ChatGPT will display content with the desired features. A search engine does not have this capability.

Drawbacks of ChatGPT and the Impacts on **Sleep Education**

While resourceful, a drawback of ChatGPT is that its responses can be limited by the characteristics of the data used to train it. As ChatGPT explains:

"My responses are generated based on a mixture of licensed data, data created by human trainers and publicly available data. My training only includes information available up until January 2022, and I don't have the capability to access or retrieve personal data from users unless explicitly provided for the purpose of the conversation."*

This limitation can affect the quality of material ChatGPT supplies to a user. To what extent the quality of ChatGPT is affected by this limitation is unclear.

For this reason, some sleep research has focused on assessing the quality of content generated by ChatGPT for patient education materials. For example, Campbell and colleagues⁵ evaluated the quality of ChatGPT responses to questions about obstructive sleep apnea (OSA). They assessed how various types of prompts influenced the chatbot's correctness (i.e., ability to generate accurate, relevant information), the estimated grade level of the generated information and the references from which ChatGPT derived its answers.

In their study, ChatGPT was queried four times with the same 24 questions under four conditions:

- No prompting
- · Patient-level prompting
- Physician-level prompting
- Prompting for statistics/references

Answers were scored based on their correctness:

- Incorrect
- Partially correct
- Correct
- Correct statistic or referenced citation ("Correct+")
- Correct statistic and citation ("Perfect")



A drawback of ChatGPT is that its responses can be limited by the characteristics of the data used to train it.

For all prompts collectively, 71.9% of answers were "correct." The proportions of responses that were "partially correct" or "correct" did not differ significantly by prompt type, whereas the proportion of responses that were "correct+" or "perfect" did differ significantly by prompt type. ChatGPT accurately generated 96.1% of references in response to statistics/ references prompting. Responses to patient-level prompting lowered the mean Flesch-Kincaid grade level (12.45), compared with no prompting (14.15), physician-level prompting (14.27) and statistics/references prompting (15.00). Campbell concluded that ChatGPT generally provides appropriate answers to most questions about OSA, regardless of the type of prompting.

However, researchers Kleebayoon and Wiwanitkit⁶ found Campbell's findings interesting but noted the following limitations of the study:

- 1. The four prompts (i.e., no prompting, patient-friendly prompting, physicianlevel prompting and statistics/ reference prompting) may not cover all variables that may occur in real-world clinical situations.
- 2. The accuracy of ChatGPT responses was assessed, but the quality or reliability of the generated information was not assessed. For example, whether the generated material was evidencebased and up to date was not assessed.

Quarter One 2024 *A₂Zzz* **€ 10** **3.** The performance of ChatGPT with that of other Al tools was not compared. Such comparisons could provide a more thorough assessment of its utility and efficacy.

Campbell et al.⁷ acknowledges the limitations described by Kleebayoon and Wiwanitkit. However, Campbell believes that much of their criticism is related to the novelty of the study since Campbell's team was the first to investigate the utility of a large language model chatbot for generating patient education material in sleep medicine.

Some investigation has focused on utilizing ChatGPT to generate patient education materials for people with insomnia.

A study by Cheong et al.⁸ did address one limitation that was mentioned by Kleebayoon and Wiwanitkit. Cheong's team was the first to compare patient education material for OSA generated by two Al chatbots, ChatGPT and Google Bard, a conversational generative Al chatbot created by Google Al (Mountain View, California**). Cheong extracted 50 questions about OSA from patient information webpages of four major sleep organizations. The ChatGPT and Google Bard responses were independently rated using the Patient Education Materials Assessment Tool-Printable Auto-Scoring Form (PEMAT-P) by the Agency for Healthcare Research and Quality (Rockville, Maryland).

Items of the PEMAT-P are rated by "disagree" or "agree" with regard to a material's understandability and actionability (i.e., identifying actions a user can take). The responses of the chatbots were screened for incorrect or dangerous information, and the Flesch–Kincaid calculator was used to evaluate the grade level of the responses generated by the two chatbots.

The understandability scores and actionability scores were higher for ChatGPT than for Bard. The mean Flesch–Kincaid grade level for ChatGPT was 9.0 and for Bard it was 5.9. The generated responses by ChatGPT and Google Bard did not contain incorrect or dangerous information. Based on these findings, Cheong concluded that patient education material for OSA generated by ChatGPT was superior to that provided by Bard.

Non-OSA Education Materials Development

Some investigation has focused on utilizing ChatGPT to generate patient education materials for people with insomnia. Alapati et al. used the same four prompts that were used in the Campbell study to evaluate the accuracy of ChatGPT responses to insomnia-related queries. They found that most ChatGPT responses were clinically accurate and 80% of the references were accurate and relevant. Alapati concluded that

ChatGPT can generate clinically accurate responses to insomnia-related inquiries.

Conclusion

ChatGPT is still relatively new and is continuously evolving, particularly with regard to addressing the issue of its generating inaccurate information. Until additional research and guidance on ChatGPT

is released, sleep professionals need to be aware of the following factors when using the chatbot to generate patient education materials:

- 1. ChatGPT can generate incorrect information, although the text is grammatically correct, and nonsensical responses. The generated information needs to be checked for inaccuracies.
- 2. Source data used to train ChatGPT only dates back to the tool's last update in January 2022; therefore, more up-to-date medical information may be unavailable.
- 3. ChatGPT does not have the ability to access external databases or perform real-time searches on platforms such as PubMed (National Library of Medicine, Bethesda, Maryland), a database for biomedical literature. Therefore, its generated responses may be based on limited data.
- 4. Data provided to the ChatGPT model may contain biases (e.g., false presumptions or beliefs). Therefore, the information ChatGPT provides may be inaccurate or misleading.⁶
- 5. ChatGPT can have issues in providing the sources of the generated information. As ChatGPT itself explains for queries involving information from certain databases (e.g., PubMed): "I was trained on a mixture of licensed data, data created by human trainers and publicly available data. As such, I am not able to access subscription sites, the content behind paywalls or any other type of proprietary information pertaining to third-party companies."* Thus, some medical literature information may be unavailable to users.

Advances in AI technology such as chatbots are increasingly making possible more effective and personalized educational tools. In the future, the quality of information about sleep disorders may be more accurate, up to date and more easily accessed by clinicians and patients. Improvements in the quality of sleep information and quicker access to information could enhance the sleep health of individuals. For now, sleep-care

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professionals and patients are advised to use caution when reviewing medical-related education materials generated by ChatGPT. •

- *This is a default response provided by ChatGPT to clarify the nature of its training and limitations.
- **Available at https://bard.google.com.



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References

- Turing AM. Computing machinery and intelligence. Mind. 1950:433-460.
- 2. Shortliffe EH, Buchanan BG. A model of inexact reasoning in medicine. *Mathematical Biosciences*. 1975;23(3-4):351-379. doi: https://doi.

org/10.1016/0025-5564(75)90047-4

- 3. Kaul V, Enslin S, Gross SA. History of artificial intelligence in medicine. *Gastrointestinal Endoscopy*. 2020;92:807-812. doi: https://doi.org/10.1016/j.qie.2020.06.040
- Comendador BE, Francisco BM, Medenilla JS, et al. Pharmabot: A pediatric generic medicine consultant chatbot. *Journal of Automation and Control Engineering*. 2015;3:137-140.
- Campbell DJ, Estephan LE, Mastrolonardo EV, et al. Evaluating ChatGPT responses on obstructive sleep apnea for patient education. *Journal of Clinical Sleep Medicine*. 2023;19:1989-1995. doi: https://doi.org/10.5664/jcsm.10728

- Kleebayoon A, Wiwanitkit V. ChatGPT, obstructive sleep apnea, and patient education. *Journal of Clinical Sleep Medicine*. 2023;19:2133. doi: https://doi.org/10.5664/ jcsm.10768
- Campbell DJ, Estephan LE. ChatGPT for patient education: an evolving investigation. Journal of Clinical Sleep Medicine. 2023;19:2135-2136. doi: https://doi. org/10.5664/jcsm.10808
- Cheong RC, Unadkat S, Mcneillis V, et al.
 Artificial intelligence chatbots as sources of
 patient education material for obstructive
 sleep apnoea: ChatGPT versus Google Bard.
 European Archives of Oto-Rhino-Laryngology.
 2023;281:985-993.
- Alapati R, Campbell D, Molin N, et al. Evaluating insomnia queries from an artificial intelligence chatbot for patient education. *Journal of Clinical Sleep Medicine*. 2024; doi: https://doi.org/10.5664/ icsm.10948

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Rise and Shine: Professional Preparedness for the Year Ahead

By Bethany Larrañaga

A new year welcomes renewed opportunities for professional growth. As the sleep-care industry continues to rapidly evolve, it's important to develop intentional strategies aimed at well-being. What follows are helpful tips to set you up for professional and personal success and make 2024 feel like a sweet dream.

Set Your Goals

Having clear and achievable goals will help you set up a blueprint for building success. From obtaining a new certification to earning a promotion, determining what matters most to you can help create meaningful change and keep you focused. When setting professional goals, keep the following in mind:

- Make them SMART¹: Think down to the brass tacks ensure the objectives you
 set for yourself are specific, measurable, achievable, relevant and time-bound. Doing
 so provides clarity around what you are setting out to accomplish and an outline for
 developing an action plan.
- Break them down: Divide larger goals into smaller tasks. For example, a new
 certification may require taking a preparation course, studying for an exam or
 accomplishing a certain number of contact hours. Set milestone dates for each step in
 the process to keep yourself on track.



 Note your progress: Set aside time to review your advancement(s) and identify any adjustments needed. By keeping your goals top of mind, you'll be able to celebrate your successes and plan for possible obstacles.

Leverage Your Resources

Understanding the resources available to you can help unlock your potential and make accomplishing your goals more achievable. Find ways to incorporate valuable resources into your goal action plan or create a list to have on standby in case you face an unexpected challenge. There are many resources available for industry professionals at all levels:

- Personal networks²: Attending industry events, maintaining relationships with peers or joining a professional organization are just a few ways to build connections and advance professionally. Consider developing a personal contact list of trusted peers and organizations to turn to when you need support.
- Professional development: Investing time into your professional development can create career-long benefits. If you belong to an industry organization like AAST, take advantage of educational resources like webinars and certification courses. Pitching for thought leadership opportunities like speaking events or contributing to publications can also help boost your status as a trusted industry voice.
- Industry trends: Knowing current trends and industry happenings can help you stay ahead of the curve and plan for success. Consider subscribing to news alerts relevant to your area of work or participating in professional forums and local events to stay informed.

Recharge Along the Way

While much focus is put on professional goals, it's equally important to focus on personal ones. Setting personal goals can help reduce stress, expand your skillset and think more creatively. Whether that's learning an instrument or training for a marathon, it's vital to find ways to challenge yourself outside of work. Creating space dedicated to personal time and self-care is crucial for maintaining momentum toward accomplishing your goals, and doing so can contribute to a more fulfilling work-life balance. Here are a few strategies to maintain your personal well-being:

Set healthy habits: While core
to a well-rounded lifestyle, many
professionals may not take the time
to establish healthy habits like eating
well, exercising or maintaining good
sleep hygiene. While setting up your
professional goals, list out the healthy

habits you'd like to incorporate into your personal life and how you plan to stay on track with them.³

- Unplug when you can: To avoid losing focus or facing burnout, find ways to unplug after the workday. For example, set quiet hours on work communication channels and plan not to respond to non-emergency messages outside of work hours.
- Enjoy your time away from work: It's essential to plan things to look forward to outside
 of work. Consider joining a community group like a club or volunteer organization to
 foster connection, or taking up a new hobby.

By implementing strategies such as networking, skill development and healthy habits, you can effectively set yourself up for professional and personal success in 2024. Regardless of your goals, these foundational tips can be applied to boost your development journey.



BETHANY LARRAÑAGA is the associate editor for AAST.

References

- 1. Mindtools.com. SMART Goals. Accessed Feb. 26, 2024 from https://www.mindtools.com/a4wo118/smart-goals
- 2. Indeed.com. 12 Tips for Building a Stronger Personal Network.

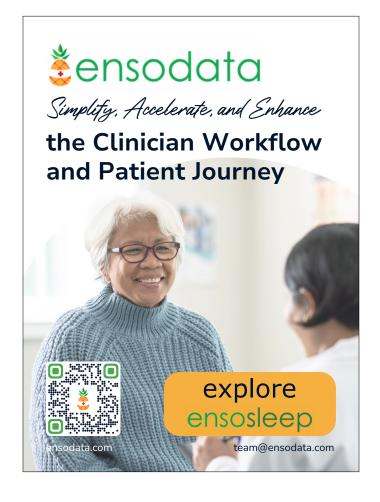
 Accessed Feb. 26, 2024 from https://www.indeed.com/career-advice/
 career-development/personal-network
- 3. National Institutes of Health. Creating Healthy Habits. Accessed Feb. 26, 2024 from https://newsinhealth.nih.gov/2018/03/creating-healthy-habits



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- Noninvasive Positive Pressure Ventilation (NPPV)
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