

# A Postprofessional Distance-Education Program in Neurodiagnostics and Sleep Science

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**Sleep medicine is a quickly growing field of allied health and preventive medicine. The University of North Carolina has proven innovative and timely in offering a neurodiagnostics and sleep science bachelor's degree program for the sleep medicine profession.**

**T**he Department of Kinesiology in the College of Health and Human Services at the University of North Carolina (UNC) at Charlotte, in collaboration with the Departments of Allied Health Sciences and Neurology in the School of Medicine at UNC-Chapel Hill, has developed a postprofessional baccalaureate-degree program in neurodiagnostics and sleep science (NDSS). Offering a bachelor of science (BS) degree to sleep technologists and electroneurodiagnostic technologists who are already registered and practicing in their respective fields, this program can increase students' professional knowledge and expand their opportunities for career advancement. This program is the first of its type in the nation, and it is working to set the national standard for future BS degrees in NDSS. Since the program's first class enrolled in the fall semester of 2011, students have been motivated and qualified practitioners who want to become institutional, educational, and health care leaders. To help students meet these goals, the NDSS program provides a broad foundation in sleep science and teaches critical thinking and problem solving skills.

To assess the demand for a new baccalaureate-degree program in NDSS, a survey was conducted in 2008 of students enrolled in the 5 accredited community college programs in North Carolina that offer a concentration in polysomnography and/or electroneurodiagnostic technology; 82% of respondents indicated that they were interested in pursuing a BS degree in NDSS. To further study the expressed interest in this type of program, a survey was conducted of the students at each of the 33 polysomnography and electroneurodiagnostic technology programs in the United States that have been accredited by the Commission on Accreditation of Allied Health Education Programs; 65% of these respondents said that they were interested in pursuing a BS degree in NDSS.

The NDSS program at UNC-Charlotte is offered via distance-learning delivery methods. Due to the nature of their work, sleep technologists are inherently technologically

savvy and adapt readily to the distance-learning format. This method also works well for sleep technologists because of their varied work schedules. Offering courses online allows all students to access the same information, regardless of their work and life schedules, which facilitates participation and engagement in the courses. Offering the courses via distance learning also makes the program available to students regardless of their physical location. Thanks to the distance-learning delivery model, students are able to participate in all of the program's educational experiences through various means of online collaboration. There are also internship and capstone requirements that students must fulfill at various times throughout their program of study. Students can either develop relationships with professionals in their own geographic locale, or they can travel to Chapel Hill for a short period of time to complete these requirements.

The need for technologists with higher levels of education has arisen as the roles and responsibilities of technologists have expanded; sleep technologists are now dealing with different patient populations, and they are expected not only to be knowledgeable about technical subjects but also to be capable of managing resources and finances. In particular, health care reform and the increased emphasis on preventive health care have been major contributing factors in emphasizing the importance of sleep medicine, as treatment of sleep disorders is a preventive cost-savings measure. Patients with undiagnosed sleep disorders have at least twice the utilization of care and double the health care costs of those whose sleep disorders have been treated [1-3], and at least one quarter of all Americans can benefit from evaluation of obstructive sleep apnea and other sleep disorders [4].

The constant development of new diagnostic and treatment technologies has also produced change in this field, and it will likely continue to do so. The role of nighttime technologists is changing, as these technologists are expected to perform more specialized clinical testing—including seizure

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monitoring, dental device titration, and servoventilation. Daytime technologists are also seeing their job descriptions change with the inclusion of additional duties, such as providing more patient and community education, providing patient follow-up, monitoring patients for treatment compliance, teaching patients to use durable medical equipment (eg, continuous positive airway pressure [CPAP] machines), marketing, and other leadership and management duties.

The rapid growth in home sleep testing is another potential concern for sleep technologists. While home sleep testing is not necessarily less accurate than a full polysomnogram, home sleep tests are not continuously monitored and examined by trained professionals and do not collect the same amount and types of physiological data. Thus many comorbidities and sleep-related complications may be omitted from a patient's treatment plan if a lab-based, attended polysomnogram is not performed.

In a survey by the journal *Sleep Review*, 50% of sleep labs reported that they currently offer home sleep testing to Medicare patients, and 64% reported that they offer it to patients with private insurance [5]. Many technologists fear that this trend will become a threat to their livelihood, as more patients seek to have home sleep testing rather than being tested and treated in traditional sleep labs. However, there are still patients with comorbidities and/or severe complications who need to undergo fully attended sleep studies. In fact, despite the availability of more cost-effective home sleep testing, the vast majority of sleep studies performed over the past 4 years have been facility-based, attended sleep studies (Figure 1) [6]. This creates further need for technologists with the experience and education to treat these sicker patients.

As the trend toward home sleep testing continues to evolve, many technologists may find that they are required to obtain higher educational degrees, such as the BS degree

offered at UNC-Charlotte, in order to stay viable in the job market and to lead their profession during this time of change. A sleep medicine workforce with higher levels of education will better serve the needs of our patients through their knowledge and their experience in helping patients navigate complicated sleep disorders and associated comorbidities. These individuals are also poised to serve as leaders of their profession, to move sleep medicine forward as a new foundation in preventative medicine, and to provide innovative diagnosis and treatment for large sections of the population. **NCMJ**

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