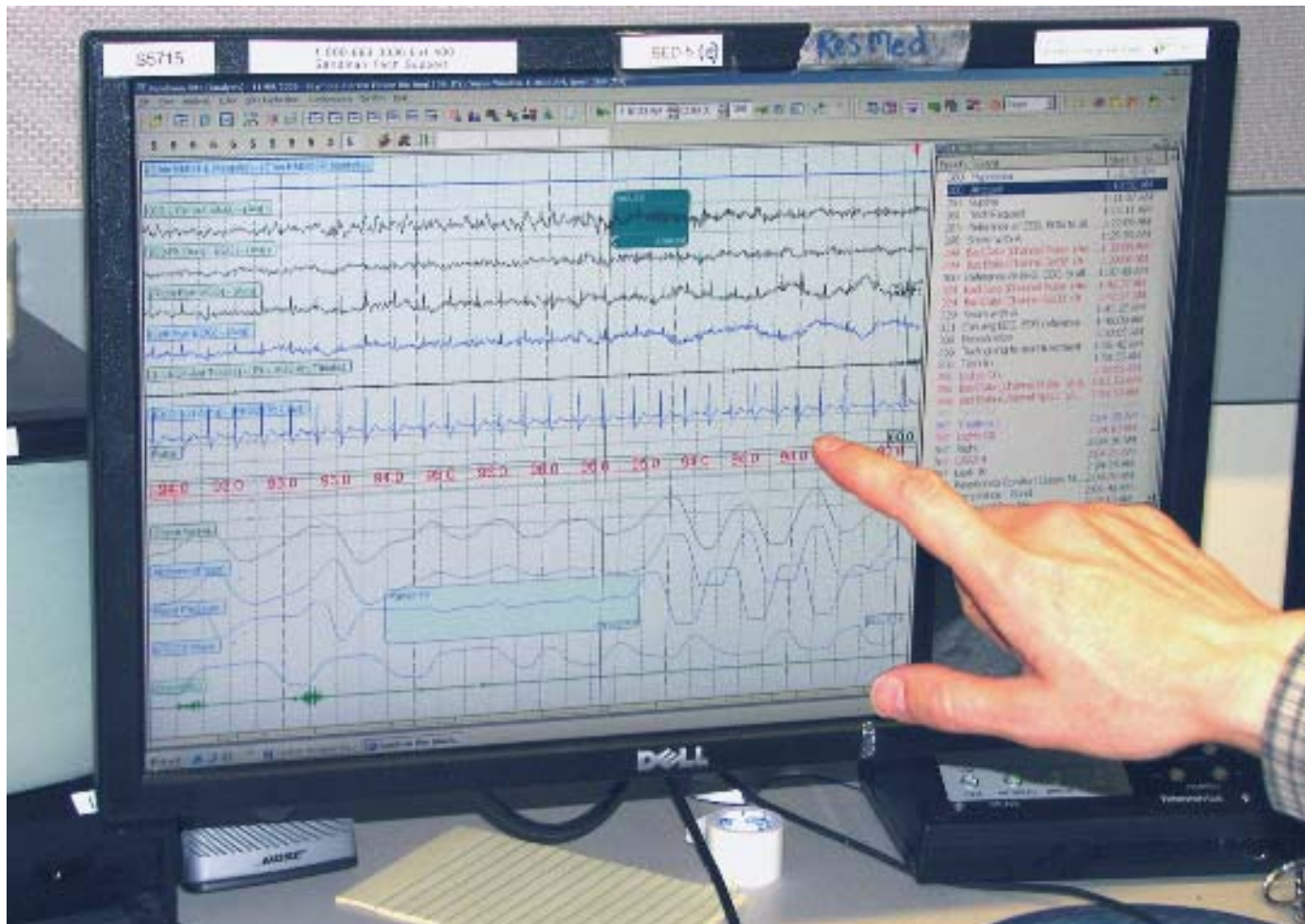


What's



keeping you awake?

MAHCP Career Profile

Polysomnography Technologist

Submitted by
Tanya Egan

At the Sleep Disorder Centre you will often hear the tech's laughing about how most people think we sit all night and watch our patients sleep. We laugh because we do just the opposite.

On a typical night shift you will find 10 technicians and technologists briskly walking from one patient room to the next calibrating diagnostic equipment, hooking patients up to our electrode-filled head boxes, and trouble-shooting. Once our patients, 10 per night (two patients per tech), are settled into bed, we begin their Full Sleep Study. We guide our patients through a set of bio-calibrations. This ensures all of our electrodes and monitoring devices are working properly. If electrode impedances are high, or our TcPCO₂ units are reading incorrectly, or our nasal pressure cannulas are blocked, you again will find us walking if not running to fix the issue.

The first hour into our studies is usually quiet. We begin the recording with a set of patient vitals. These vitals include patient position, sleep stage, respiratory events, volume of snores, oxygen percentage, and carbon dioxide levels from both transcutaneous and end tidal. This is about the only time you will find a sleep tech sitting and watching. We are waiting for our patients to fall asleep.

Once our patients have fallen asleep our job begins. You see, when you are awake you are pretty much in control of what your body does. When you are sleeping your body is relaxed and does what it wants to do. This is where our night shift becomes hectic. The sleep techs are watching your vitals as well as the output from our recording equipment like hawks. We are constantly making notes as to what it is our patients are doing in each position they sleep in and what stage of sleep they do it in. Some people sleep soundly for the entire night, while others begin to snore heroically. Some people begin to have Obstructive Sleep Apnea (OSA) immediately, and others have Central Sleep Apnea (CSA), and the odd person has Cheyne Stokes Respirations (CSR). The sleep techs need to be



Tanya Egan
Polysomnography Technologist
Misericordia Health Centre

very alert to recognize each Sleep Breathing Disorder (SBD) because each disorder has its own treatment protocol. A good number of our patients have already done their research on sleep disorders and are quite surprised to find out that CPAP (continuous positive airway pressure) does not fix everything. For instance, if you are diagnosed with CSA, CPAP will in fact make your breathing worse as you sleep. It will prolong your apneas, causing your SaO₂ levels to drop even more, which in turn deprives your heart and brain of oxygen. Thus possibly (and

it's been proven) leading you into the direction of a stroke or heart attack.

Over the last few years the sleep lab has been receiving more sick patients than ever. Just seven or eight years ago the lab only studied one "in-hospital" patient per month. These particular patients are considered to be a heavy work load because of their medical history. Most, if not all, of them are in respiratory failure. It almost raised our eye brows when we received two "in-hospital" referrals in a month. It just wasn't common back then. In the past couple of years the sleep lab

has been studying one to two "in-hospital" patients per week. Lately that number has crept up to three to four per week. Eight years ago you could find me mentally preparing for an in-patient at least three days in advance of actually studying them.

Nowadays, we get very little notice of in-patients arriving. We usually find out about one hour before they arrive in the lab and to us techs, it's just another night shift.

We laugh too because a lot of our patients think that we are nurses.



We are not nurses or therapists, we are, by profession Polysomnography Technicians and Technologists. Following a formalized training program and 18 months work experience we then write an international exam.

Upon completion we are then Registered Polysomnographic Technologists (RPSGT). We have been trained specifically to analyze a polysomnograph (sleep study), find a diagnosis and treat the sleep disorder. This is all done preferably in one night. Why one night? Because by morning, when we begin to un-hook our patients, they have had enough

of us. In one night shift your sleep tech could enter your room for trouble-shooting reasons anywhere from one time to 20 times.

Our patient wait list consists of people ranging in age from 18 years old to 99 years old. These people also range in size from tall and slim, to short and slim, to morbidly obese. In the last few years we have also seen a growing trend of medication use. There are certain medications that make our job even more difficult. These medications are benzodiazepines and SSRI's (selective serotonin reuptake inhibitors). They alter the architecture of your EEG, therefore, making it more difficult for us to read and determine what sleep stage you are in. Some of these medications will also delay your REM sleep.

REM is very important for us to see as this is the stage of sleep where your disorder will either improve on its own, or worsen to life-threatening.

If your disorder requires therapy such as CPAP, we need to see REM while you are on CPAP. If we don't see REM before or during treatment, then the doctors will either prescribe CPAP with the pressure seen during your sleep study, or



Continuous Positive Air Pressure (CPAP) Machine

higher pressure and hope that your disorder is resolved. If there has been no improvement in your sleep quality, or blood gases, then chances are good you will be returning to the sleep lab for a re-titration study.

There is also a sleep lab in the Children's Hospital. There are only two sleep technologists there, but they are two of the strongest techs you could ever know. They perform the same duties we do in the adult lab, just with smaller patients anywhere from two months old to 17 years old.

This is just a small peek into our careers as sleep techs. It is difficult, chaotic, and confusing to explain. We now have a training program in place and are currently training our third group of new individuals. This is the third time our senior techs have seen new trainees sweat, panic, and even cry because of how difficult it is to fully understand what it is we do and why. There can be intense pressure placed on us to record a clean study and treat some of the most difficult patients.

A Field Guide to Sleep Disorders

While sleep-disordered breathing, such as apnea, makes up the bulk of the disorders treated at the Sleep Disorder Centre, patients also receive treatment for the following disorders.

Insomnia: We all tend to suffer from the inability to sleep from time to time, but a persistent inability to get to sleep or stay asleep is clinical insomnia. It can often be a symptom of other sleep disorders, such as apnea, but for most sufferers, its root causes are psychological, and as a result, often treated by psychiatrists.

Circadian rhythm disorders: The body's waking and sleeping cycle is controlled by the circadian (internal) clock. A sufferer from a circadian rhythm disorder is out of sync with conventional sleeping patterns. Some people cannot sleep at night, while others wake up very early in the morning. Shift work is often a contributing factor to this disorder. Medication or lifestyle changes are the most common treatments.

Sleep-disordered breathing: The most common form is obstructive apnea where the airway becomes blocked and the sufferer is roused from sleep by choking. It is often accompanied by hypopnea-laboured breathing from a partially obstructed airway. Another form is central apnea where the signal from the brain is causing irregular breathing patterns, often called Cheyne-Stokes breathing. Continuous positive air pressure is often the best treatment.

Hyper-somnolence: Narcolepsy is the most common form. It is characterized by falling asleep unexpectedly during the daytime. Sufferers are also believed to have abnormally low levels of neuro-proteins that regular REM (rapid eye movement) sleep. Unlike normal individuals, who go through the first four stages of sleep before reaching REM, narcoleptics go from waking state straight into REM during daytime hours. It is often treated with stimulant medications similar to methamphetamine, but some patients have also responded well to non-medical treatments such as scheduling several brief naps during the day.

Parasomnias: Sleepwalking and night terrors are two of the more common forms. Sleepwalking - or somnambulism - is more common among children around age 12, but about four per cent of adults sleepwalk as well. Researchers believe that non-REM deep sleep stages are disrupted, leaving a sufferer in a state between wakefulness and sleep. About three per cent of adults suffer night terrors, similar to sleepwalking, but characterized by disruptive arousal, involving screaming, panic and bodily harm from running into objects, in extreme cases. Treatment can involve medications and psychotherapy.

Bruxism: Often considered to be a form of parasomnia, this is the involuntary clenching or grinding of the jaw during sleep. Bruxism can be caused by stress, stimulants like caffeine, high blood pressure, or it may be a symptom of other sleep disorders. Treatment can include reducing stress, blood pressure or consumption of caffeine. It is usually identified by dentists, who often prescribe a custom-fit night-guard that fits over the teeth, reducing the negative impact of clenching and grinding.

Restless leg syndrome: This is marked by an uncontrollable urge to move one's legs - although, it can also be experienced in other parts of the body. Sufferers also often describe burning or itching in the affected parts of the body. It is often a symptom of an underlying illness, such as diabetes, sleep apnea and circulatory diseases. Treatment often involves medication ranging from antidepressants to iron supplements.

Source: American Academy of Sleep Medicine