SPEAKER NOTES

The Relationship Between Sleep Disorders and Mental Illness: A New Approach to Treatment

Summarized by Thomas T. Thomas

A doctoral student in clinical science at the University of California, Berkeley, **Catherine Callaway** is part of the Golden Bear Sleep and Mood Research Clinic and is certified in sleep coaching. Topics she covered at the September 23 meeting included sleep basics, the relationship between sleep and mental illness, TranS-C (a new treatment approach designed to treat a wide range of sleep problems in individuals with mental illness), and tips for improving sleep.

Callaway is interested in researching how we can effectively translate psychological treatments developed in academic settings into the "real world" to reach the most underserved in our communities. Before coming to Berkeley, she worked at Massachusetts General Hospital in Boston with the Cancer and Mental Health Collaborative. There she managed multiple projects focused on improving health outcomes for individuals with both serious mental illness and cancer.

To begin with, Callaway described what is considered "healthy sleep." This includes falling asleep within 20 to 30 minutes, waking up two to three times during a night, then getting back to sleep within 20 to 30 minutes, and normally feeling groggy for the first half hour or so after waking in the morning. The need for sleep changes over a person's lifetime, but adults should get between seven and nine hours a night, although six to ten hours is not uncommon.

Healthy sleep impacts a person's emotional domain, allowing them to react appropriately and rationally to stimulus; physical health, including growth, hormonal balance, and appetite regulation; cognition, including the ability to solve problems and record new facts; and overall behavior, including a person's mood, functional ability, and reaction time.

Callaway described the four stages of sleep, with the person going gradually deeper and deeper and then rising to a light sleep with the rapid eye movement (REM) that indicates dreaming. During REM sleep, a person's muscles are paralyzed so that they cannot act out their dreams. REM sleep is often followed by a period of light wakefulness. Generally, a person will go into the deepest stages right after falling asleep and spend about the first half of the night in deep sleep, then go to the lighter stages later in the night, where waking a couple of times is normal.

The study of a person's brain waves while sleeping shows that the deeper sleep levels have longer and slower waves, while REM sleep and dreaming are similar to waking brain waves.

The Golden Bear clinic follows a two-process model that compares the circadian rhythm (C cycle), which the regulates the body's functions—composed of more than 80,000 cellular clocks—over a period of 24-plus hours, and sleep

homeostasis (S cycle), which regulates the body's balance between sleep and wakefulness. Generally, in the S cycle, the body's appetite for sleep builds the longer we stay awake, making us hungrier for sleep as the day goes on. This is one reason why napping in the afternoon may make it harder to get to sleep at night.

The sleep cycle is also regulated by the suprachiasmatic nucleus (SCN), part of the hypothalamus that sits above the optic nerves and helps regulate the circadian rhythm. The SCN releases the hormone melatonin, which makes you feel sleepy. The system is affected by light and only releases melatonin in the dark. This is why it's a good idea to avoid bright lights and optical stimulation like television in the 30 minutes or so before bedtime.

Sleep problems and serious mental illness (SMI) are highly comorbid. It has been well documented that poor sleep can be related to developing a mental illness and vice versa. Insomnia and hypersomnia—sleeping more than normal—are a diagnostic criteria for depression, occurring together about 60% of the time. Insomnia is a common early warning sign of depression, and people with insomnia are less responsive to antidepressants and have poorer treatment outcomes. Also, treating sleep apnea (periods of stopped breathing during sleep) tends to reduce depression.

People with bipolar disorder tend to have sleep problems in their depressed phase and sleep less during their manic episodes. Mood disorders—especially negative moods at night—are associated with sleep problems. General anxiety disorder can keep a person from feeling relaxed, calm, and comfortable, which is necessary for falling asleep, while a panic response in the middle of the night can make it hard to get back to sleep.

Sleep problems are not a primary diagnostic criteria for schizophrenia, but the following generalizations have been noted. People with schizophrenia often have a poor sleep environment—no regular place or time to sleep, or no distinction between the bed as a place to sleep and other activities, like watching TV. They often lack activities during the daytime and early evening, leading to daytime sleeping and going to bed too early. They have erratic sleep patterns, oversleeping—especially to escape psychotic symptoms—or varying their sleep bedtimes and wake times. They may fear going to bed, because of a traumatic event, inherent sleeplessness or restlessness, or nightmares. Oversleeping also creates a greater opportunity for nightmares. Their sleep may be interrupted by voices and paranoia. Finally, the side effects of some medications can include fatigue and lack of energy, affecting sleep.

Sleep issues can include not just insomnia but also hypersomnia, irregular sleep, delayed and advanced sleep phases, nightmares, and night panics. Mental health and medical professionals tend to treat sleep problems as a lower priority, but targeting sleep patterns can improve both sleep disorders and mental illness. Transdiagnostic Intervention for Sleep and Circadian Dysfunction (TranS-C) is a treatment regimen used by the Golden Bear clinic that includes cognitive behavioral therapy (CBT) for insomnia, interpersonal and socio-psychological therapy, photo therapy, and other treatments to improve a person's sleep patterns.

The natural world is full of rhythms: night and day, season to season, stars whirling through the night sky. The body's circadian rhythm is normally 24 hours

plus 10 minutes, so each day the body must resynch itself to the 24-hour clock. This resynching process includes regular meals, movement and exercise, social cues, and photo stimulation, especially bright sunshine. If you go to bed or wake up at irregular times, it can interfere with this clock setting. If you wake up at a different time—later by one, two, or three hours each day—the result can be a feeling similar to jet lag. So it's important to maintain the same sleep cycle on weekends as on weekdays.

The first core module of the TranS-C program tries to change habits to regularize the sleep cycle—a process that can take seven to eight weeks. It includes winding down in the 30 minutes before bedtime and resisting the urge to worry or engage in stressful activities, and avoiding stimulants like coffee and alcohol; waking up at the same time each day and resisting the urge to snooze in the morning; and aiding the wakeup process by splashing your face with cold water, taking a cold shower, or going outside in the sunshine for a walk.

Callaway's tips for improving sleep include creating a comfortable sleep environment free of disturbances; using the bed for sleep (and sex) only, and not for lounging or watching TV; having a regular bedtime and wakeup time; establishing a wind-down pattern before you go to bed; not watching the clock as you try to fall asleep; cutting down on caffeine and alcohol at night; increasing exercise and social activities during the day; avoiding naps during the day and instead doing something energy-generating; and eating regular meals.

"Keep realistic expectations," she said, "and give yourself two to three weeks to change your habits. Also, many people have misperceptions about their own sleep, and you may be getting more of it than you think."

Q. Do meditation, yoga, and deep-breathing exercises help with sleep?

Yes, yes, and yes! They help relax you and calm your mind.

Q. Does wearing ear plugs and eye masks help people with SMI?

These take some getting used to, especially the masks, but you can start with a soft sweater. They help reduce light and distractions.

Q. What if you function well with fewer hours?

Some people can do with five and a half to six hours of sleep, but most people need more. You may think you're functioning but are actually impaired.

Q. Can technology tools, like the Fitbit and Apple Watch, help with sleep patterns?

The consensus is to take these home tools with a grain of salt: they might help, but the technology isn't up to what you learn from treatment in a sleep lab.