Enhancing the Quality of Sleep; Can it Reduce Antipsychotic Drug Use?

Good afternoon. Thank you for joining us for today's webinar. Enhancing the Quality of Sleep; Can it Reduce Antipsychotic Drug Use? My name is Jeanette Silao and I am joined by Rachael Price and Heather Fisher and from Arizona Keith Chartier and Emily Nelson. From Florida Jo Ann Burkovinsky, and from Ohio James Barnhart and Debbie Shaeffer.

Health Services Advisory Group is the QIN-QIO for our four states. We are also the QIO for the US Virgin Islands. We are here as your partner in healthcare quality. We would like to thank our webinar sponsors California partnership dementia care. >> Just as a note today's presentation is being recorded, and all phones are on mute throughout the webinar. Please enter your questions at any time during the event using the chat box. Questions will be at dress - - addressed at the end. If the chat box did not appear on the right side of your screen, click on the chat box icon on the top right corner. At the conclusion you will be redirected to an online evaluation where you can register for CE units.

Here's the background for the national California partnership to improve dementia care. C must develop the national partnership to improve the quality of care provided to individuals with dementia living in nursing homes. For California, our group of stakeholders have focused on the following areas. The California partnership to improve dementia care resources and Health Services Advisory Group antipsychotic reduction resources. To sue is joining us for Minnesota. She will be sharing her background. Let's welcome Sue.

Thank you. I appreciate the opportunity to provide the information from a wonderful grant from Empira which is a consortium. They are owned and managed by independent nursing homes. What we did is we received a grant from the Department of human services. The first grant was a three-year grant. It prevents falls in nursing homes. This is an outgrowth from that brand. I am a registered nurse. I hold undergraduate and graduate degrees in communication and education. I'm currently the director of education for Empira, the consortium in Minnesota.

Today what we will be discussing is the second grant that we received. That second grant allowed us to really investigate what we found to be the primary, systemic, generic causation of falls. Those falls - - we completed a three-year grant and the initial grant was to prevent falls in nursing homes. The way we did that is we did an in-depth, root cause analysis for the underlying causation of falls in our nursing homes. At the completion of that grant, we then applied for this grant. Root cause analysis, it was the key to fall prevention. It was key to this grant as well. That is our preserving and improving sleep at night for our residents. Ever so briefly I want to remind people that root cause analysis is an investigative process to find out what happened, why it happened, and to determine what can be done to prevent it from happening again. We specifically looked at with falls, three conditions. What was the environmental condition at the time a resident fell? What was their internal condition at the time they felt? And how will we run our nursing homes such that the resident fell? It was invaded on a post fall investigation process. Here's the outcome and what we discovered from that program. We discovered after three years. It was a three-year funded program, we discovered the predominant external causes of falls in nursing homes today, is noise. Busy activity, a lack of environmental contrasts that contributes to the residence inability to see their surroundings easily. Placement of furniture, equipment, and personal items not where the resident expected them to be. And inappropriate footwear. The predominant internal causation was poor balance, - - we originally thought it was sleep deprivation. This presentation unfolds and I will take you through the journey as we discovered. It wasn't sleep deprivation it was a different condition. More specific, sleep fragmentation. It's a sleep, hygiene condition. We looked at medications. There were specific medications that contributed to falls. Therein lies that antipsychotic key. Orthostatic blood pressure, and internal conditions of the resident at the time of the fall. Systemic or operational conditions. We looked at policies and procedures that contributed to residents falling. Here we thought we were keeping them safe, when some of the policies and procedures enable them to fall more often. You will have to listen to learn which ones they were. Time of day, change of shift times we had high full times. We looked at days of the week like were there more prevalent days of the week?

We looked at routine staff assignments. We looked at staffing levels. We wanted to know were there more falls due to less deaf or more falls due to less staff? We investigated all of that. The outcome of that program, is our biggest take away, our external lesson that we learned is that if we can stop the noise, we can reduce the fall. Noise was a key issue in the fall prevention program. Internally, if we can stop disturbing and fragmenting sleep, we can reduce falls. It wasn't so much the amount of sleep, but the disturbance to that sleep. How did we discover that? In the process of the program we were monitoring and collecting data post fall. We identified the longer our residents were staying in the nursing homes, their mood status declined. Their cognitive status changed for the most part. Naps began to increase. Where you may say grandma has been taking a nap in the afternoon for about an hour. Or dad likes to take a brief nap around 3:00 in the afternoon. That is the history we were getting. As it stayed with us, we were identifying that they wake up in the morning and the first thing they want to do after breakfast is taken up. The first thing they want to do after lunch, was go back and go to bed. It was the evening staff that was getting them up from a nap to were three hours later. We noticed their education - - agitation increased. What do I mean by that? Often I think in our industry we identify it as behaviors. Behavior that affects others. All of this is collected on the MDS. We noticed an increase in falls. We started to put all of those points together and said there's a bigger picture here. When 's mood status gets work - - worse and when the cognitive status declined and when we not more and we are agitated and stressed, we have sleep disturbance, sleep fragmentation. It took us, going to a number of national and international conferences to put these points together. In October 2011, we were awarded our second grant. It's an offspring of that first grant of a fall prevention. We went back to the government and said to the Department of human services, we identified a very generic, systemic, inbred process in how we run our nursing homes that is contributing to the falls. That process is sleep fragmentation. We would like another grant. We applied for another grant, and we were awarded a second three-year grant to investigate the cessation of sleep fragmentation. We were awarded the grant October 1 of 2011. It was a three-year grant. Our goal is to reduce baseline averages for five selected CMS QI QM. I want to say right up front, the Department of human services was tracking us monthly on our QI QM both for the fall program and the sleep program. What they were tracking was to see how we were doing result wise, goal was, outcome wise from implementing this program. Specifically, the QI QM's that we were measuring was incidence of falls long-term and residents who receive an antipsychotic long-term, and moderate to severe pain long-term. Behavior symptoms affecting others long-term. Depression symptoms affecting themselves long-term. High risk of pressure officers - - ulcers and increase ADL. Our facilities were asked to select five quality measures they would be monitored for this program. We were being tracked by a national corporation called Idol research. Ultimately 23 skilled nursing facilities. On the project as a shared for national companies. Every one of our facilities we appointed what we called the RSVP leader. The term stands for restorative sleep who was reported to the administrator. We received the grant and it started. We had two goals undisturbed sleep at night. We want them to be fully engaged and awake. PMS and long-term care providers have never considered sleep as an integral part of the plan of care and services provided for the residence. I share with you I'm about to retire in a month. And I've been a registered nurse for nearly 50 years and 35 or 36 of those years have been in skilled nursing homes. In various capacities from a nursing assistant to a corporate compliance coordinator. In all of my years, I have never written a care plan were sleep was listed as a concern, a problem, until this program. I never did a sleep assessment. I didn't know there were tests for sleep. I look back on my own career and said how could I have thought that something so precious as a good night sleep, I never thought to provide that for my residence. We look at ourselves first to say we know sleep is good. Why didn't we incorporate that within our own industry profession, if you will. The MDS 3.0 only mentioned sleep one time. That time is in the F 400 interview of daily preferences and is the only question how important is it is it free to choose your own bedtime. I want to know more about this question. Is that your identification of sleepiness MDS? They said no what this question tries to get at is autonomy of choice. For all practical purposes, sleep is not part of our admission assessment. The restorative sleep vitality program, is a combination of nationally recognized evidence-based, sleep hygiene, science research studies. We applied the most cutting-edge, up-to-date practices to enhance residence - - residents sleep. It provides cares and services in skilled nursing facilities. I will be very honest. At the outset of the program we were not comfortable and I can share personally and professionally we were scared that we have a goal here of

letting residents sleep undisturbed. We had all the fears I'm sure that some of you have at the outset of our program. We knew good sleep would provide good health and we wanted to move forward. The first thing we had to do was recognize our own knowledge deficit. And so we all attended national and international sleep conferences and conventions to learn and to educate ourselves since we identified ourselves primarily as those people who have not learned about the etiology and we haven't shared that with our colleagues. We first started educating ourselves. Here's what I will do with this at this point in the webinar. I want to explain to as an educator it's important for me that people understand the why of what we are doing not the what. The why is the etiology of sleep. Yes, I will touch upon the antipsychotic. While that was not a primary goal it was a quality measure we were tracked for and we wanted to reduce. Sleep is measured in our scientific and medical community.

It's measured in stages and characteristics of those stages. The primary way up until about 10 years ago for sleep measurement has been the polysomnography. The way that operates is electrodes are put on the outside of the cranium to measure the brain waves of the brain during wake and sleep moments. Then there are electrodes put around the eye socket to measure eye-movement. Eye-movement is another key measurement of sleep. Muscle tone a city. - - Muscle tightness or how relaxed it is. The tension is an indication of sleep. The vital signs. All of that contributes to the identification of the stages of the sleep and the quality.

About 10 years ago in the sleep science community a new way of measuring sleep started to come to the forefront and that was the active graffiti. - - [Indiscernible]. This is a way of measuring the quality and quantity of sleep. It looks like a large watch. It measures activity, tonicity and light source it's worn continuously for a number of days, for 24 hours a day. It's worn on the wrist. I residents can sleep with it they take showers with it and all of our residents in this program had active Graham studies completed on them.

This is one of the studies. This is what the 24-hour print out indicates the sleep/wake cycle of the resident. Time does not allow for me to explain the entire Actigram. But it's become an incredible tool. Measuring their activity level and there sleep at night or their lack of it. It also measures the amount of time they are disturbed. Specifically, the Actigram tells us on average and I should say upfront, they were the watch either four nights in five days or seven nights, eight days. Residents who had a diagnosis of dementia their rhythm is more disturbed and so for them they were the watch seven nights. If there was not a diagnosis of dementia, the residents were watched for four nights and five days. What you see is a printout that we would get after the completion of wearing that watch. The printout would tell us what time they went to bed and what time they got up. What was the amount of time they spent in bed at night?

That is key. We had to become educated in new terms. SC, sleep efficiency. Meaning when they were in bed what percentage of the time did they sleep. That surprised and horrified us. We thought the residents were sleeping much longer than was indicated. They are actually awake and restless much more we - - than we anticipated. SL, sleep latency. That's where you're tired and you're exhausted you go to bed and turn off the light, you got comfortable and you can't fall asleep. Suddenly your brain starts. Working on your problems in your community problems and national problems. You can't fall asleep. There's a condition called sleep latency. That's it. Different from the next one, WASO, wake after sleep onset. That's the condition where you fall asleep but you wake up in the middle of the night and you can't fall back to sleep.

Then there's TALT time above light threshold. That measures the amount of light they receive. More good white light, blue light during the day better depth of sleep at night. That's also measuring the amount of naps. How long each of those naps took. Night and time disturbances or sleep fragmentation. How many times does the resident disturbed at night? We can see that the active Graham I showed you. We can see was the sleep fragmentation initiated because they woke up or because we woke them up? That became another key to our program. Circadian rhythm. That's what we looked at. What was the circadian rhythm of our resident such that they were not getting a good night sleep? First of all, brief definition. The circadian rhythm is an inborn, internal, 24-hour cycle of change and fluctuation of your physiological, behavioral, and emotional functions in your body. You have little to almost no control over your circadian rhythms. Things are happening. Hormones and biochemicals are going on and shifting and changing throughout the day, based on the time of the day.

The human biological clock. Ideally, the clock has internally, if we sleep deeply at night and we are awake during the day, that clock is producing very specific hormones. The primary hormones that impact sleep our serotonin levels and melatonin levels. One of you this morning woke up and said I have to stop those melatonin hormones. If you are listening to me and are paying attention, your serotonin levels are high. If you are listening to me and are getting sleepy and falling asleep, your serotonin levels are low and your melatonin levels are high. Those chemicals are made because of the time of day. All human beings every day need an average of seven to eight hours of uninterrupted sleep each night. In the animal kingdom we have a very narrow tolerance in our circadian rhythm. There are many animals that have almost no rhythm. They can sleep on average of 20 hours a day in a 24-hour period because they are doing just what the term is, cat napping. They take small sleep periods during the day. Humans are not like that are optimal health is a seven to eight-hour uninterrupted night of sleep. If this is not met the following symptoms can appear. Except of tiredness during the day, decreased alertness, memory loss, disorganized thinking, problems with processing things you see or hear, increased irritability, loss of emotional control, anger management, and an increased in behavioral expressions of discontent or loss of appropriateness.

A lot of road rage is now being attributed to sleep fragmentation. When people are driving there so tired they don't have the ability to tolerate what is going on and road rage is being identified as a symptom of sleep fragmentation. >>

As I said all human being should sleep seven to eight hours a night. Many people will say I can sleep 4 to 5 hours a night. I'm sure you can. Sleep periods at night are being studied international and what they find people who sleep for shorter periods or longer periods, 9 to 10 hours do not live as long as those people who sleep seven to eight hours. Their longevity of life is limited. They suffer much more predominantly in cardiovascular problems and infections and diabetes. All of these comorbidities start to appear for people who. - - who do not sleep seven to eight hours a night. Not only do we sleep but we are actually quite active during those periods of time. And that seven to eight hours we are sleeping in four, two-hour cycles. We should be sleeping in 42-hour cycles. Each of these cycles - - we should be sleeping in four, two-hour cycles. This is measured in [Indiscernible]. The cycles contain stages. Stage one, stage II, stage III, and what is now called REM sleep. Each of these cycles are identified because of the brainwave - - brainwave activity muscle tonicity and vital signs. Each of these stages has within it a function.

Muscles begin to relax; brain waves begin to flatten vital signs begin to reduce. Sometimes people will have a twitch or a jerk and it feels like people say they were falling and caught themselves. That's the result of falling asleep too quickly. The body is saying to us wait a minute. Let's start this over. Just relax slowly. If you wake up after the jerk, you take a deep breath and you start to go back down into stage II. Stage II sleep. Again it's the body relaxing internal organs are producing less. We have less peristaltic activity gastrointestinal activities relaxing eye movements are slowing down the heart rate all vital signs are slowing down stage III. Stage III is the deepest. Of sleep. This has the flattest brain way activities, the least amount of eye movement and muscles are completely relaxed to almost a paralysis state. This Stage III is deep tissue healing the greatest amount of healing occurs at stage III sleep due to the greatest formation of white blood cells, T4, says - - cancer fighting cells, red blood cell reacted duration, and cellular repair and regeneration occurs at this deep, deep, stage III sleep. It's very difficult to wake someone up from a deep, stage III sleep. I want to say that stage III sleep is about an hour and three quarters to almost 2 hours into that cycle of sleep. If we are turning and repositioning people every two hours, as we discovered we were doing, this stage is not experienced or experienced to its fullest benefit by our residents. We come in and put a light on and we reposition or we restock incontinent products and we restock personal hygiene products and we are making rounds every two hours and we have successfully destroyed this sleep for our residents. Stage IV sleep is just a few moments at the very end of the cycle. It's called REM sleep, rapid eye movement sleep. This stage is associated with healing the emotional, mental, and psychological health of the human body. Initially, short, episodic story dreams. As the night progresses, the stage gets deeper and longer and richer. Longer story dreams are created. This relieves stress, processes emotions, and detoxifies our intense feelings of fear, anger, happiness, sadness, and the stages been well documented in cementing memories. Muscular paralysis occurs during this stage of sleep. We saw few, if any entering this stage of sleep because we

were disturbing their sleep and so what we found was our residents, by and large, would have stage I, two, and we would wake them up. Stage I and two and we would wake them up. They didn't experience that deep physiological healing in stage III at the end of the night they would get a little bit of REM sleep but certainly not enough to benefit their mental, psychological, and emotional health. >> Let's look at how the body falls asleep and how it wakes up. The key is light and dark. Light or darkness enters the eye. Someone will say but what if they are blind? That it enters the socket. He goes to the back of the eye. This light wave or this lack of a lightweight, enters the brain. It travels down this nucleus which is located right in the middle of the brain and the whole goal is to send a message and transmit a message to the center of the brain. The pineal gland. It's an endocrine Gran - - land. It's very tiny. It's our control center for sleep and wake in the Cuban - - human body. When light travels in this nerve to the pineal gland it says to the pineal gland, it's sunny out here. There's like going on.

Make serotonin. Send messages to make serotonin. What if it *? What if there are no light waves coming in? Then the pineal gland is aware that there are no light waves. The absence of light waves. It then produces melatonin. What are these chemicals? They are powerful chemicals. They are always working in balance of each other. If we make most - - more serotonin during the day we can make more melatonin at night.

Melatonin is asleep or known. It's secreted by the pineal gland. He receives electrical impulses or messages to secrete this melatonin, because there are no light levels. The absence of light levels creates more melatonin. The darker it is the more melatonin is made. The lighter it is the less. Melatonin is a chemical. When the brain relaxes and goes flat. When the chemical hits the heart it slows down. That cardiovascular wall slows down. The blood pressure drops. The heart rate drops. When that melatonin produces throughout the body, the muscles relax. The intestines relax. The kidneys, liver, everything relaxes. The lighter it is, even a little bit of bleed through light from windows, the less melatonin will be made. You can however purchase artificial or synthetic melatonin. A caution there. I would really consult a physician and discuss if you want to engage in the purchase and taking of synthetic melatonin. I was find this an amusing fact. 50 percent of 50-year-olds - - let me start again. A 50-year-old will secrete 50 percent less melatonin on average than a 25-year-old. Scientific research identified that at the age of 25, we are hitting our peak levels of manufacturing melatonin. A seven5-year-old on average will produce seven5 percent less melatonin than a 25-year-old. Remember, melatonin is the hormone that helps us get to sleep. We make less and less of this as we age more and more. Therein lies that question of should we be taking supplements as we age?

Serotonin, the wakeup hormone. Now 10 percent is secreted by the pineal gland. The rest of it is secreted by the gas zero - - gastrointestinal tract. It's a powerful hormone. It increases appetite, wakefulness. When serotonin hits the cardiovascular system, blood pressure increases. We get hungry. Our pulse starts to speed up. We breathe more quickly. Our muscles tense up. All of that is the positive effect of serotonin. The wakeup hormone.

Again serotonin is not manufactured synthetically. It can be found in foods like salmon, tuna, snapper, sardines, herring, mackerel, halibut, poultry. They all contain serotonin. Most recently, a lot of scientific research has been looking at light levels. Since light simulates serotonin the hypothesis was if we get a brighter light could we produce more serotonin? Here are what scientists found out. It isn't just the brightness. The intensity of light is important. It's the color of light.

Quick question. You have to get up in the morning. You have to get up and start your day. Are you more likely to get up in this room, and get going, or are you more likely to get up in this room and get going? What is being discovered it's - - is it's not the intensity of light but the amount and the color. We need 30 minutes of direct, full sunlight each day to set our circadian rhythm. That is sleep when it's dark and wake when it's light. People say well we live in California and it is a sunny state. We don't get outdoors every day; you don't have to sit for 30 mins. You can also be exposed to 60 minutes of indirect sunlight. That means light coming in the middle - - window and bouncing around the room. Remember the covering has to be open to get that effect. What if it's a cloudy day? It's raining. The light is still coming through the clouds it certainly isn't as dark as it is at 2 AM. 2 AM is much darker. On a rainy day at 2 PM it's dark but there is light brick - - bleeding through the clouds. We

need 120 minutes of filtered, overcast sunlight. It doesn't have to be continuous. It needs to be there. In other words, you can have 15, 10 minute, five minute increments of being exposed to it. What we found when we put the watches on our residents was they were not getting 30, 60, or 120 minutes of any kind of light. There light levels were horrifically low. The color of light. That has become an investigation of international sleep science. The color of light. We perceive light because of the wavelength of the light. Red light is a flow, flat wavelength. As we go up the color spectrum from red, orange, yellow, green, blue, purple, or violet. How do we know colors? We know that because of the light wave that is produced. When that light wave hits our I, and that light wave sends a message to our brain, it interprets that light because of the speed of the wavelength. Is it short? Is a long? If it's long and flat, it's red. If it short and quick, it's violet. That's interesting. So what? The so what and the take away is the following. The use of color illumination is more important than the reduction or the brightness to enhance rest and sleep. What does that mean? It means is the color of light that will produce more serotonin. Lou, purple light is perceived by the brain as a short, rapid wavelength. That hits the pineal gland and the pineal gland makes more serotonin in the presence of a blue purple light. That LED light in the car at night that striving towards you that you suddenly see and say it's too bright, wakes you up. It's bright and that nice, soft, yellow, incandescent headlight you think is more relaxing. It is. It says lower, flatter wavelength. That blue, purple light is hitting your pineal gland and you are producing more serotonin. That flat, red, amber, yellow light is a flat, slow wavelength. It enhances sleep. Science has identified that melatonin is still produced in the presence of a red amber light. That light wave is so slow and so flat, you can still make melatonin. This is key to our program. One of the changes we made in our nursing home is with the color of light we use. This gives you an everyday example of the color spectrum in our lives. From a fireplace which is a red to the old incandescent yellow light to the new LED white light to our Big Blue HDTV screens. To our halogen LED light. Our cell phones and our laptops are all a predominance of blue light. Blue light producing serotonin to keep us awake, and it blocks the production of melatonin. >> That's not the only key to sleep. The other one is activity, movement, exercise. The way we move or don't move, the amount of activity during the day affects sleep. The human body is like a rechargeable battery. You have to wear down that battery to get a good charge at night. If you notice on your cell phone or have an electric toothbrush or any electric tool, you will notice that it will say to extend the life of this battery, fully exhaust or run down the battery prior to recharging. The same with a human being. When we sleep, we recharge ourselves. We need to run down the cells during the day to get good, deep, tissue sleep at night. The more physically exhausted, the deeper we sleep. This has ramifications for our resident - - for our residents who are sitting and not moving. The question is that arose in our study was if seven to eight hours of sleep is good with 9 to 12 hours be better? No. Research has been done internationally on the amount of hours of sleep to get the most benefit to health. It has been shown that consistently sleeping for more than nine hours, or fewer than eight hours in a day, has a negative impact on the physiological, psychological, and cognitive functions of the human body. This was first identified by [Indiscernible] who is a Netherlands researcher. His group in 2003 and it has been researched and studied multiple times since then. What we are looking at is the outcome of sleeping less than eight hours or more than nine hours. The result is dehydration, progressive cardiac deconditioning, postural hypotension, increased anxiety, confusion, depression, nervousness, impaired memory function. Reduction of insulin, gastric reflux and constipation. Reduced lung function and increased susceptibility to respiratory infection. Increased urinary retention which puts the person at risk for increasing UTIs. Increased infections overall. A loss of muscle strength and endurance. Venous stasis and blood vessel damage, skin integrity and osteoporosis. This is the care plan I've been writing for over 40 years in the long-term care homes that I worked in. I have to look back on my career and say which came first? Keeping them in bed more than 10 hours and this was the result? Which came first? In brief, that was what we learned about sleep. Now we had to apply what we learned about sleep to creating a program to enhance better sleep at night and being more active for our residents during the day. We want to know what disturbs sleep. Fortunately, at the initial start of our program, Harvard medical center released a six-year study called the Harvard sleep study program. This program, what they were looking at was they were trying to identify the top 10 disturbances to the human body during sleep. The number one disturbance and this was going in descending order. The number one disturbance is noise. The second is like. The third is a sleep environment. They identified that as the surface to sleep on, the bedding, temperature. More

recently aroma has been added. Napping. It's the fourth greatest disturbance. Medications, incontinence needs, pain, positioning. Inactivity during the day or how active you are and diet and hydration. What you are looking at are the top 10 disturbances to sleep in descending order. Here's how we rolled out the program. We said we will start at the top. We will get noise under control. We did that in our fall prevention program. In our fall prevention program, we identified the number one external causation of faults was noise. We eliminated noise by first getting rid of all personal alarms. We got rid of all overhead paging. We eliminated loud talking. Loud areas of talking like nurse's stations, the day rooms, break rooms, we put noise monitors around the facilities and we successfully eliminated noise.

We had a lot more work to do. Look at all of these disturbances. Here is what we did. We looked at what were the environmental, the clinical, and the operational factors that were going on in the nursing homes. This was causing the disturbances. We said what were the environmental factors that cause it? What were the internal, operational factors that caused all of these top 10 disturbances? Then we said what keeps people awake during the day. How can we get them awake? What are the environmental factors that are causing them not to be awake during the day? Why do they snooze and sleep and being drowsy during the day? What are we doing in our environment? For instance, why aren't all the window coverings opened next so they get full exposure to light. Why aren't they going outdoors more?

We looked at clinical conditions. What were the medications they were taking that were affecting the wakefulness or their inability to be more awake during the day? And then operationally. How did we run the nursing homes? Such that the residents weren't more physically active. I provided handouts that you can download that are the key elements in the building blocks of our program. Here is the program. First was noise.

What were our goals? We attack noise. We audited sound levels pick we identified noisy areas. We eliminated all resident personal alarms. We looked at shift change we looked at places. Not only noisy times, but where is it noisy. We addressed all of those noisy places. We looked at noisy people. We used to have big-screen TVs located at the end of hallways. We eliminated those and encouraged much more use of small, private TVs with headsets. We provided 'Yacker Tracker" I encourage you to look this up. One of our nurses brought this to our attention. You have the green light comes on and then when the light comes on its noisier and when the red light comes on its way too noisy. We use 'Yacker Tracker" at nurse's stations, day rooms, etc.

Lighting goals. This changed tremendously. Brighter, white blue light during the day. We changed out chandelier light and dining rooms, day rooms, hallways, to have bluer, more purple light because it produces more serotonin during the day. At night, we retrofitted sconces and every other light in the hallway to have a red, amber glow. Staff can remember when to turn on which at one time. Not a problem. We put in timers. Timers that automatically dimmed down that blue/purple light about eight or 9:00 at night and started to turn on that red/amber light at nine or 10:00 in a. We have time when it starts to dim down and then the other light starts to increase. All of our lights are now on timers. We also used hug lights. We try to have our utilities as - - facilities as dark as possible. No bright lights in any resident rooms. Our night staff where hug lights. I would encourage you to Google hug lights. It's a bendable, to where there is a light at the end of the tube that the staff can directed down at the floor. It's like wearing a set of headlights. Hammer headlights. These are clip-on lights with a movable, bendable neck on them to isolate a narrow, specific spot. If I were working nights, I would have my light on my neck with a red glow. Going to a patient room. I want to check a wound and I can turn that onto white because I want to see the true color of that wound and so it's a very narrow beam directed at that wound that I want to look at and assess. There is an example of a hammer light. This is an example of a hug light. These overhead white lights that are typical, we changed out all of those lower-level, white lights to deep red amber lights. Only the upper light is a light blue. When you pull it or if you activate that lie, during the day, the white blue light will go on overhead and at night the red amber light will go on.

Sleep surfaces. Now I'm walking through the initial top 10 disturbances of sleep. Sleep surfaces. This is key to this program. We have pressure relieving mattress is. These are static pressure, redistribution mattresses.

This is a low airflow; high density mattress took some of you know it commercially as memory foam. People ask me, is this a mattress where they constantly move? No. Is it an air mattress? No back. - - No. I will give you specific reference points. We looked at pillows. In the enhancement of sleep and we encourage residents to bring in their own pillow. We provide back pillows, side pillows, feather polis, - - pillows. We know the sleep surface enhances sleep. Here is the reference to the mattress. It's from the national pressure ulcer advisory panel in 2014. It recommended selecting a pressure redistribution mattress. We did. We changed up all of our mattresses. The guidelines coming out of 2014 recommend with this type of mattress, and a good skin assessment program, the recommendation is not to turn and reposition but to turn and reposition every four hours if you meet these conditions of sleep.

They recognize the importance of deep, stage III, tissue hearing - - healing sleep. They realize with a recommendation of every two hours of turning, you're not getting that sleep. I give you all the resources.

Napping. Our goal was that the residents were getting two naps a day in the afternoon nap frequently lasted more than an hour and a half sometimes 2 1/2 hours. We started a nap reduction program. Keeping residents more active during the day. They had more physical activities. Activities we look at more in-depth that what was there interest and what - - what their interests were and what they wanted to participate in. We eliminated the nap between breakfast and lunch. We got all the lights on and we got up right and we got more activity going. We tried to eliminate and we did the morning nap. And then we look at the length of time in that afternoon nap. Study showed that 130 to 40-minute nap midafternoon around 2:00 is ideal.

Medications and I moving down through that sleep disturbance study. I will start to talk about the antipsychotic use. Medications not to awaken sleeping residence at night. That became our mantra. We worked with our clinical pharmacists. We called our medical directors. We called our physicians and said here is the program. Here is the goal. We do not want to awaken residence - - residents in order to give the medication. We identified which one supported sleep and which disturbed it. We looked at side effects. We had the pharmacist look at the side effect. We found all too often we were giving a medication at eight:00 in the morning and the side effect was drowsiness. Other times we were giving medications that cause restlessness and - - at 9:00 at night. We really worked with our pharmacists and physicians on this medication use. We wanted meds to have a positive effect on wakefulness and the medications and I to enhance LY. We looked at giving liquid medications to reduce fluid intake. To give four or five or six of eight medications after the evening meal. Sometimes it took a glass of water or glass and a half of water to swallow all of those medications. Now the kidneys need to extract that in the bladder needs to eliminate all of that water being taken at night because of the medication. Here is key.

At the beginning of this program, I think it could not have been my fourth or fifth slide. I gave you this slide. The signs and symptoms of sleep deprivation and disturbance. I read each of those signs and symptoms. They are, excessive tiredness, decreased alertness, memory loss, disorganized thinking, processing, and correctly, irritability, these are the signs and symptoms I identified as sleep deprivation or disturbance. I have an opportunity about - - had an opportunity four years ago. There was a pharmacist from the University of Houston Texas who was talking before me. She was the presenter before me. Her topic was the reduction of antipsychotic drug use. She got up and said it's so important to know that antipsychotic drugs work so well for people who are psychotic. For people who have mental illness for which this medication was designed to be used. She said let's start this program. Let's say what are the signs and symptoms of people with schizophrenia, psychosis, etc. She put up on her first slide the following. She said the signs and symptoms for people who we need to begin to consider may have a mental illness that may justify the use of antipsychotics is the following. Disorganized, incorrect thinking. Problems with processing things you see and hear. And increased irritability. A loss of emotional control. Specifically, poor anger management. Increase behavioral expressions of discontent. Loss of social appropriateness. The short wick center. She said these are the beginning signs and symptoms of people with psychotic condition. I sat in the audience and I had one of my biggest professional learning. I looked at the list and said those signs and symptoms are embedded in the same ones that I am about to present for sleep disturbance. Sleep fragmentation. Now I need to ask the question and the baton I am handing off to my profession

is the following. Are we inappropriately using antipsychotics to treat sleep deprivation, sleep fragmentation, instead of or in addition to psychosis? Using antipsychotics to treat the incorrectly identified symptoms of psychosis when actually it was not a mental illness. What we were observing was sleep deprivation and sleep fragmentation. That's what I brought back to my consortium. I said I think what we are looking at our signs and symptoms we misidentified because of our practices of continuously fragmenting sleep. We created psychotic like people for who we are giving antipsychotics. Our hypothesis was, if we could stop fragmenting sleep, have our residents getting more narrow, concentrated, deep sleep. What we were finding was that our residents were in bed nine, 10, 11, 12 hours a night. Their sleep was shallow and very fragmented. Our goal was to narrow that time spent in bed at night to seven to eight hours and get deeper sleep. Assist them in getting deeper sleep another word on antipsychotics. We started to investigate in this program. More deeply the use of antipsychotics. Here is again in the brief time. What I want to share. Most typical, first-generation, antipsychotics have a sedating effect. The side effect of these drugs is an increased risk for falls due to dizziness, lightheadedness, and vertigo. That is the side effect of giving and antipsychotic. Typical antipsychotic medications tend to decrease. This is going to sound like a contradiction. Typical antipsychotic medications decrease muscular actions created by psychotic disorders. Which may actually improve sleep initially for people with the following diagnoses. Schizophrenia, anxiety disorders, and OCD. Yes, it can initially reduce the anxiety the tremors, the disruptive thinking. Initially a small dose for a short term. For people specifically with those diagnoses can help set a better circadian rhythm at night. We want these people in all of our residents to get a concentrated deeper sleep. Yes, with the judicious use of antipsychotic again I want to emphasize low dose, short-term initial use. It did help these people. However, we eventually as they gained and concentration of sleep and depth of sleep, the antipsychotic was ultimately reduced and eliminated because their sleep, their circadian ribbon - - rhythm and their sleep benefit kicked in. They ultimately needed less antipsychotics. Again, typical antipsychotics are second duration - - second-generation antipsychotics are associated with extreme tiredness. They shift sleep patterns. By giving them you put people in a sedated sleep during the day when they should be physically active. Side effects of these drugs include unsteadiness, faintness, lightheadedness, vertigo. An increased risk for falling and browsing during the day when they should be active and kicking in that serotonin.

To move on we looked at pain. We said can we give longer acting, time-released pain medication before bedtime at night. Not to give PRN pain medication but rather give it at very specific times before bed to carry them through nighttime sleep to enhance that sleep so they don't keep waking up in pain. Positioning. Using different pillows and different positions to enhance game during the night so they get a better sleep. One of the biggest thing that scared us with the issue of continence, incontinence and skin breakdown. We were so nervous that our residents by not turning and repositioning them as often as they were that their skin would break down. Or they would be laying in their urine. We looked at looking at much more repositioning program. The way we started it was through managed hydration. Everyone who is listening to me knows very well. If you want to sleep undisturbed throughout the night and you didn't want to have to get up and go to the bathroom, what would you do differently? What would you do tonight so you did not have to get up? I ask those people listening to me toilet train a child. Did you go to that child and say it eight:00 at night you have a card here and on the card is prune juice and apple juice and water and you have cookies. At eight:00 at night you have a child and you're offering them fluids. Really did you do it? At 2:00 at night I told her that

[Indiscernible] I did not increase - - I did not encourage her to drink more fluid but we looked at our policy and procedure. After the evening meal we are not going to encourage fluids. Wait a minute there is a CMS regulation we work with surveyors and they knew this program and they learned with us. The program I would say has one of the best supports nationwide of our surveyors. They learned that we need to reduce fluid intake at night. We need to increase and push them during the day. So our residents sleep better at night and are more physically active. How did we do that? With a hydration control and product use program. We had fluid intake more the morning. We tapered it down at lunch. And offered no fluids after the evening meal. Unless it was personally requested. Or if their clinical condition warranted it. We monitored the intake during the day and we use overnight whisk away in continent products for our incontinent resident. I need to say, as this program progressed,

and they were drinking less at night and more during the day, these overnight incontinent products decrease. They weren't urinating in the middle of the night. Isn't that amazing that what goes in the mouth comes out the bladder. We encourage the residence before bedtime and we allow them to sit on the toilet and fully empty and relaxed their bladder and empty it before bedtime. That is key so we're not rushing residence. We allow them to get up empty bladder and go to bed. We began the positioning program.

Or the decrease in repositioning program. We asked our night nursing assistant to tell us which residents seem to do better and have good skin condition and we had watches on the residence so we could see them. Working with the night staff we pushed residents being turned every two hours to be turned every three. If residents were on a three-hour term position, we pushed it to four. And we continue to do that. In a moment I will share with you a specific guide to how to do this. We reduced sleep at night to toilet changing position. We assessed skin levels to tolerate longer periods of not being repositioned without causing untoward negative effects on the skin. We wanted to allow sleep without changing incontinent problem - - product. Without having negative results. This is key to our program. Nancy Bergstrom did a wonderful study on turning and repositioning to reduce skin ulcers. In her program she identified turning people every two hours versus every four hours and if he - - they are on a low-density redistribution mattress their skin is as good if not better than those people at two hours and at the four-hour period. The other reference I would give you is [Indiscernible]. A national wound expert. She worked with us in our program and publish the results of the program in the wound care advisor turning program. I would refer you to both of those if you start this program. [Indiscernible] did not say repositioning 24 hours you can do automatically. It really took us a diligent assessment of each resident specifically with the night nursing assistant to extend their period. I walked through some of the slides that I refer you back to the study that really gives you direction on how to decrease turning and repositioning. The other way is we stopped drawing blood at night. Routine blood draws don't occur until after breakfast or just before. We don't have people coming in and drawing blood in the middle of the night and disturbing the residents. We stopped all housekeeping chores. All of that is done during the day and evening. The night shift is quiet. There is no noise and the lights are off. And lastly looking at diet and fluid. We looked at what are they eating and when. Protein is a brain food. It should be offered in the morning. We should eat more protein. Carbohydrates. It relaxes us. We always feel good after mashed potatoes and gravy and pumpkin pie. There's a lot of carbs in that. It would be better taking it in the evening. Sodium is a hearts stimulant it's a cardiovascular stimulant. We should be taking that in the morning. Potassium is a relaxant. That should be taking in the evening. We found a breakfast in the Midwest, we are the biggest restless - - breakfast food manufacturer. I have Kellogg's and Betty Crocker kitchen just a few miles from my home. They are making breakfast food containing carbohydrates. We work with our dietitians to increase protein offerings that breakfast. So we have more bacon, eggs, cottage cheese, ham, turkey, sausage, you are pulling in some sodium into that. Then the other thing was bananas. High in potassium. Maybe we should pull that into the evening. We educated families and residents to enhance their wakefulness during the day and sleepiness, and encourage the use of caffeine until about 2:00 in the afternoon. A lot of studies coming out with caffeinated drinks being beneficial early. We changed up the dietary and fluid intake. I share with you here foods that energize or wake people up. There we are another one I neglected to say. Oranges orange juice. These are all good wake up foods. Afternoon snacks. To try to continue to get some protein and keep residence away - - awake during the day.

Here are our snooze foods. Foods that will encourage and relax people. A change up in our menu. This encourages foods that help us become sleepy at night.

Activity levels. We got the more active during the day. Physically active. Not just discussing current events but getting them to be more physically active. We use these noodles both in our nursing homes that had swimming pools and the ones that didn't. We developed a program using noodles and having residents have a lot of fun. We began a sharing and caring program. We found that after dinner residents wanted to go to sleep. The reason they wanted to go to sleep was predominantly because they were bored. We really put in a much more active after dinner program. We didn't have money to get staff to put in this program. What staff are available? Can we shifted around to do more activities? We identified that we could. The staff we had that was available, [Indiscernible] what about the managers? What about the administrator?

Couldn't they do an activity in the evening? We started what was called a sharing and caring program. Once a month, every one of the skilled nursing facilities leader and we identified them as anyone that had someone reporting to them. That leader would come in later in that day. They didn't work more hours but they just started later. They would take turns doing a one a one 90-minute program of an activity in the evening. Let me tell you, this was not an embraced program. People did not want to do it. I am talking about our leaders. This was not part of their job. They didn't like it. They didn't want to do it. People are saying wait a minute. I don't want to do this. We really needed to work to say what do you like to do during the day? What is it that you want to do in your personal life that you would like to share with others? People started to say I like quilting or photography or travel. We had one gentleman who is our maintenance director at one of our facilities and he light - - likes to motorcycle ride. We said why don't we open the doors in the nursing home and you can ride your motorcycle in and park it in the front entrance and let residents look at it and touch it and feel it. Maybe some could sit on it and may be a year later we can get a program where you could give residents rides. It started small. We engaged the talent of our staff to not work longer, more hours but work later into the evening to provide interest for our residents. The last thing I want to say is this was the aromatherapy. A lot of work is done in aromatherapy. Our program at the very end of the three years. This started to be a breakthrough in sleep and wakefulness. That is aromatherapy. After the three-year program I would say we put this into place more rigorously. Aroma targets different neurochemicals. It works on the limbic system. That is intact in the residents who suffer from dementia.

We use it as an inhalation. We have aromatherapy therapists who use essential oils and they enhance wakefulness during the day and sleepiness at night. The ones we use predominantly were lavender and chamomile. It increases alpha waves in the brain which are associated with relaxation and sleep. We put some drops of lavender or chamomile on a bandage and we stick it on the caller of their nightwear. During the day same thing. We would flip it. Jasmine, citrus, and mint have been identified as stimulating brainwave activity. Increasing beta waves. That's associated with alertness. Taking a Band-Aid and dropping a few drops on and placing it on their caller has a positive brainwave effect. We know peppermint works well and pain. We are using peppermint lotion applied at different points on the body and working with our position - - physicians using peppermint and ginger.

To summarize, we looked at the root causes of the disturbance of sleep. I would say to begin with the priority is you have to get leadership on board. Those people who are in the leadership management position have to be dedicated to not having their sleep disturbed at night and being more awake during the day. We took a lot of education of our employees. I can't say enough for how much the survey are supported. We started simple. We started with the easiest route first. Open the windows during the day. Don't change out all the lights. That came months later. Making sure that all the lights were turned off at night except for Amber red glow lights. Getting hug lights to our staff. We started small but we grew and grew into a program.

Question did the program help to reduce false? And the QIQMs even more? What was the result of the program? At the beginning one of our 65 bed skilled nursing facilities on average were severing from 1seven falls a month. A year later their average was nine falls a month.

Are hundred and to bed - - are 100 to bed facility was 25 falls a month and a year later 13 falls a month. In the beginning all of our facilities 99 percent had sleep disturbed every two hours. In 2012 that was down to 5eight percent and in 2013 seven percent of our resident. - - Are of our residents sleep disturbed. And some of the facilities at 3 to 5 percent in some nearing palliative care or once you are postop that were checking them the first 24 to 24 hours postoperatively. Outcome goals. The goal was to reduce the baseline averages for the five selected QIQMs. We could select any of the five. The second most selective one was the residents who received antipsychotics. All participating nursing facilities exceeded the goals for improving their selected QIQMs from their initial baseline.

Just a word. This is a huge change. It's a cultural change in how we run our nursing homes. Mahatma Gandhi, a politician in India totally change the political scene in his country. He asked how to initiate change? First of all, they ignore you. Secondly they laugh at you and then they attack you. Hang in there. Then you win. That is the summation and conclusion of my webinar. Jeanette do we have any time to take questions? >> We have a couple

minutes. If you have questions submit them through chat. The first question is, what do you use for a sleep assessment? >>

The sleep assessment we use that's probably not available is our active Graham. There is also the Philadelphia or Pennsylvania sleep assessment. There is a Morris sleep assessment. For us because we used the watch it produced a sleep assessment. For our study, I have to say the actigram sleep assessment. Sometimes people will ask me and I don't know if that question is up is how much do these cost? I'm not endorsing them. I am saying for our quality improvement, this is the number one used by the scientific community and we use it. At the time the program started it was about $1200 I believe it's now about an $eight00 watch. You're paying for and we used one watch for every 50 to 100 residents. They would wear it and then it was moved and put on the next resident. >> This is a statement. Based on the section - -

Over the last two weeks if you have been troubled and the other question in the same questionnaires have even bothered by feeling tired or having little energy? Both questions address how residents feel about their quality of sleep.

Just a statement. I am aware of the 3.0. When we started the program we used the MDS 2.0. I am aware that this 3.0 includes those two questions. I'm glad to see them. However, they are not an assessment. They are focusing on the choice. >> Any questions that come through chat we will just send those questions to Sue. This is from [Indiscernible]. If we take additional melatonin orally, does that reduce natural secretions such as what happens with steroid function?

At times, yes. That's one reason I said a cautionary use. In some people that is a result.

I know people want to know about melatonin. I refer them to their physician. Unfortunately, physicians are not well schooled. I would refer them to a sleep hygiene physician. One of the problems is it overtakes a long period of time to use that melatonin supplement before the brain is activated by. Sometimes people take it and say I took it for three weeks and quit because it didn't change anything. The uptake of melatonin in the brain takes a while. She is right. In some studies, it has been shown to decrease the natural making. >> >> Thank you all for submitting your questions. For any other questions we were not able to answer we will pass them on to Sue and share the answers with everyone.

Thank you for letting me share the work of Empira.

Thank you all for joining us today. The event recording will be available or two weeks following the event. The link to where you can access the recording and a copy of the presentation will be emailed.

When you leave the event you will be redirected to an online evaluation where you can get - - you can register for CE credits. Thank you for joining. >> If you need to contact us please do it through the context but if you have any additional questions after this webinar please send it to the nursing homes. >> This is the end of the webinar. Thank you for joining.

[Event Concluded]

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