

WEBVTT

NOTE duration:"01:00:25"

NOTE recognizability:0.843

NOTE language:en-us

NOTE Confidence: 0.36560673

00:00:02.910 --> 00:00:04.764 Great great so we have some people

NOTE Confidence: 0.36560673

00:00:04.764 --> 00:00:07.008 already joining so good afternoon everyone

NOTE Confidence: 0.36560673

00:00:07.008 --> 00:00:09.249 and welcome to GAIL some seminar.

NOTE Confidence: 0.36560673

00:00:09.250 --> 00:00:10.924 So today we're delighted actually to

NOTE Confidence: 0.36560673

00:00:10.924 --> 00:00:13.229 have again one of our own sleep fellows.

NOTE Confidence: 0.36560673

00:00:13.230 --> 00:00:15.478 Doctor Amy Corwin is going to be presenting

NOTE Confidence: 0.36560673

00:00:15.478 --> 00:00:17.977 her work and other work on optimizing sleep

NOTE Confidence: 0.36560673

00:00:17.977 --> 00:00:20.050 and circadian health in critical care,

NOTE Confidence: 0.36560673

00:00:20.050 --> 00:00:22.066 and doctors now will be introducing her.

NOTE Confidence: 0.36560673

00:00:22.070 --> 00:00:24.310 But before I get to that before we

NOTE Confidence: 0.36560673

00:00:24.310 --> 00:00:26.650 get to that, I have a few reminders.

NOTE Confidence: 0.36560673

00:00:26.650 --> 00:00:28.582 So first sleep seminar lectures are

NOTE Confidence: 0.36560673

00:00:28.582 --> 00:00:30.436 available for CME credit and to

NOTE Confidence: 0.36560673

00:00:30.436 --> 00:00:32.200 receive credit you just need to text
NOTE Confidence: 0.36560673

00:00:32.200 --> 00:00:34.286 the ID for the lecture to Yale Cloud.
NOTE Confidence: 0.36560673

00:00:34.290 --> 00:00:34.682 See any.
NOTE Confidence: 0.36560673

00:00:34.682 --> 00:00:36.540 And if you're not sure how to do that,
NOTE Confidence: 0.36560673

00:00:36.540 --> 00:00:38.956 the information will show up in the chat.
NOTE Confidence: 0.36560673

00:00:38.960 --> 00:00:41.000 Secondly, there are recordings of
NOTE Confidence: 0.36560673

00:00:41.000 --> 00:00:43.040 lectures available within two weeks.
NOTE Confidence: 0.36560673

00:00:43.040 --> 00:00:44.390 They are not available for credit,
NOTE Confidence: 0.36560673

00:00:44.390 --> 00:00:45.878 but you're free to view them.
NOTE Confidence: 0.36560673

00:00:45.880 --> 00:00:46.774 And then finally,
NOTE Confidence: 0.36560673

00:00:46.774 --> 00:00:49.200 if you do have questions during the talk,
NOTE Confidence: 0.36560673

00:00:49.200 --> 00:00:50.620 please use the chat feature.
NOTE Confidence: 0.36560673

00:00:50.620 --> 00:00:51.934 Go ahead and put your questions
NOTE Confidence: 0.36560673

00:00:51.934 --> 00:00:53.239 in as the talk goes on.
NOTE Confidence: 0.36560673

00:00:53.240 --> 00:00:54.475 They'll be moderated at the
NOTE Confidence: 0.36560673

00:00:54.475 --> 00:00:55.980 end and also at the end.

NOTE Confidence: 0.36560673

00:00:55.980 --> 00:00:57.620 You'll have permission to unmute

NOTE Confidence: 0.36560673

00:00:57.620 --> 00:00:59.769 yourself if you prefer to do that.

NOTE Confidence: 0.36560673

00:00:59.770 --> 00:01:01.474 So now I'm going to turn this session

NOTE Confidence: 0.36560673

00:01:01.474 --> 00:01:02.999 over to Doctor Melissa Cowart.

NOTE Confidence: 0.36560673

00:01:03.000 --> 00:01:04.960 She's an assistant professor here at Yale.

NOTE Confidence: 0.36560673

00:01:04.960 --> 00:01:05.896 Our former.

NOTE Confidence: 0.36560673

00:01:05.896 --> 00:01:07.300 Sleep fellowship director,

NOTE Confidence: 0.36560673

00:01:07.300 --> 00:01:10.412 and she's also an active researcher on sleep

NOTE Confidence: 0.36560673

00:01:10.412 --> 00:01:13.140 and circadian rhythms in critical illness.

NOTE Confidence: 0.36560673

00:01:13.140 --> 00:01:14.706 Thanks excuse me,

NOTE Confidence: 0.36560673

00:01:14.706 --> 00:01:15.750 thanks Janet.

NOTE Confidence: 0.36560673

00:01:15.750 --> 00:01:17.226 Good afternoon everyone.

NOTE Confidence: 0.36560673

00:01:17.226 --> 00:01:20.178 It's really my pleasure today to

NOTE Confidence: 0.36560673

00:01:20.178 --> 00:01:22.220 introduce Doctor Aidan Corwin.

NOTE Confidence: 0.36560673

00:01:22.220 --> 00:01:22.824 And really,

NOTE Confidence: 0.36560673

00:01:22.824 --> 00:01:25.240 I said excuse me as a culmination of
NOTE Confidence: 0.36560673

00:01:25.304 --> 00:01:27.520 her time here with us at Yale as we
NOTE Confidence: 0.36560673

00:01:27.520 --> 00:01:28.690 were discussing while we were waiting,
NOTE Confidence: 0.36560673

00:01:28.690 --> 00:01:29.985 she is getting close to the end
NOTE Confidence: 0.36560673

00:01:29.985 --> 00:01:31.620 and we wish her all the best and we
NOTE Confidence: 0.36560673

00:01:31.620 --> 00:01:33.089 wish her all the best again later.
NOTE Confidence: 0.36560673

00:01:33.090 --> 00:01:33.994 But anyway,
NOTE Confidence: 0.36560673

00:01:33.994 --> 00:01:35.802 Doctor Korman attended Brown
NOTE Confidence: 0.36560673

00:01:35.802 --> 00:01:37.610 University where she majored,
NOTE Confidence: 0.36560673

00:01:37.610 --> 00:01:39.700 majored in neuroscience and graduated
NOTE Confidence: 0.36560673

00:01:39.700 --> 00:01:41.575 Magna *** laude from Brown.
NOTE Confidence: 0.36560673

00:01:41.575 --> 00:01:43.645 She matriculated to the University of
NOTE Confidence: 0.36560673

00:01:43.645 --> 00:01:45.138 Pennsylvania School of Medicine and
NOTE Confidence: 0.36560673

00:01:45.138 --> 00:01:47.247 then matched at the Hospital of the
NOTE Confidence: 0.36560673

00:01:47.247 --> 00:01:49.317 University of Pennsylvania Internal Medicine,
NOTE Confidence: 0.36560673

00:01:49.320 --> 00:01:51.595 where she really had an outstanding resident.

NOTE Confidence: 0.36560673

00:01:51.600 --> 00:01:53.625 Career and was ultimately selected

NOTE Confidence: 0.36560673

00:01:53.625 --> 00:01:55.650 as a chief resident there.

NOTE Confidence: 0.36560673

00:01:55.650 --> 00:01:57.066 We were delighted to recruit her

NOTE Confidence: 0.36560673

00:01:57.066 --> 00:01:58.749 here to yell for her pulmonary

NOTE Confidence: 0.36560673

00:01:58.749 --> 00:02:00.129 and critical care fellowship,

NOTE Confidence: 0.36560673

00:02:00.130 --> 00:02:01.300 and that's where I really got

NOTE Confidence: 0.36560673

00:02:01.300 --> 00:02:02.080 to work with Amy.

NOTE Confidence: 0.36560673

00:02:02.080 --> 00:02:04.786 I was really had a wonderful

NOTE Confidence: 0.36560673

00:02:04.786 --> 00:02:06.139 time mentoring her,

NOTE Confidence: 0.36560673

00:02:06.140 --> 00:02:08.226 and I'm extraordinarily proud of her work,

NOTE Confidence: 0.36560673

00:02:08.230 --> 00:02:10.858 implementing and testing the time restricted

NOTE Confidence: 0.36560673

00:02:10.858 --> 00:02:13.409 intermittent feeding in the medical ICU.

NOTE Confidence: 0.36560673

00:02:13.410 --> 00:02:15.335 For those of you who have worked

NOTE Confidence: 0.36560673

00:02:15.335 --> 00:02:16.660 in complicated clinical settings,

NOTE Confidence: 0.36560673

00:02:16.660 --> 00:02:17.976 really of any type and know what

NOTE Confidence: 0.36560673

00:02:17.976 --> 00:02:19.699 it is to try to implement change,
NOTE Confidence: 0.36560673

00:02:19.700 --> 00:02:21.770 you can appreciate what a labor.
NOTE Confidence: 0.36560673

00:02:21.770 --> 00:02:24.717 Of a meticulous and dedicated work that
NOTE Confidence: 0.36560673

00:02:24.717 --> 00:02:26.510 would be during this most recent year,
NOTE Confidence: 0.36560673

00:02:26.510 --> 00:02:27.716 Doctor Coren has joined the Yale
NOTE Confidence: 0.36560673

00:02:27.716 --> 00:02:29.080 State program as a sleep fellow,
NOTE Confidence: 0.36560673

00:02:29.080 --> 00:02:31.120 and she's of course done a wonderful job,
NOTE Confidence: 0.36560673

00:02:31.120 --> 00:02:32.878 and she's been awarded in Aspire
NOTE Confidence: 0.36560673

00:02:32.878 --> 00:02:34.453 Fellowship from the ATS that
NOTE Confidence: 0.36560673

00:02:34.453 --> 00:02:36.203 supports both her career development
NOTE Confidence: 0.36560673

00:02:36.203 --> 00:02:37.603 and her research efforts.
NOTE Confidence: 0.92435741125

00:02:37.610 --> 00:02:39.258 As I've said, it's been a pleasure to
NOTE Confidence: 0.92435741125

00:02:39.258 --> 00:02:41.126 work with her at these last several years,
NOTE Confidence: 0.92435741125

00:02:41.130 --> 00:02:43.034 and I hope you will join me in
NOTE Confidence: 0.92435741125

00:02:43.034 --> 00:02:44.921 welcoming her to the podium for what is
NOTE Confidence: 0.92435741125

00:02:44.921 --> 00:02:46.856 sure to be a great discussion of non

NOTE Confidence: 0.92435741125

00:02:46.856 --> 00:02:48.300 pharmacologic interventions to optimize

NOTE Confidence: 0.92435741125

00:02:48.300 --> 00:02:50.550 sleep and circadian health in the ICU.

NOTE Confidence: 0.92435741125

00:02:50.550 --> 00:02:51.318 Take it away, Amy.

NOTE Confidence: 0.924047386111111

00:02:52.290 --> 00:02:54.096 Alright, so thank you so much for

NOTE Confidence: 0.924047386111111

00:02:54.096 --> 00:02:55.629 that very nice introduction and

NOTE Confidence: 0.924047386111111

00:02:55.629 --> 00:02:57.729 thank you all for joining remotely.

NOTE Confidence: 0.924047386111111

00:02:57.730 --> 00:02:59.086 I'm really excited to share with

NOTE Confidence: 0.924047386111111

00:02:59.086 --> 00:03:00.968 you all today and what I've learned

NOTE Confidence: 0.924047386111111

00:03:00.968 --> 00:03:02.508 along the way about Nonpharmacologic

NOTE Confidence: 0.924047386111111

00:03:02.508 --> 00:03:04.108 management of sleep and circadian

NOTE Confidence: 0.924047386111111

00:03:04.108 --> 00:03:05.663 health and critically ill patients.

NOTE Confidence: 0.834794836923077

00:03:08.380 --> 00:03:11.110 Sorry my slides. OK so this this

NOTE Confidence: 0.834794836923077

00:03:11.110 --> 00:03:13.480 course is available for CME credit.

NOTE Confidence: 0.834794836923077

00:03:13.480 --> 00:03:15.416 I'm going to leave this up here for

NOTE Confidence: 0.834794836923077

00:03:15.416 --> 00:03:16.955 an extra couple of minutes here

NOTE Confidence: 0.834794836923077

00:03:16.955 --> 00:03:19.094 or a minute or so, and I know the
NOTE Confidence: 0.834794836923077

00:03:19.094 --> 00:03:20.750 code will be posted in the chat.
NOTE Confidence: 0.834794836923077

00:03:20.750 --> 00:03:23.297 For those of you who need the CME credit.
NOTE Confidence: 0.834794836923077

00:03:23.300 --> 00:03:24.684 Hopefully some people have
NOTE Confidence: 0.834794836923077

00:03:24.684 --> 00:03:26.760 had time to take it down.
NOTE Confidence: 0.834794836923077

00:03:26.760 --> 00:03:28.533 So I'm going to get into the talk now.
NOTE Confidence: 0.834794836923077

00:03:28.540 --> 00:03:30.178 I wanted to give a brief outline.
NOTE Confidence: 0.834794836923077

00:03:30.180 --> 00:03:31.678 First time to let you all know
NOTE Confidence: 0.834794836923077

00:03:31.678 --> 00:03:33.219 what will be discussing today.
NOTE Confidence: 0.834794836923077

00:03:33.220 --> 00:03:35.229 I'm going to start by giving some
NOTE Confidence: 0.834794836923077

00:03:35.229 --> 00:03:36.857 background information to help us all
NOTE Confidence: 0.834794836923077

00:03:36.857 --> 00:03:38.523 be on the same page and understanding
NOTE Confidence: 0.834794836923077

00:03:38.579 --> 00:03:40.089 of the current understanding of
NOTE Confidence: 0.834794836923077

00:03:40.089 --> 00:03:41.599 sleep and circadian health and
NOTE Confidence: 0.834794836923077

00:03:41.600 --> 00:03:43.015 critically ill patients and why
NOTE Confidence: 0.834794836923077

00:03:43.015 --> 00:03:44.880 this is such an important problem.

NOTE Confidence: 0.834794836923077

00:03:44.880 --> 00:03:47.015 To acknowledge and to be aware of.

NOTE Confidence: 0.834794836923077

00:03:47.020 --> 00:03:48.892 And then we're going to talk a little

NOTE Confidence: 0.834794836923077

00:03:48.892 --> 00:03:50.800 bit about what it is that actually

NOTE Confidence: 0.834794836923077

00:03:50.800 --> 00:03:52.614 causes and contributes to sleep and

NOTE Confidence: 0.834794836923077

00:03:52.614 --> 00:03:54.439 circadian disruption in this population.

NOTE Confidence: 0.834794836923077

00:03:54.440 --> 00:03:57.044 And those factors are mainly divided into

NOTE Confidence: 0.834794836923077

00:03:57.044 --> 00:03:59.398 3 broad categories of patient related.

NOTE Confidence: 0.834794836923077

00:03:59.400 --> 00:03:59.775 Factors,

NOTE Confidence: 0.834794836923077

00:03:59.775 --> 00:04:01.650 environmental factors and then things

NOTE Confidence: 0.834794836923077

00:04:01.650 --> 00:04:04.455 that are related to the acute illness

NOTE Confidence: 0.834794836923077

00:04:04.455 --> 00:04:06.520 and critical care treatments themselves.

NOTE Confidence: 0.834794836923077

00:04:06.520 --> 00:04:08.408 I'll summarize practice recommendations

NOTE Confidence: 0.834794836923077

00:04:08.408 --> 00:04:11.280 that hopefully will be useful to some of

NOTE Confidence: 0.834794836923077

00:04:11.280 --> 00:04:13.260 you moving forward to help your patients,

NOTE Confidence: 0.834794836923077

00:04:13.260 --> 00:04:16.221 and then I'll touch briefly on future

NOTE Confidence: 0.834794836923077

00:04:16.221 --> 00:04:18.528 directions for research in this field.
NOTE Confidence: 0.834794836923077

00:04:18.530 --> 00:04:19.960 So just to start with,
NOTE Confidence: 0.834794836923077

00:04:19.960 --> 00:04:22.552 you know there have been quite a few
NOTE Confidence: 0.834794836923077

00:04:22.552 --> 00:04:24.320 observational studies trying to describe,
NOTE Confidence: 0.834794836923077

00:04:24.320 --> 00:04:25.385 quantify and qualify.
NOTE Confidence: 0.834794836923077

00:04:25.385 --> 00:04:27.515 What sleep and super Kadian rhythms
NOTE Confidence: 0.834794836923077

00:04:27.515 --> 00:04:29.819 look like in critically I'll patients,
NOTE Confidence: 0.834794836923077

00:04:29.820 --> 00:04:31.318 and you can imagine and I'll talk
NOTE Confidence: 0.834794836923077

00:04:31.318 --> 00:04:32.760 a little bit more about that.
NOTE Confidence: 0.834794836923077

00:04:32.760 --> 00:04:35.483 There are very many factors that contribute
NOTE Confidence: 0.834794836923077

00:04:35.483 --> 00:04:37.699 to disordered sleep in ICU patients,
NOTE Confidence: 0.834794836923077

00:04:37.700 --> 00:04:39.296 some coming from the patient side,
NOTE Confidence: 0.834794836923077

00:04:39.300 --> 00:04:42.116 and comes some coming from the medical side,
NOTE Confidence: 0.834794836923077

00:04:42.120 --> 00:04:45.025 such as interventions in the ICU environment.
NOTE Confidence: 0.834794836923077

00:04:45.030 --> 00:04:46.740 Some of the salient features that
NOTE Confidence: 0.834794836923077

00:04:46.740 --> 00:04:48.390 have been identified to describe.

NOTE Confidence: 0.834794836923077
00:04:48.390 --> 00:04:50.574 The state of sleep and circadian rhythms
NOTE Confidence: 0.834794836923077
00:04:50.574 --> 00:04:53.418 and I see patients are noting that sleep
NOTE Confidence: 0.834794836923077
00:04:53.418 --> 00:04:55.890 is often a very insufficient duration.
NOTE Confidence: 0.834794836923077
00:04:55.890 --> 00:04:58.081 The sleep that patients are able to
NOTE Confidence: 0.834794836923077
00:04:58.081 --> 00:04:59.990 achieve is often highly fragmented
NOTE Confidence: 0.834794836923077
00:04:59.990 --> 00:05:02.265 and as abnormal sleep architecture.
NOTE Confidence: 0.834794836923077
00:05:02.270 --> 00:05:03.317 And then finally,
NOTE Confidence: 0.834794836923077
00:05:03.317 --> 00:05:05.062 this circadian phase has been
NOTE Confidence: 0.834794836923077
00:05:05.062 --> 00:05:06.690 demonstrated in multiple critical
NOTE Confidence: 0.834794836923077
00:05:06.690 --> 00:05:08.426 populations to be misaligned,
NOTE Confidence: 0.834794836923077
00:05:08.430 --> 00:05:10.735 usually in the delayed direction
NOTE Confidence: 0.834794836923077
00:05:10.735 --> 00:05:12.579 or sometimes even abolished.
NOTE Confidence: 0.834794836923077
00:05:12.580 --> 00:05:14.656 So I'll start by describing the
NOTE Confidence: 0.834794836923077
00:05:14.656 --> 00:05:15.694 insufficient sleep duration.
NOTE Confidence: 0.834794836923077
00:05:15.700 --> 00:05:16.740 So this was a study.
NOTE Confidence: 0.834794836923077

00:05:16.740 --> 00:05:18.582 It was a cross sectional observational
NOTE Confidence: 0.834794836923077

00:05:18.582 --> 00:05:20.464 study done by Doctor Canal right
NOTE Confidence: 0.834794836923077

00:05:20.464 --> 00:05:22.270 here in our own department and
NOTE Confidence: 0.834794836923077

00:05:22.270 --> 00:05:24.230 some colleagues they enrolled 23
NOTE Confidence: 0.834794836923077

00:05:24.230 --> 00:05:26.298 patients into 24 hour PSG's on
NOTE Confidence: 0.834794836923077

00:05:26.298 --> 00:05:28.050 these patients and what they found
NOTE Confidence: 0.834794836923077

00:05:28.115 --> 00:05:30.419 was that overall patients had a
NOTE Confidence: 0.834794836923077

00:05:30.419 --> 00:05:31.955 really insufficient sleep duration.
NOTE Confidence: 0.834794836923077

00:05:31.960 --> 00:05:34.067 They divided the patients into those who
NOTE Confidence: 0.834794836923077

00:05:34.067 --> 00:05:36.217 had typical sleep features on their eggs,
NOTE Confidence: 0.834794836923077

00:05:36.220 --> 00:05:38.338 which were 14 of those patients,
NOTE Confidence: 0.834794836923077

00:05:38.340 --> 00:05:40.176 and these patients achieved a total
NOTE Confidence: 0.834794836923077

00:05:40.176 --> 00:05:42.200 sleep time of just over 6 hours.
NOTE Confidence: 0.834794836923077

00:05:42.200 --> 00:05:43.694 Then one striking feature is that
NOTE Confidence: 0.834794836923077

00:05:43.694 --> 00:05:45.699 about a third of the sleep time
NOTE Confidence: 0.834794836923077

00:05:45.699 --> 00:05:46.979 occurred during daytime hours,

NOTE Confidence: 0.834794836923077

00:05:46.980 --> 00:05:49.650 which is very disadvantageous from a

NOTE Confidence: 0.834794836923077

00:05:49.650 --> 00:05:51.515 circadian perspective and the remaining

NOTE Confidence: 0.834794836923077

00:05:51.515 --> 00:05:53.790 9 patients who had atypical sleep on

NOTE Confidence: 0.787951032727273

00:05:53.859 --> 00:05:56.000 EEG. They found even worse numbers,

NOTE Confidence: 0.787951032727273

00:05:56.000 --> 00:05:58.030 so the total sleep time was under

NOTE Confidence: 0.787951032727273

00:05:58.030 --> 00:06:00.869 5 hours and again about 1/3 of it

NOTE Confidence: 0.787951032727273

00:06:00.869 --> 00:06:02.389 occurring during daytime hours.

NOTE Confidence: 0.787951032727273

00:06:02.390 --> 00:06:04.142 And this was a similar study

NOTE Confidence: 0.787951032727273

00:06:04.142 --> 00:06:05.310 done by Elliott Group.

NOTE Confidence: 0.787951032727273

00:06:05.310 --> 00:06:07.732 This was 57 ICU patients who again

NOTE Confidence: 0.787951032727273

00:06:07.732 --> 00:06:09.694 underwent 24 hour PS fees and

NOTE Confidence: 0.787951032727273

00:06:09.694 --> 00:06:11.696 this is just a box plot showing

NOTE Confidence: 0.787951032727273

00:06:11.763 --> 00:06:13.423 the average duration of sleep

NOTE Confidence: 0.787951032727273

00:06:13.423 --> 00:06:15.732 time and you can see that there's

NOTE Confidence: 0.787951032727273

00:06:15.732 --> 00:06:17.337 a pretty wide distribution here.

NOTE Confidence: 0.787951032727273

00:06:17.340 --> 00:06:19.350 A variable distribution with patient and
NOTE Confidence: 0.787951032727273

00:06:19.350 --> 00:06:21.867 kind of some having a longer sleep time,
NOTE Confidence: 0.787951032727273

00:06:21.870 --> 00:06:22.872 but on average,
NOTE Confidence: 0.787951032727273

00:06:22.872 --> 00:06:24.876 most of the patients had again
NOTE Confidence: 0.787951032727273

00:06:24.876 --> 00:06:26.240 well below our recommendation
NOTE Confidence: 0.787951032727273

00:06:26.240 --> 00:06:28.880 of 7 to 8 hours of sleep time.
NOTE Confidence: 0.787951032727273

00:06:28.880 --> 00:06:30.864 And these are some of the more granular
NOTE Confidence: 0.787951032727273

00:06:30.864 --> 00:06:32.508 numbers to drive from that study.
NOTE Confidence: 0.787951032727273

00:06:32.510 --> 00:06:34.598 Again, the median sleep time was five hours,
NOTE Confidence: 0.787951032727273

00:06:34.600 --> 00:06:36.526 but what I wanted to point out with this
NOTE Confidence: 0.787951032727273

00:06:36.526 --> 00:06:38.515 slide is that some really striking numbers,
NOTE Confidence: 0.787951032727273

00:06:38.520 --> 00:06:39.965 the duration of sleep without
NOTE Confidence: 0.787951032727273

00:06:39.965 --> 00:06:41.880 waking on medium was three minutes.
NOTE Confidence: 0.787951032727273

00:06:41.880 --> 00:06:44.064 So patients were able to achieve just
NOTE Confidence: 0.787951032727273

00:06:44.064 --> 00:06:46.687 three minutes of sleep before being woken up.
NOTE Confidence: 0.787951032727273

00:06:46.690 --> 00:06:49.698 They had on average about 38 sleep periods

NOTE Confidence: 0.787951032727273
00:06:49.698 --> 00:06:52.238 throughout the 24 hour recording session,
NOTE Confidence: 0.787951032727273
00:06:52.240 --> 00:06:53.995 and 41% of their sleep
NOTE Confidence: 0.787951032727273
00:06:53.995 --> 00:06:55.399 occurred during daytime hours.
NOTE Confidence: 0.787951032727273
00:06:55.400 --> 00:06:57.640 So all of these numbers to really
NOTE Confidence: 0.787951032727273
00:06:57.640 --> 00:06:59.057 highlight just how disruptive
NOTE Confidence: 0.787951032727273
00:06:59.057 --> 00:07:01.007 the quality of their sleep.
NOTE Confidence: 0.787951032727273
00:07:01.010 --> 00:07:03.146 This is a more visual representation
NOTE Confidence: 0.787951032727273
00:07:03.146 --> 00:07:04.926 of the sleep fragmentation that
NOTE Confidence: 0.787951032727273
00:07:04.926 --> 00:07:06.386 I was alluding to earlier.
NOTE Confidence: 0.787951032727273
00:07:06.390 --> 00:07:08.448 This study was done by Friedman Group.
NOTE Confidence: 0.787951032727273
00:07:08.450 --> 00:07:10.946 This was 22 Mickey patients and
NOTE Confidence: 0.787951032727273
00:07:10.946 --> 00:07:13.542 they underwent 24 or 48 hour PSG's
NOTE Confidence: 0.787951032727273
00:07:13.542 --> 00:07:14.710 and concomitant noise measurements
NOTE Confidence: 0.787951032727273
00:07:14.710 --> 00:07:16.660 and I'll come back to that aspect
NOTE Confidence: 0.787951032727273
00:07:16.660 --> 00:07:18.200 of the study later in the talk
NOTE Confidence: 0.787951032727273

00:07:18.200 --> 00:07:20.375 they again demonstrated about 40
NOTE Confidence: 0.787951032727273

00:07:20.375 --> 00:07:22.550 sleep periods over 24 hours.
NOTE Confidence: 0.787951032727273

00:07:22.550 --> 00:07:24.368 So similar to what Elliot study
NOTE Confidence: 0.787951032727273

00:07:24.368 --> 00:07:26.564 demonstrated and each of the bars in the
NOTE Confidence: 0.787951032727273

00:07:26.564 --> 00:07:28.679 graph on the left here show an individual
NOTE Confidence: 0.787951032727273

00:07:28.679 --> 00:07:30.665 subject and their sleep is plotted.
NOTE Confidence: 0.787951032727273

00:07:30.670 --> 00:07:32.947 Over a 24 hour bar and the black spots
NOTE Confidence: 0.787951032727273

00:07:32.947 --> 00:07:34.648 represent the sleep in the white
NOTE Confidence: 0.787951032727273

00:07:34.648 --> 00:07:36.390 represents week and I've tried to
NOTE Confidence: 0.787951032727273

00:07:36.390 --> 00:07:38.420 highlight a sort of a typical nocturnal
NOTE Confidence: 0.787951032727273

00:07:38.420 --> 00:07:40.812 sleep period with the red lines and you
NOTE Confidence: 0.787951032727273

00:07:40.812 --> 00:07:43.720 can see that for most of these patients,
NOTE Confidence: 0.787951032727273

00:07:43.720 --> 00:07:45.730 fair amount of their sleep occurs
NOTE Confidence: 0.787951032727273

00:07:45.730 --> 00:07:47.530 outside of that nocturnal period,
NOTE Confidence: 0.787951032727273

00:07:47.530 --> 00:07:50.008 and also that their sleep is just
NOTE Confidence: 0.787951032727273

00:07:50.008 --> 00:07:51.876 very highly fragmented into these

NOTE Confidence: 0.787951032727273
00:07:51.876 --> 00:07:53.726 short pieces around the clock.
NOTE Confidence: 0.787951032727273
00:07:53.730 --> 00:07:55.991 In addition to the sleep being of
NOTE Confidence: 0.787951032727273
00:07:55.991 --> 00:07:57.950 insufficient duration and being fragmented,
NOTE Confidence: 0.787951032727273
00:07:57.950 --> 00:08:00.368 studies have also shown that the
NOTE Confidence: 0.787951032727273
00:08:00.368 --> 00:08:01.980 sleep architecture is disrupted.
NOTE Confidence: 0.787951032727273
00:08:01.980 --> 00:08:03.942 Some studies have shown that the
NOTE Confidence: 0.787951032727273
00:08:03.942 --> 00:08:05.604 proportion of our normal sleep
NOTE Confidence: 0.787951032727273
00:08:05.604 --> 00:08:07.326 stages is very off from work.
NOTE Confidence: 0.787951032727273
00:08:07.330 --> 00:08:08.866 That should be reproducibly
NOTE Confidence: 0.787951032727273
00:08:08.866 --> 00:08:10.786 demonstrated has been a deficit
NOTE Confidence: 0.787951032727273
00:08:10.786 --> 00:08:13.068 and slow wave sleep and REM sleep,
NOTE Confidence: 0.787951032727273
00:08:13.070 --> 00:08:14.685 and that's what's shown here
NOTE Confidence: 0.787951032727273
00:08:14.685 --> 00:08:15.995 from Elliot study again.
NOTE Confidence: 0.787951032727273
00:08:15.995 --> 00:08:16.665 Very notably,
NOTE Confidence: 0.787951032727273
00:08:16.665 --> 00:08:18.675 they had median of 0 minutes
NOTE Confidence: 0.787951032727273

00:08:18.675 --> 00:08:20.819 of each of these sleep stages.
NOTE Confidence: 0.787951032727273

00:08:20.820 --> 00:08:23.116 Other studies have shown a bit more
NOTE Confidence: 0.787951032727273

00:08:23.116 --> 00:08:24.950 mild findings that reproducibly.
NOTE Confidence: 0.787951032727273

00:08:24.950 --> 00:08:26.635 Demonstrated that these sleep stages
NOTE Confidence: 0.787951032727273

00:08:26.635 --> 00:08:29.017 are reduced and we know that that's
NOTE Confidence: 0.787951032727273

00:08:29.017 --> 00:08:30.937 important because these are thought to
NOTE Confidence: 0.787951032727273

00:08:30.937 --> 00:08:33.486 be the most restorative stages of sleep.
NOTE Confidence: 0.787951032727273

00:08:33.490 --> 00:08:35.354 Other studies have demonstrated
NOTE Confidence: 0.787951032727273

00:08:35.354 --> 00:08:37.684 atypical sleep with EG findings
NOTE Confidence: 0.787951032727273

00:08:37.684 --> 00:08:40.036 that are too atypical to even
NOTE Confidence: 0.787951032727273

00:08:40.036 --> 00:08:41.851 classify in the normal sleep
NOTE Confidence: 0.853703791818182

00:08:41.924 --> 00:08:43.090 staging criteria.
NOTE Confidence: 0.853703791818182

00:08:43.090 --> 00:08:45.015 This was an example of a PSG
NOTE Confidence: 0.853703791818182

00:08:45.015 --> 00:08:46.230 finding from Friedman study,
NOTE Confidence: 0.853703791818182

00:08:46.230 --> 00:08:48.190 which is a representation of a patient
NOTE Confidence: 0.853703791818182

00:08:48.190 --> 00:08:49.734 with sepsis and encephalopathy and

NOTE Confidence: 0.853703791818182
00:08:49.734 --> 00:08:51.666 what they're showing here is that
NOTE Confidence: 0.853703791818182
00:08:51.666 --> 00:08:53.758 there's a background of low amplitude
NOTE Confidence: 0.853703791818182
00:08:53.758 --> 00:08:55.498 mixed frequency which we would
NOTE Confidence: 0.853703791818182
00:08:55.498 --> 00:08:57.130 normally think of as weak period,
NOTE Confidence: 0.853703791818182
00:08:57.130 --> 00:08:58.266 but then mixed in.
NOTE Confidence: 0.853703791818182
00:08:58.266 --> 00:09:00.382 With that we see Delta and Theta
NOTE Confidence: 0.853703791818182
00:09:00.382 --> 00:09:03.409 waves so abnormal there.
NOTE Confidence: 0.853703791818182
00:09:03.410 --> 00:09:05.776 And this was an example of a
NOTE Confidence: 0.853703791818182
00:09:05.776 --> 00:09:07.829 similar concept from Coopers Paper.
NOTE Confidence: 0.853703791818182
00:09:07.830 --> 00:09:10.164 This was a prospective cohort analysis
NOTE Confidence: 0.853703791818182
00:09:10.164 --> 00:09:12.208 looking at 20 ventilated patients
NOTE Confidence: 0.853703791818182
00:09:12.208 --> 00:09:14.670 from medical and surgical ICU's and
NOTE Confidence: 0.853703791818182
00:09:14.670 --> 00:09:17.460 again evaluated with 24 hour PSG and
NOTE Confidence: 0.853703791818182
00:09:17.460 --> 00:09:19.710 this picture is demonstrating the
NOTE Confidence: 0.853703791818182
00:09:19.710 --> 00:09:21.510 concept of pathologic wakefulness.
NOTE Confidence: 0.853703791818182

00:09:21.510 --> 00:09:24.051 What this shows is that there are
NOTE Confidence: 0.853703791818182

00:09:24.051 --> 00:09:26.155 features of sleepy EG that prove
NOTE Confidence: 0.853703791818182

00:09:26.155 --> 00:09:28.882 that get involved or get in the
NOTE Confidence: 0.853703791818182

00:09:28.882 --> 00:09:30.490 way of behavioral wakefulness.
NOTE Confidence: 0.853703791818182

00:09:30.490 --> 00:09:32.405 So this patient is actually
NOTE Confidence: 0.853703791818182

00:09:32.405 --> 00:09:33.626 performing biocal's where the two
NOTE Confidence: 0.853703791818182

00:09:33.626 --> 00:09:34.880 dark arrows are on the bottom.
NOTE Confidence: 0.853703791818182

00:09:34.880 --> 00:09:36.686 And you can see that despite them
NOTE Confidence: 0.853703791818182

00:09:36.686 --> 00:09:38.534 being awake enough to perform the
NOTE Confidence: 0.853703791818182

00:09:38.534 --> 00:09:39.894 biocal so behavioral wakefulness,
NOTE Confidence: 0.853703791818182

00:09:39.900 --> 00:09:42.186 they do have these slow waves in the EG.
NOTE Confidence: 0.907760490714286

00:09:44.220 --> 00:09:45.895 And aside from everything I've
NOTE Confidence: 0.907760490714286

00:09:45.895 --> 00:09:47.235 mentioned about the disruption
NOTE Confidence: 0.907760490714286

00:09:47.235 --> 00:09:49.018 and sleep quality and quantity,
NOTE Confidence: 0.907760490714286

00:09:49.020 --> 00:09:51.365 there have also been studies to try
NOTE Confidence: 0.907760490714286

00:09:51.365 --> 00:09:53.815 to qualify and quantify the circadian

NOTE Confidence: 0.907760490714286
00:09:53.815 --> 00:09:55.930 phase and critically ill patients.
NOTE Confidence: 0.907760490714286
00:09:55.930 --> 00:09:57.340 These studies have been done
NOTE Confidence: 0.907760490714286
00:09:57.340 --> 00:09:58.468 in various different subsets
NOTE Confidence: 0.907760490714286
00:09:58.468 --> 00:09:59.979 of critically ill patients,
NOTE Confidence: 0.907760490714286
00:09:59.980 --> 00:10:01.564 including patients with sepsis
NOTE Confidence: 0.907760490714286
00:10:01.564 --> 00:10:03.893 and patients with brain injury and
NOTE Confidence: 0.907760490714286
00:10:03.893 --> 00:10:05.608 those studies have been repeatedly
NOTE Confidence: 0.907760490714286
00:10:05.608 --> 00:10:06.980 demonstrated that the patients
NOTE Confidence: 0.907760490714286
00:10:07.029 --> 00:10:08.569 have a delayed circadian phase,
NOTE Confidence: 0.907760490714286
00:10:08.570 --> 00:10:10.472 and this is one example of
NOTE Confidence: 0.907760490714286
00:10:10.472 --> 00:10:12.859 a group of 16 ICU patients.
NOTE Confidence: 0.907760490714286
00:10:12.860 --> 00:10:13.470 This was.
NOTE Confidence: 0.907760490714286
00:10:13.470 --> 00:10:14.080 An observation,
NOTE Confidence: 0.907760490714286
00:10:14.080 --> 00:10:16.350 ULL study and subset of the patients
NOTE Confidence: 0.907760490714286
00:10:16.350 --> 00:10:18.630 included in the overall study had
NOTE Confidence: 0.907760490714286

00:10:18.630 --> 00:10:20.414 this circadian analysis and what
NOTE Confidence: 0.907760490714286

00:10:20.414 --> 00:10:22.346 they did was they measured the
NOTE Confidence: 0.907760490714286

00:10:22.346 --> 00:10:24.508 urinary 6 sulfate oxy melatonin,
NOTE Confidence: 0.907760490714286

00:10:24.510 --> 00:10:26.640 which is a melatonin metabolite every
NOTE Confidence: 0.907760490714286

00:10:26.640 --> 00:10:29.233 four hours and they use the trend
NOTE Confidence: 0.907760490714286

00:10:29.233 --> 00:10:31.441 in that to determine the circadian
NOTE Confidence: 0.907760490714286

00:10:31.441 --> 00:10:33.038 accuracies or the circadian phase
NOTE Confidence: 0.907760490714286

00:10:33.038 --> 00:10:34.880 for the patients and the normal
NOTE Confidence: 0.907760490714286

00:10:34.941 --> 00:10:36.985 phase is defined by these red lines.
NOTE Confidence: 0.907760490714286

00:10:36.990 --> 00:10:38.358 So what you can see is that for
NOTE Confidence: 0.907760490714286

00:10:38.358 --> 00:10:39.888 each of these individual subjects,
NOTE Confidence: 0.907760490714286

00:10:39.890 --> 00:10:41.668 the majority of them are phase delayed.
NOTE Confidence: 0.897468034

00:10:44.200 --> 00:10:46.594 So hopefully they have convinced you now
NOTE Confidence: 0.897468034

00:10:46.594 --> 00:10:49.540 that patients in the ICU often have very
NOTE Confidence: 0.897468034

00:10:49.540 --> 00:10:51.400 disrupted sleep and circadian rhythms.
NOTE Confidence: 0.897468034

00:10:51.400 --> 00:10:52.901 But why does this matter? So?

NOTE Confidence: 0.897468034

00:10:52.901 --> 00:10:54.829 The reason that this is so important is

NOTE Confidence: 0.897468034

00:10:54.829 --> 00:10:56.859 because we know that these findings are

NOTE Confidence: 0.897468034

00:10:56.859 --> 00:10:58.490 associated with poor clinical outcomes.

NOTE Confidence: 0.897468034

00:10:58.490 --> 00:11:00.495 So for patients with atypical

NOTE Confidence: 0.897468034

00:11:00.495 --> 00:11:01.297 sleep characteristics,

NOTE Confidence: 0.897468034

00:11:01.300 --> 00:11:03.412 it's been shown that they have a higher

NOTE Confidence: 0.897468034

00:11:03.412 --> 00:11:05.620 chance of having mechanical ventilation,

NOTE Confidence: 0.897468034

00:11:05.620 --> 00:11:07.910 meaning failure patients with sleep

NOTE Confidence: 0.897468034

00:11:07.910 --> 00:11:10.200 deficiency can have inferior immunological

NOTE Confidence: 0.897468034

00:11:10.262 --> 00:11:12.726 function as well as poor glycemic control.

NOTE Confidence: 0.897468034

00:11:12.730 --> 00:11:14.470 We know that poor sleep and.

NOTE Confidence: 0.897468034

00:11:14.470 --> 00:11:16.248 Is the line for Kadian rhythms is

NOTE Confidence: 0.897468034

00:11:16.248 --> 00:11:18.256 thought to be a probable risk factor

NOTE Confidence: 0.897468034

00:11:18.256 --> 00:11:20.429 for delirium and certain lack of sleep

NOTE Confidence: 0.897468034

00:11:20.429 --> 00:11:22.409 features can be associated with increased

NOTE Confidence: 0.897468034

00:11:22.409 --> 00:11:24.756 ICU length of stay and even mortality,

NOTE Confidence: 0.897468034

00:11:24.756 --> 00:11:26.790 and I'll describe some of these

NOTE Confidence: 0.897468034

00:11:26.851 --> 00:11:28.909 findings over the next few slides.

NOTE Confidence: 0.897468034

00:11:28.910 --> 00:11:30.398 So this was a study done

NOTE Confidence: 0.897468034

00:11:30.398 --> 00:11:31.390 by Rose Campos Group.

NOTE Confidence: 0.897468034

00:11:31.390 --> 00:11:34.407 They looked at 27 patients who had

NOTE Confidence: 0.897468034

00:11:34.407 --> 00:11:35.700 hypercapnic respiratory failure

NOTE Confidence: 0.897468034

00:11:35.770 --> 00:11:38.080 and were treated with non invasive

NOTE Confidence: 0.897468034

00:11:38.080 --> 00:11:40.280 ventilation for at least 48 hours.

NOTE Confidence: 0.897468034

00:11:40.280 --> 00:11:42.280 What they did was a 17 hour PSG

NOTE Confidence: 0.897468034

00:11:42.280 --> 00:11:44.071 on these patients during somewhere

NOTE Confidence: 0.897468034

00:11:44.071 --> 00:11:46.106 between days two and four.

NOTE Confidence: 0.897468034

00:11:46.110 --> 00:11:48.154 After an Ivy initiation so they had

NOTE Confidence: 0.897468034

00:11:48.154 --> 00:11:49.784 already been requiring some form of

NOTE Confidence: 0.897468034

00:11:49.784 --> 00:11:51.408 PAP therapy for a couple of days.

NOTE Confidence: 0.897468034

00:11:51.410 --> 00:11:53.522 At this point I'm and what their aim

NOTE Confidence: 0.897468034

00:11:53.522 --> 00:11:56.058 was was really to see if there was

NOTE Confidence: 0.897468034

00:11:56.058 --> 00:11:57.960 any association between PSG features.

NOTE Confidence: 0.897468034

00:11:57.960 --> 00:11:59.870 So qualities of the sleep.

NOTE Confidence: 0.897468034

00:11:59.870 --> 00:12:01.634 And then the patient outcomes they

NOTE Confidence: 0.897468034

00:12:01.634 --> 00:12:03.764 were looking to see if the patients

NOTE Confidence: 0.897468034

00:12:03.764 --> 00:12:05.259 were able to successfully wean

NOTE Confidence: 0.897468034

00:12:05.259 --> 00:12:07.388 from NIV or if they had what they

NOTE Confidence: 0.897468034

00:12:07.388 --> 00:12:08.734 defined as late nivs failure.

NOTE Confidence: 0.897468034

00:12:08.734 --> 00:12:11.646 And this was a composite endpoint of death,

NOTE Confidence: 0.897468034

00:12:11.650 --> 00:12:12.934 endotracheal intubation or

NOTE Confidence: 0.897468034

00:12:12.934 --> 00:12:15.074 persistent need for non invasive

NOTE Confidence: 0.897468034

00:12:15.074 --> 00:12:17.209 ventilation on day six of the study.

NOTE Confidence: 0.897468034

00:12:17.210 --> 00:12:19.040 What they found was among the

NOTE Confidence: 0.897468034

00:12:19.040 --> 00:12:20.260 patients that they studied.

NOTE Confidence: 0.897468034

00:12:20.260 --> 00:12:22.596 Those who went on to have success in

NOTE Confidence: 0.897468034

00:12:22.596 --> 00:12:24.728 meeting from non invasive ventilation.
NOTE Confidence: 0.897468034

00:12:24.730 --> 00:12:26.669 We're less likely to have abnormal sleep,
NOTE Confidence: 0.897468034

00:12:26.670 --> 00:12:28.368 whereas this is a more common
NOTE Confidence: 0.897468034

00:12:28.368 --> 00:12:30.039 finding in patients who had late.
NOTE Confidence: 0.897468034

00:12:30.040 --> 00:12:30.430 Failure.
NOTE Confidence: 0.897468034

00:12:30.430 --> 00:12:33.160 They also found that a higher night
NOTE Confidence: 0.897468034

00:12:33.160 --> 00:12:35.200 today total sleep time ratio,
NOTE Confidence: 0.897468034

00:12:35.200 --> 00:12:36.898 meaning more of the sleep was
NOTE Confidence: 0.897468034

00:12:36.898 --> 00:12:38.410 occurring during the nocturnal period,
NOTE Confidence: 0.897468034

00:12:38.410 --> 00:12:39.553 which is circadian,
NOTE Confidence: 0.897468034

00:12:39.553 --> 00:12:41.839 which is a two circadian advantage
NOTE Confidence: 0.897468034

00:12:41.839 --> 00:12:44.067 that seemed to predict or be
NOTE Confidence: 0.897468034

00:12:44.067 --> 00:12:45.842 associated with an Ivy success,
NOTE Confidence: 0.897468034

00:12:45.850 --> 00:12:48.418 whereas the opposite more of daytime
NOTE Confidence: 0.897468034

00:12:48.418 --> 00:12:51.298 sleep was associated with late and Ivy
NOTE Confidence: 0.897468034

00:12:51.298 --> 00:12:53.147 failure and then finally significant

NOTE Confidence: 0.897468034

00:12:53.147 --> 00:12:55.856 decrease in the proportion of REM was

NOTE Confidence: 0.897468034

00:12:55.856 --> 00:12:58.236 also associated with late and Ivy failure,

NOTE Confidence: 0.897468034

00:12:58.240 --> 00:13:00.018 and this is just the graph from

NOTE Confidence: 0.897468034

00:13:00.018 --> 00:13:01.620 the same paper demonstrating.

NOTE Confidence: 0.897468034

00:13:01.620 --> 00:13:03.045 That association by sleep staging

NOTE Confidence: 0.897468034

00:13:03.045 --> 00:13:04.800 so among the group of patients

NOTE Confidence: 0.897468034

00:13:04.800 --> 00:13:06.690 who went on to have success in

NOTE Confidence: 0.897468034

00:13:06.690 --> 00:13:08.404 winning from Nid versus those who

NOTE Confidence: 0.897468034

00:13:08.404 --> 00:13:10.084 had failure and waiting from NIV.

NOTE Confidence: 0.897468034

00:13:10.090 --> 00:13:11.840 There was no significant difference

NOTE Confidence: 0.897468034

00:13:11.840 --> 00:13:14.821 in stages and one to N 3 but they did

NOTE Confidence: 0.897468034

00:13:14.821 --> 00:13:16.229 note that a significant reduction

NOTE Confidence: 0.897468034

00:13:16.229 --> 00:13:18.420 in the proportion of REM sleep was

NOTE Confidence: 0.897468034

00:13:18.483 --> 00:13:20.158 associated with an Ivy failure.

NOTE Confidence: 0.897468034

00:13:20.160 --> 00:13:21.882 So all of these things together to

NOTE Confidence: 0.897468034

00:13:21.882 --> 00:13:23.411 suggest that perhaps you know the

NOTE Confidence: 0.897468034

00:13:23.411 --> 00:13:24.887 quality of the sleep that patients

NOTE Confidence: 0.897468034

00:13:24.887 --> 00:13:26.487 achieve really may be associated

NOTE Confidence: 0.897468034

00:13:26.487 --> 00:13:27.787 with important clinical outcomes.

NOTE Confidence: 0.8118905533333333

00:13:27.790 --> 00:13:30.639 In this case related to their ability

NOTE Confidence: 0.8118905533333333

00:13:30.639 --> 00:13:33.570 to wean from ventilatory support.

NOTE Confidence: 0.8118905533333333

00:13:33.570 --> 00:13:35.285 This was a study that was done

NOTE Confidence: 0.8118905533333333

00:13:35.285 --> 00:13:36.692 by Doctor Canal right here

NOTE Confidence: 0.8118905533333333

00:13:36.692 --> 00:13:38.217 at Yale with some colleagues,

NOTE Confidence: 0.8118905533333333

00:13:38.220 --> 00:13:40.056 and this is an observation ULL

NOTE Confidence: 0.8118905533333333

00:13:40.056 --> 00:13:41.871 cohort study that looked to see

NOTE Confidence: 0.8118905533333333

00:13:41.871 --> 00:13:43.473 what happened in patients who had

NOTE Confidence: 0.8118905533333333

00:13:43.473 --> 00:13:45.564 loss of end 2 features and how

NOTE Confidence: 0.8118905533333333

00:13:45.564 --> 00:13:47.064 did that affect their outcomes.

NOTE Confidence: 0.8118905533333333

00:13:47.070 --> 00:13:49.345 So they looked at 93 making patients

NOTE Confidence: 0.8118905533333333

00:13:49.345 --> 00:13:51.020 who were undergoing continuous,

NOTE Confidence: 0.8118905533333333

00:13:51.020 --> 00:13:54.228 EG as part of their plan evaluation in

NOTE Confidence: 0.8118905533333333

00:13:54.228 --> 00:13:56.596 their Vicky's day and they found that

NOTE Confidence: 0.8118905533333333

00:13:56.596 --> 00:13:59.300 among patients who had loss of N2 features,

NOTE Confidence: 0.8118905533333333

00:13:59.300 --> 00:14:01.526 the odds ratio of death was increased.

NOTE Confidence: 0.8118905533333333

00:14:01.530 --> 00:14:03.770 So in patients who didn't have K complexes,

NOTE Confidence: 0.8118905533333333

00:14:03.770 --> 00:14:05.106 the odds ratio was.

NOTE Confidence: 0.8118905533333333

00:14:05.106 --> 00:14:06.776 18.8 and those without sleep

NOTE Confidence: 0.8118905533333333

00:14:06.776 --> 00:14:08.768 spindles had an odds ratio of 6.3.

NOTE Confidence: 0.8118905533333333

00:14:08.768 --> 00:14:10.480 It means both reached

NOTE Confidence: 0.8118905533333333

00:14:10.480 --> 00:14:11.336 statistical significance.

NOTE Confidence: 0.8118905533333333

00:14:11.340 --> 00:14:11.658 Additionally,

NOTE Confidence: 0.8118905533333333

00:14:11.658 --> 00:14:13.566 they found that in patients who

NOTE Confidence: 0.8118905533333333

00:14:13.566 --> 00:14:15.639 had lack of K complex on there,

NOTE Confidence: 0.8118905533333333

00:14:15.640 --> 00:14:16.002 e.g.,

NOTE Confidence: 0.8118905533333333

00:14:16.002 --> 00:14:17.812 this was associated with longer

NOTE Confidence: 0.8118905533333333

00:14:17.812 --> 00:14:19.799 MCU and hospital length of stay.
NOTE Confidence: 0.8118905533333333

00:14:19.800 --> 00:14:21.852 So these are all really tremendously
NOTE Confidence: 0.8118905533333333

00:14:21.852 --> 00:14:23.220 important clinical outcomes and
NOTE Confidence: 0.8118905533333333

00:14:23.277 --> 00:14:24.685 important to acknowledge that
NOTE Confidence: 0.8118905533333333

00:14:24.685 --> 00:14:26.474 maybe you know the sleep is really
NOTE Confidence: 0.8118905533333333

00:14:26.474 --> 00:14:27.879 associated or the quality of sleep.
NOTE Confidence: 0.8118905533333333

00:14:27.880 --> 00:14:29.884 Rather it's really associated
NOTE Confidence: 0.8118905533333333

00:14:29.884 --> 00:14:31.888 with important clinical outcomes.
NOTE Confidence: 0.8118905533333333

00:14:31.890 --> 00:14:33.696 So taking a step back now to
NOTE Confidence: 0.8118905533333333

00:14:33.696 --> 00:14:34.470 frame the problem.
NOTE Confidence: 0.8118905533333333

00:14:34.470 --> 00:14:36.126 So I've described how sleep and
NOTE Confidence: 0.8118905533333333

00:14:36.126 --> 00:14:37.616 circadian health in MCU patients
NOTE Confidence: 0.8118905533333333

00:14:37.616 --> 00:14:39.286 can be very severely disrupted,
NOTE Confidence: 0.8118905533333333

00:14:39.290 --> 00:14:41.186 and we know now that these
NOTE Confidence: 0.8118905533333333

00:14:41.186 --> 00:14:42.134 disrupted these disruptions,
NOTE Confidence: 0.8118905533333333

00:14:42.140 --> 00:14:43.668 rather may be associated

NOTE Confidence: 0.8118905533333333
00:14:43.668 --> 00:14:44.965 with really adverse outcomes.
NOTE Confidence: 0.8118905533333333
00:14:44.965 --> 00:14:46.795 So the next question then is
NOTE Confidence: 0.8118905533333333
00:14:46.795 --> 00:14:49.044 what are the causes of sleep and
NOTE Confidence: 0.8118905533333333
00:14:49.044 --> 00:14:50.304 circadian disruption and McHugh?
NOTE Confidence: 0.8118905533333333
00:14:50.310 --> 00:14:52.638 How can we intervene to improve
NOTE Confidence: 0.8118905533333333
00:14:52.638 --> 00:14:54.760 them and hopefully use that
NOTE Confidence: 0.8118905533333333
00:14:54.760 --> 00:14:56.716 to optimize patient outcomes?
NOTE Confidence: 0.8118905533333333
00:14:56.720 --> 00:14:58.134 So I'm going to dive now into
NOTE Confidence: 0.8118905533333333
00:14:58.134 --> 00:14:59.358 the next part of the talk.
NOTE Confidence: 0.8118905533333333
00:14:59.360 --> 00:15:00.878 We're going to talk about factors
NOTE Confidence: 0.8118905533333333
00:15:00.878 --> 00:15:02.243 that disrupt sleep and circadian
NOTE Confidence: 0.8118905533333333
00:15:02.243 --> 00:15:03.439 health in ICU patients,
NOTE Confidence: 0.8118905533333333
00:15:03.440 --> 00:15:04.976 and I've divided those for the
NOTE Confidence: 0.8118905533333333
00:15:04.976 --> 00:15:06.711 purposes of this talk into three
NOTE Confidence: 0.8118905533333333
00:15:06.711 --> 00:15:08.015 major categories and those
NOTE Confidence: 0.8118905533333333

00:15:08.015 --> 00:15:09.319 are patient related factors,
NOTE Confidence: 0.8118905533333333

00:15:09.320 --> 00:15:10.134 environmental factors,
NOTE Confidence: 0.8118905533333333

00:15:10.134 --> 00:15:12.169 and then factors that are
NOTE Confidence: 0.8118905533333333

00:15:12.169 --> 00:15:14.292 directly related to acute illness
NOTE Confidence: 0.8118905533333333

00:15:14.292 --> 00:15:15.968 and critical care treatment.
NOTE Confidence: 0.8118905533333333

00:15:15.970 --> 00:15:17.520 So the patient factors mainly
NOTE Confidence: 0.8118905533333333

00:15:17.520 --> 00:15:19.619 fall under 3 realms and those
NOTE Confidence: 0.8118905533333333

00:15:19.619 --> 00:15:21.068 are psychological distress,
NOTE Confidence: 0.8118905533333333

00:15:21.070 --> 00:15:23.926 pain and discomfort, and sleep history.
NOTE Confidence: 0.8118905533333333

00:15:23.930 --> 00:15:25.945 So I'll start by talking
NOTE Confidence: 0.8118905533333333

00:15:25.945 --> 00:15:27.154 about psychological distress.
NOTE Confidence: 0.8118905533333333

00:15:27.160 --> 00:15:29.311 So I think this is an area that is
NOTE Confidence: 0.8118905533333333

00:15:29.311 --> 00:15:30.933 often underappreciated or under
NOTE Confidence: 0.8118905533333333

00:15:30.933 --> 00:15:33.567 attended to by critical care physicians.
NOTE Confidence: 0.8118905533333333

00:15:33.570 --> 00:15:33.844 And,
NOTE Confidence: 0.8118905533333333

00:15:33.844 --> 00:15:34.392 you know,

NOTE Confidence: 0.8118905533333333

00:15:34.392 --> 00:15:36.749 one thing that I found when I was

NOTE Confidence: 0.8118905533333333

00:15:36.749 --> 00:15:38.993 putting this talk together was that

NOTE Confidence: 0.8118905533333333

00:15:38.993 --> 00:15:40.864 a qualitative survey reported that

NOTE Confidence: 0.8118905533333333

00:15:40.864 --> 00:15:43.170 over 50% of ICU patients actually

NOTE Confidence: 0.8118905533333333

00:15:43.170 --> 00:15:44.790 endorsed psychological distress as

NOTE Confidence: 0.8118905533333333

00:15:44.790 --> 00:15:47.330 the most significant sleep disruptor,

NOTE Confidence: 0.8118905533333333

00:15:47.330 --> 00:15:48.611 and think about that and keep that

NOTE Confidence: 0.8118905533333333

00:15:48.611 --> 00:15:50.398 in mind as I talk about all of the

NOTE Confidence: 0.8118905533333333

00:15:50.398 --> 00:15:51.729 other things that disrupt their sleep.

NOTE Confidence: 0.8118905533333333

00:15:51.730 --> 00:15:53.146 So this is really something that,

NOTE Confidence: 0.8118905533333333

00:15:53.150 --> 00:15:54.554 from a patient perspective,

NOTE Confidence: 0.8118905533333333

00:15:54.554 --> 00:15:55.607 is really important.

NOTE Confidence: 0.8118905533333333

00:15:55.610 --> 00:15:57.075 And some of the psychological

NOTE Confidence: 0.8118905533333333

00:15:57.075 --> 00:15:58.247 issues that patients experience.

NOTE Confidence: 0.8118905533333333

00:15:58.250 --> 00:15:59.598 As you can imagine,

NOTE Confidence: 0.8118905533333333

00:15:59.598 --> 00:16:00.609 are significant health,
NOTE Confidence: 0.8118905533333333

00:16:00.610 --> 00:16:03.334 worry about their prognosis and also
NOTE Confidence: 0.8118905533333333

00:16:03.334 --> 00:16:05.681 anxiety and distress related to
NOTE Confidence: 0.8118905533333333

00:16:05.681 --> 00:16:07.525 upcoming procedures or interventions
NOTE Confidence: 0.8118905533333333

00:16:07.525 --> 00:16:09.830 that are planned for them.
NOTE Confidence: 0.8118905533333333

00:16:09.830 --> 00:16:11.870 So various techniques have been tried
NOTE Confidence: 0.8118905533333333

00:16:11.870 --> 00:16:15.040 to try to treat the psychological distress.
NOTE Confidence: 0.8118905533333333

00:16:15.040 --> 00:16:17.032 These include complementary medicine
NOTE Confidence: 0.8118905533333333

00:16:17.032 --> 00:16:19.024 techniques such as acupuncture,
NOTE Confidence: 0.8931858833333333

00:16:19.030 --> 00:16:21.322 various mind body practices,
NOTE Confidence: 0.8931858833333333

00:16:21.322 --> 00:16:22.468 relaxation techniques,
NOTE Confidence: 0.8931858833333333

00:16:22.470 --> 00:16:23.926 even including massage therapy.
NOTE Confidence: 0.8931858833333333

00:16:23.926 --> 00:16:26.340 There was one paper that reported on.
NOTE Confidence: 0.8931858833333333

00:16:26.340 --> 00:16:29.076 With past prior to them and music therapy,
NOTE Confidence: 0.8931858833333333

00:16:29.080 --> 00:16:30.500 which I'll come back to,
NOTE Confidence: 0.8931858833333333

00:16:30.500 --> 00:16:32.330 there was a systematic review that

NOTE Confidence: 0.8931858833333333

00:16:32.330 --> 00:16:34.040 showed a trend toward benefit.

NOTE Confidence: 0.8931858833333333

00:16:34.040 --> 00:16:35.840 Overall with these types of interventions,

NOTE Confidence: 0.8931858833333333

00:16:35.840 --> 00:16:37.760 but you can imagine these were

NOTE Confidence: 0.8931858833333333

00:16:37.760 --> 00:16:39.040 quite heterogeneous studies in

NOTE Confidence: 0.8931858833333333

00:16:39.096 --> 00:16:40.824 populations and so a meta analysis

NOTE Confidence: 0.8931858833333333

00:16:40.824 --> 00:16:42.719 was really unable to be performed.

NOTE Confidence: 0.8931858833333333

00:16:42.720 --> 00:16:44.592 I think the take away from here is that

NOTE Confidence: 0.8931858833333333

00:16:44.592 --> 00:16:46.447 you know there's very low quality of

NOTE Confidence: 0.8931858833333333

00:16:46.447 --> 00:16:48.240 evidence that this may help patients,

NOTE Confidence: 0.8931858833333333

00:16:48.240 --> 00:16:50.202 but there's also these are generally

NOTE Confidence: 0.8931858833333333

00:16:50.202 --> 00:16:52.599 low resource and low risk intervention,

NOTE Confidence: 0.8931858833333333

00:16:52.600 --> 00:16:54.880 so something to think about

NOTE Confidence: 0.8931858833333333

00:16:54.880 --> 00:16:56.704 in the right patient.

NOTE Confidence: 0.8931858833333333

00:16:56.710 --> 00:16:58.750 Music therapy among what I just

NOTE Confidence: 0.8931858833333333

00:16:58.750 --> 00:17:01.720 spoke about is kind of in the most

NOTE Confidence: 0.8931858833333333

00:17:01.720 --> 00:17:03.645 reproducibly researched part of this.
NOTE Confidence: 0.8931858833333333

00:17:03.650 --> 00:17:05.378 There was a systematic review that
NOTE Confidence: 0.8931858833333333

00:17:05.378 --> 00:17:07.796 looked at 11 studies and they found that
NOTE Confidence: 0.8931858833333333

00:17:07.796 --> 00:17:09.614 research that music therapy rather was
NOTE Confidence: 0.8931858833333333

00:17:09.675 --> 00:17:11.119 consistently associated with reduced
NOTE Confidence: 0.8931858833333333

00:17:11.119 --> 00:17:13.726 anxiety and stress levels in ICU patients,
NOTE Confidence: 0.8931858833333333

00:17:13.726 --> 00:17:16.342 and one study showed that there
NOTE Confidence: 0.8931858833333333

00:17:16.342 --> 00:17:18.149 was longer duration of N3,
NOTE Confidence: 0.8931858833333333

00:17:18.150 --> 00:17:19.854 and in the first two hours of sleep,
NOTE Confidence: 0.8931858833333333

00:17:19.860 --> 00:17:21.315 although there they found no
NOTE Confidence: 0.8931858833333333

00:17:21.315 --> 00:17:23.161 difference in the total sleep time
NOTE Confidence: 0.8931858833333333

00:17:23.161 --> 00:17:24.489 or sleep deficiency overall,
NOTE Confidence: 0.8931858833333333

00:17:24.490 --> 00:17:26.146 and another study showed that music.
NOTE Confidence: 0.8931858833333333

00:17:26.150 --> 00:17:27.986 Therapy was associated with their greater
NOTE Confidence: 0.8931858833333333

00:17:27.986 --> 00:17:29.520 reduction in the bispectral index,
NOTE Confidence: 0.8931858833333333

00:17:29.520 --> 00:17:29.823 Orbis.

NOTE Confidence: 0.893185883333333

00:17:29.823 --> 00:17:32.550 This is a scale that aims to kind of

NOTE Confidence: 0.893185883333333

00:17:32.621 --> 00:17:35.507 quantify the degree of patient situation.

NOTE Confidence: 0.893185883333333

00:17:35.510 --> 00:17:37.726 Most of the MCU people here may be

NOTE Confidence: 0.893185883333333

00:17:37.726 --> 00:17:39.894 familiar with using this to try to

NOTE Confidence: 0.893185883333333

00:17:39.894 --> 00:17:41.449 make sure that patients receiving

NOTE Confidence: 0.893185883333333

00:17:41.514 --> 00:17:43.174 paralytics are adequately sedated

NOTE Confidence: 0.893185883333333

00:17:43.174 --> 00:17:45.249 and the correlation between this

NOTE Confidence: 0.893185883333333

00:17:45.249 --> 00:17:46.735 level and sleep characteristics

NOTE Confidence: 0.893185883333333

00:17:46.735 --> 00:17:48.865 has not been very well defined,

NOTE Confidence: 0.893185883333333

00:17:48.870 --> 00:17:50.400 and I like this picture here to the left.

NOTE Confidence: 0.893185883333333

00:17:50.400 --> 00:17:52.409 This is from an Iowa transplant center.

NOTE Confidence: 0.893185883333333

00:17:52.410 --> 00:17:54.622 You can see the patient is probably

NOTE Confidence: 0.893185883333333

00:17:54.622 --> 00:17:57.260 in the post transplant surgical ICU.

NOTE Confidence: 0.893185883333333

00:17:57.260 --> 00:17:58.556 And around him are, you know,

NOTE Confidence: 0.893185883333333

00:17:58.560 --> 00:18:01.122 several members of probably the faculty

NOTE Confidence: 0.893185883333333

00:18:01.122 --> 00:18:03.680 playing music as he's recovering.
NOTE Confidence: 0.8931858833333333

00:18:03.680 --> 00:18:06.095 Pre COVID so this is another study
NOTE Confidence: 0.8931858833333333

00:18:06.095 --> 00:18:08.427 that was done by client at all.
NOTE Confidence: 0.8931858833333333

00:18:08.430 --> 00:18:11.356 This was an RCT looking at 373
NOTE Confidence: 0.8931858833333333

00:18:11.356 --> 00:18:12.540 eight patients over 12.
NOTE Confidence: 0.8931858833333333

00:18:12.540 --> 00:18:14.913 I see they were all mechanically ventilated
NOTE Confidence: 0.8931858833333333

00:18:14.913 --> 00:18:17.326 and they were randomized to receive
NOTE Confidence: 0.8931858833333333

00:18:17.326 --> 00:18:19.984 either a patient directed music intervention,
NOTE Confidence: 0.8931858833333333

00:18:19.990 --> 00:18:22.960 noise cancelling headphones or usual care.
NOTE Confidence: 0.8931858833333333

00:18:22.960 --> 00:18:25.032 What they found was that the patients
NOTE Confidence: 0.8931858833333333

00:18:25.032 --> 00:18:26.815 who were randomized to the patient
NOTE Confidence: 0.8931858833333333

00:18:26.815 --> 00:18:28.495 directed music group had a reduction
NOTE Confidence: 0.8931858833333333

00:18:28.495 --> 00:18:29.953 in anxiety levels as demonstrated
NOTE Confidence: 0.8931858833333333

00:18:29.953 --> 00:18:31.962 by the plot on the left here,
NOTE Confidence: 0.8931858833333333

00:18:31.962 --> 00:18:34.216 which is plotting the visual analog scale.
NOTE Confidence: 0.8931858833333333

00:18:34.220 --> 00:18:36.698 For anxiety over time during the study,

NOTE Confidence: 0.893185883333333

00:18:36.700 --> 00:18:38.156 and that trend was not seen and I'm

NOTE Confidence: 0.893185883333333

00:18:38.156 --> 00:18:39.681 in the group with noise cancelling

NOTE Confidence: 0.893185883333333

00:18:39.681 --> 00:18:41.076 headphones on the middle plot.

NOTE Confidence: 0.893185883333333

00:18:41.080 --> 00:18:43.108 Or in those who received usual

NOTE Confidence: 0.893185883333333

00:18:43.108 --> 00:18:44.980 care on the far right.

NOTE Confidence: 0.893185883333333

00:18:44.980 --> 00:18:45.349 Similarly,

NOTE Confidence: 0.893185883333333

00:18:45.349 --> 00:18:47.563 they found that the patients receiving

NOTE Confidence: 0.893185883333333

00:18:47.563 --> 00:18:49.632 patient directed music therapy had a

NOTE Confidence: 0.893185883333333

00:18:49.632 --> 00:18:51.142 reduction in the sedation intensity

NOTE Confidence: 0.893185883333333

00:18:51.142 --> 00:18:53.189 that they required during their stay,

NOTE Confidence: 0.893185883333333

00:18:53.190 --> 00:18:54.798 and whereas that trend was not

NOTE Confidence: 0.893185883333333

00:18:54.798 --> 00:18:56.639 observed in patients who received noise

NOTE Confidence: 0.893185883333333

00:18:56.639 --> 00:18:58.419 cancelling headphones or usual care.

NOTE Confidence: 0.893185883333333

00:18:58.420 --> 00:19:01.115 So just another another study to give

NOTE Confidence: 0.893185883333333

00:19:01.115 --> 00:19:04.029 us some thought that perhaps this music

NOTE Confidence: 0.893185883333333

00:19:04.029 --> 00:19:06.555 therapy may really be effective in
NOTE Confidence: 0.940183107727273

00:19:06.634 --> 00:19:07.870 helping patients.
NOTE Confidence: 0.940183107727273

00:19:07.870 --> 00:19:09.878 So moving on now to the pain and
NOTE Confidence: 0.940183107727273

00:19:09.878 --> 00:19:11.808 discomfort I wanted to start this
NOTE Confidence: 0.940183107727273

00:19:11.808 --> 00:19:13.172 section by just acknowledging
NOTE Confidence: 0.940183107727273

00:19:13.172 --> 00:19:15.065 that there is a bidirectional
NOTE Confidence: 0.940183107727273

00:19:15.065 --> 00:19:16.985 relationship between pain and sleep,
NOTE Confidence: 0.940183107727273

00:19:16.990 --> 00:19:19.358 and that's really important to be aware of.
NOTE Confidence: 0.940183107727273

00:19:19.360 --> 00:19:20.570 It's intuitive to us all.
NOTE Confidence: 0.940183107727273

00:19:20.570 --> 00:19:22.258 I think that patients who are in a
NOTE Confidence: 0.940183107727273

00:19:22.258 --> 00:19:23.893 lot of pain or experiencing discomfort
NOTE Confidence: 0.940183107727273

00:19:23.893 --> 00:19:26.004 are going to have a more difficult
NOTE Confidence: 0.940183107727273

00:19:26.004 --> 00:19:27.954 time achieving sleep onset and being
NOTE Confidence: 0.940183107727273

00:19:27.954 --> 00:19:29.750 able to maintain sleep effectively.
NOTE Confidence: 0.940183107727273

00:19:29.750 --> 00:19:31.390 However, it's important to
NOTE Confidence: 0.940183107727273

00:19:31.390 --> 00:19:33.030 realize that as well,

NOTE Confidence: 0.940183107727273
00:19:33.030 --> 00:19:35.274 patients who have poor sleep quality
NOTE Confidence: 0.940183107727273
00:19:35.274 --> 00:19:37.162 or or getting insufficient duration
NOTE Confidence: 0.940183107727273
00:19:37.162 --> 00:19:39.493 of sleep may also have an increased.
NOTE Confidence: 0.940183107727273
00:19:39.500 --> 00:19:40.397 Perception of pain.
NOTE Confidence: 0.940183107727273
00:19:40.397 --> 00:19:43.109 And so these things can go hand in hand
NOTE Confidence: 0.940183107727273
00:19:43.109 --> 00:19:45.069 and can feed forward on each other.
NOTE Confidence: 0.940183107727273
00:19:45.070 --> 00:19:48.166 So for patients who have pain in the ICU,
NOTE Confidence: 0.940183107727273
00:19:48.170 --> 00:19:49.850 oftentimes pharmacologic analgesia
NOTE Confidence: 0.940183107727273
00:19:49.850 --> 00:19:51.530 may be necessary,
NOTE Confidence: 0.940183107727273
00:19:51.530 --> 00:19:53.818 but there are a lot of very readily
NOTE Confidence: 0.940183107727273
00:19:53.818 --> 00:19:55.235 accessible non pharmacologic interventions
NOTE Confidence: 0.940183107727273
00:19:55.235 --> 00:19:58.202 that we can think of simple ones even
NOTE Confidence: 0.940183107727273
00:19:58.202 --> 00:20:00.206 such as adjusting the patients position,
NOTE Confidence: 0.940183107727273
00:20:00.210 --> 00:20:01.610 removing pressure from an injury,
NOTE Confidence: 0.940183107727273
00:20:01.610 --> 00:20:02.158 for instance,
NOTE Confidence: 0.940183107727273

00:20:02.158 --> 00:20:04.730 I'm using ice and heat packs and then again,
NOTE Confidence: 0.940183107727273

00:20:04.730 --> 00:20:06.706 thinking about complementary medicine
NOTE Confidence: 0.940183107727273

00:20:06.706 --> 00:20:09.178 such as massage and then remember to
NOTE Confidence: 0.940183107727273

00:20:09.178 --> 00:20:10.660 assess and address other causes of
NOTE Confidence: 0.940183107727273

00:20:10.710 --> 00:20:12.246 discomfort so these can include just
NOTE Confidence: 0.940183107727273

00:20:12.246 --> 00:20:14.220 the patient it needs to use the restroom.
NOTE Confidence: 0.940183107727273

00:20:14.220 --> 00:20:15.000 Are they hungry?
NOTE Confidence: 0.940183107727273

00:20:15.000 --> 00:20:15.780 Are they thirsty?
NOTE Confidence: 0.940183107727273

00:20:15.780 --> 00:20:16.959 Are they nauseous?
NOTE Confidence: 0.940183107727273

00:20:16.959 --> 00:20:18.531 Not everything that causes
NOTE Confidence: 0.940183107727273

00:20:18.531 --> 00:20:19.710 discomfort is pain.
NOTE Confidence: 0.940183107727273

00:20:19.710 --> 00:20:21.754 There was a recent review of 12
NOTE Confidence: 0.940183107727273

00:20:21.754 --> 00:20:23.980 studies and they showed that hypnosis,
NOTE Confidence: 0.940183107727273

00:20:23.980 --> 00:20:26.310 natural sounds and acupuncture actually
NOTE Confidence: 0.940183107727273

00:20:26.310 --> 00:20:28.640 did confirm reduce pain intensity.
NOTE Confidence: 0.940183107727273

00:20:28.640 --> 00:20:29.012 Again,

NOTE Confidence: 0.940183107727273
00:20:29.012 --> 00:20:30.872 the overall evidence for non
NOTE Confidence: 0.940183107727273
00:20:30.872 --> 00:20:33.097 pharmacologic management of pain in this
NOTE Confidence: 0.940183107727273
00:20:33.097 --> 00:20:35.143 population provides very low quality data,
NOTE Confidence: 0.940183107727273
00:20:35.150 --> 00:20:36.590 but I think it's just worth
NOTE Confidence: 0.940183107727273
00:20:36.590 --> 00:20:37.902 reminding ourselves that there are
NOTE Confidence: 0.940183107727273
00:20:37.902 --> 00:20:39.126 interventions that are available,
NOTE Confidence: 0.940183107727273
00:20:39.130 --> 00:20:41.237 again, mostly low resource and low risk,
NOTE Confidence: 0.940183107727273
00:20:41.240 --> 00:20:42.512 and so these are things to
NOTE Confidence: 0.940183107727273
00:20:42.512 --> 00:20:43.820 consider to help our patients.
NOTE Confidence: 0.940183107727273
00:20:43.820 --> 00:20:44.219 Oftentimes,
NOTE Confidence: 0.940183107727273
00:20:44.219 --> 00:20:45.416 as I mentioned.
NOTE Confidence: 0.940183107727273
00:20:45.416 --> 00:20:46.613 Pharmacologic analgesia is
NOTE Confidence: 0.940183107727273
00:20:46.613 --> 00:20:48.531 necessary given the severity of
NOTE Confidence: 0.940183107727273
00:20:48.531 --> 00:20:50.176 illness and the the procedures
NOTE Confidence: 0.940183107727273
00:20:50.176 --> 00:20:51.979 these patients are going through.
NOTE Confidence: 0.940183107727273

00:20:51.980 --> 00:20:53.912 And then in that case it's it's
NOTE Confidence: 0.940183107727273

00:20:53.912 --> 00:20:55.629 recommended to just kind of be
NOTE Confidence: 0.940183107727273

00:20:55.629 --> 00:20:57.285 mindful of the choice of analgesic
NOTE Confidence: 0.940183107727273

00:20:57.285 --> 00:20:59.289 agent and I'll come back to that a
NOTE Confidence: 0.940183107727273

00:20:59.289 --> 00:21:02.278 little bit more later in the talk.
NOTE Confidence: 0.940183107727273

00:21:02.280 --> 00:21:04.200 So the last patient factor I want to
NOTE Confidence: 0.940183107727273

00:21:04.200 --> 00:21:06.087 talk today about is sleep history.
NOTE Confidence: 0.940183107727273

00:21:06.087 --> 00:21:08.781 So sleep history is something that
NOTE Confidence: 0.940183107727273

00:21:08.781 --> 00:21:10.530 as now a budding sleep doctor
NOTE Confidence: 0.940183107727273

00:21:10.530 --> 00:21:11.830 and and I see doctor,
NOTE Confidence: 0.940183107727273

00:21:11.830 --> 00:21:13.494 I think I can say I keep the
NOTE Confidence: 0.940183107727273

00:21:13.494 --> 00:21:14.829 two worlds pretty separate.
NOTE Confidence: 0.940183107727273

00:21:14.830 --> 00:21:16.390 It's really hard to remember to
NOTE Confidence: 0.940183107727273

00:21:16.390 --> 00:21:17.773 think about asking our patients
NOTE Confidence: 0.940183107727273

00:21:17.773 --> 00:21:19.198 about their sleep history when
NOTE Confidence: 0.940183107727273

00:21:19.198 --> 00:21:21.031 we're in the middle of treating

NOTE Confidence: 0.940183107727273

00:21:21.031 --> 00:21:22.319 their critical care illness,

NOTE Confidence: 0.940183107727273

00:21:22.320 --> 00:21:23.676 but it's something that can really

NOTE Confidence: 0.940183107727273

00:21:23.676 --> 00:21:25.549 go a long ways towards making the

NOTE Confidence: 0.940183107727273

00:21:25.549 --> 00:21:27.079 patients have a better experience.

NOTE Confidence: 0.940183107727273

00:21:27.080 --> 00:21:28.958 So think about asking their patients

NOTE Confidence: 0.940183107727273

00:21:28.958 --> 00:21:30.870 about their habitual food preferences,

NOTE Confidence: 0.940183107727273

00:21:30.870 --> 00:21:32.277 how many pillows do they sleep on,

NOTE Confidence: 0.940183107727273

00:21:32.280 --> 00:21:32.744 what position?

NOTE Confidence: 0.940183107727273

00:21:32.744 --> 00:21:34.368 How dark do they like the room,

NOTE Confidence: 0.940183107727273

00:21:34.370 --> 00:21:34.640 etc.

NOTE Confidence: 0.940183107727273

00:21:34.640 --> 00:21:36.260 If we're able to accommodate any

NOTE Confidence: 0.940183107727273

00:21:36.260 --> 00:21:37.750 of these sleep preferences,

NOTE Confidence: 0.940183107727273

00:21:37.750 --> 00:21:39.388 it may make a difference for

NOTE Confidence: 0.940183107727273

00:21:39.388 --> 00:21:41.545 patients to have a superior sleep

NOTE Confidence: 0.940183107727273

00:21:41.545 --> 00:21:43.310 opportunity and then always remember

NOTE Confidence: 0.940183107727273

00:21:43.310 --> 00:21:45.200 to ask patients about their sleep
NOTE Confidence: 0.860025205454546

00:21:45.255 --> 00:21:47.626 history. So, do patients have
NOTE Confidence: 0.860025205454546

00:21:47.626 --> 00:21:49.078 obstructive sleep apnea?
NOTE Confidence: 0.860025205454546

00:21:49.080 --> 00:21:50.796 There was one study that showed
NOTE Confidence: 0.860025205454546

00:21:50.796 --> 00:21:53.026 that PAT was only given to 5% of
NOTE Confidence: 0.860025205454546

00:21:53.026 --> 00:21:54.906 patients who carried this diagnosis,
NOTE Confidence: 0.860025205454546

00:21:54.910 --> 00:21:56.566 and you can imagine we spend all of
NOTE Confidence: 0.860025205454546

00:21:56.566 --> 00:21:58.379 our time in clinic trying to tell
NOTE Confidence: 0.860025205454546

00:21:58.379 --> 00:22:00.012 patients your sleep quality will really
NOTE Confidence: 0.860025205454546

00:22:00.012 --> 00:22:01.932 improve if we if we treat the sleep
NOTE Confidence: 0.860025205454546

00:22:01.932 --> 00:22:03.566 disorder and if we just leave that
NOTE Confidence: 0.860025205454546

00:22:03.566 --> 00:22:05.269 untreated on when they're in the hospital,
NOTE Confidence: 0.860025205454546

00:22:05.270 --> 00:22:06.275 then of course this is
NOTE Confidence: 0.860025205454546

00:22:06.275 --> 00:22:07.079 going to contribute to.
NOTE Confidence: 0.860025205454546

00:22:07.080 --> 00:22:08.430 Poor quality sleep.
NOTE Confidence: 0.860025205454546

00:22:08.430 --> 00:22:10.230 Restless legs is another

NOTE Confidence: 0.860025205454546
00:22:10.230 --> 00:22:11.580 common sleep disorder.
NOTE Confidence: 0.860025205454546
00:22:11.580 --> 00:22:13.239 It can often go untreated in the
NOTE Confidence: 0.860025205454546
00:22:13.239 --> 00:22:14.717 hospital because a lot of times
NOTE Confidence: 0.860025205454546
00:22:14.717 --> 00:22:15.902 medications that patients may be
NOTE Confidence: 0.860025205454546
00:22:15.902 --> 00:22:17.826 on as an outpatient in our stopped
NOTE Confidence: 0.860025205454546
00:22:17.826 --> 00:22:19.221 and then additionally there are
NOTE Confidence: 0.860025205454546
00:22:19.230 --> 00:22:21.156 a lot of factors associated with
NOTE Confidence: 0.860025205454546
00:22:21.156 --> 00:22:23.298 critical illness that can unmask or
NOTE Confidence: 0.860025205454546
00:22:23.298 --> 00:22:24.886 exacerbate restless leg symptoms.
NOTE Confidence: 0.860025205454546
00:22:24.890 --> 00:22:26.278 Those include blood loss,
NOTE Confidence: 0.860025205454546
00:22:26.278 --> 00:22:27.319 acute iron deficiency,
NOTE Confidence: 0.860025205454546
00:22:27.320 --> 00:22:29.733 anemia that goes along with that immobility,
NOTE Confidence: 0.860025205454546
00:22:29.733 --> 00:22:31.371 which I'll talk a little bit
NOTE Confidence: 0.860025205454546
00:22:31.371 --> 00:22:32.820 more about later in the talk.
NOTE Confidence: 0.860025205454546
00:22:32.820 --> 00:22:34.630 The sleep deprivation that we've
NOTE Confidence: 0.860025205454546

00:22:34.630 --> 00:22:36.440 been speaking about already and
NOTE Confidence: 0.860025205454546

00:22:36.506 --> 00:22:38.144 then a lot of drugs that can.
NOTE Confidence: 0.860025205454546

00:22:38.150 --> 00:22:41.300 Provoke these symptoms as well.
NOTE Confidence: 0.860025205454546

00:22:41.300 --> 00:22:42.293 And then finally,
NOTE Confidence: 0.860025205454546

00:22:42.293 --> 00:22:44.279 there are very kind of readily
NOTE Confidence: 0.860025205454546

00:22:44.279 --> 00:22:45.547 available interventions just
NOTE Confidence: 0.860025205454546

00:22:45.547 --> 00:22:47.299 to promote patient comfort.
NOTE Confidence: 0.860025205454546

00:22:47.300 --> 00:22:49.204 So there was something that was piloted
NOTE Confidence: 0.860025205454546

00:22:49.204 --> 00:22:51.257 at Upenn called the Comfy card and more.
NOTE Confidence: 0.860025205454546

00:22:51.260 --> 00:22:52.388 Luckily I'm at Stanford,
NOTE Confidence: 0.860025205454546

00:22:52.388 --> 00:22:54.080 called a tuck knee and toolkit.
NOTE Confidence: 0.860025205454546

00:22:54.080 --> 00:22:55.992 The the picture below is of the Upenn
NOTE Confidence: 0.860025205454546

00:22:55.992 --> 00:22:58.249 comfy cart and you can see these are
NOTE Confidence: 0.860025205454546

00:22:58.249 --> 00:22:59.401 not high resource interventions.
NOTE Confidence: 0.860025205454546

00:22:59.410 --> 00:23:01.125 It's basically just some comfort
NOTE Confidence: 0.860025205454546

00:23:01.125 --> 00:23:03.192 measures so some eye masks offering

NOTE Confidence: 0.860025205454546

00:23:03.192 --> 00:23:05.520 the patient a cup of tea before bed.

NOTE Confidence: 0.860025205454546

00:23:05.520 --> 00:23:06.608 A nice warm blanket.

NOTE Confidence: 0.860025205454546

00:23:06.608 --> 00:23:08.240 These things can help to signal

NOTE Confidence: 0.860025205454546

00:23:08.293 --> 00:23:09.973 that it's time to sleep and to

NOTE Confidence: 0.860025205454546

00:23:09.973 --> 00:23:11.380 promote a sleep opportunity.

NOTE Confidence: 0.860025205454546

00:23:11.380 --> 00:23:13.816 For patients in each of these cases,

NOTE Confidence: 0.860025205454546

00:23:13.820 --> 00:23:15.670 the patients reported improved sleep

NOTE Confidence: 0.860025205454546

00:23:15.670 --> 00:23:17.520 quality and more restful sleep.

NOTE Confidence: 0.93909231875

00:23:19.770 --> 00:23:21.922 So that wraps up what I wanted to

NOTE Confidence: 0.93909231875

00:23:21.922 --> 00:23:24.112 talk about with regard to patient

NOTE Confidence: 0.93909231875

00:23:24.112 --> 00:23:25.604 related factors, disrupting sleep

NOTE Confidence: 0.93909231875

00:23:25.604 --> 00:23:27.686 in circadian rhythm in the ICU.

NOTE Confidence: 0.93909231875

00:23:27.690 --> 00:23:30.450 So I'm going to move on now to talk about

NOTE Confidence: 0.93909231875

00:23:30.519 --> 00:23:33.279 environmental factors that disturb sleep.

NOTE Confidence: 0.93909231875

00:23:33.280 --> 00:23:35.470 So environmental factors are very

NOTE Confidence: 0.93909231875

00:23:35.470 --> 00:23:38.349 very prevalent in the in the ICU,
NOTE Confidence: 0.93909231875

00:23:38.350 --> 00:23:40.653 and anyone who's been up there can
NOTE Confidence: 0.93909231875

00:23:40.653 --> 00:23:43.064 imagine a million things on the top of
NOTE Confidence: 0.93909231875

00:23:43.064 --> 00:23:45.122 your head that you can use to describe
NOTE Confidence: 0.93909231875

00:23:45.122 --> 00:23:46.711 things that might just that might
NOTE Confidence: 0.93909231875

00:23:46.711 --> 00:23:48.573 disturb people sleep when it comes to
NOTE Confidence: 0.93909231875

00:23:48.573 --> 00:23:50.277 noise and the list is pretty long,
NOTE Confidence: 0.93909231875

00:23:50.280 --> 00:23:52.100 staff and patient conversations
NOTE Confidence: 0.93909231875

00:23:52.100 --> 00:23:54.375 are ongoing around the clock.
NOTE Confidence: 0.93909231875

00:23:54.380 --> 00:23:55.664 There's always alarms and
NOTE Confidence: 0.93909231875

00:23:55.664 --> 00:23:56.948 monitors that are beeping.
NOTE Confidence: 0.93909231875

00:23:56.950 --> 00:23:58.646 The TV is off and on very loud.
NOTE Confidence: 0.93909231875

00:23:58.650 --> 00:24:01.275 Whether the patient is able to actually
NOTE Confidence: 0.93909231875

00:24:01.275 --> 00:24:03.250 engage in watching that or not.
NOTE Confidence: 0.93909231875

00:24:03.250 --> 00:24:05.330 Overhead codes are frequently called
NOTE Confidence: 0.93909231875

00:24:05.330 --> 00:24:08.219 and devices make noise on on and off.

NOTE Confidence: 0.93909231875
00:24:08.220 --> 00:24:10.470 Light levels are also very maladaptive.
NOTE Confidence: 0.93909231875
00:24:10.470 --> 00:24:11.830 In the ICU environment I'll
NOTE Confidence: 0.93909231875
00:24:11.830 --> 00:24:13.530 describe this in more detail later,
NOTE Confidence: 0.93909231875
00:24:13.530 --> 00:24:15.360 but the ambient lighting during the
NOTE Confidence: 0.93909231875
00:24:15.360 --> 00:24:17.856 day is often too low to adequately
NOTE Confidence: 0.93909231875
00:24:17.856 --> 00:24:19.468 stimulate the circadian system
NOTE Confidence: 0.93909231875
00:24:19.470 --> 00:24:21.290 and then at night there are still
NOTE Confidence: 0.93909231875
00:24:21.290 --> 00:24:22.830 ongoing sources of bright lights,
NOTE Confidence: 0.93909231875
00:24:22.830 --> 00:24:24.090 which again are inappropriate
NOTE Confidence: 0.93909231875
00:24:24.090 --> 00:24:25.350 in the nocturnal setting,
NOTE Confidence: 0.93909231875
00:24:25.350 --> 00:24:27.670 and those include overhead lights,
NOTE Confidence: 0.93909231875
00:24:27.670 --> 00:24:27.981 TV's,
NOTE Confidence: 0.93909231875
00:24:27.981 --> 00:24:30.469 lights on monitors and lights from the hall,
NOTE Confidence: 0.93909231875
00:24:30.470 --> 00:24:32.312 and then the list of patient
NOTE Confidence: 0.93909231875
00:24:32.312 --> 00:24:32.926 care interactions.
NOTE Confidence: 0.93909231875

00:24:32.930 --> 00:24:34.250 And interruptions for that
NOTE Confidence: 0.93909231875

00:24:34.250 --> 00:24:35.900 is quite long as well.
NOTE Confidence: 0.93909231875

00:24:35.900 --> 00:24:37.305 Patients often need to have
NOTE Confidence: 0.93909231875

00:24:37.305 --> 00:24:38.710 frequent vitals checked or neuro
NOTE Confidence: 0.93909231875

00:24:38.758 --> 00:24:40.208 checks depending on what their.
NOTE Confidence: 0.93909231875

00:24:40.210 --> 00:24:41.634 Therefore they may need
NOTE Confidence: 0.93909231875

00:24:41.634 --> 00:24:43.414 lab tests or imaging test.
NOTE Confidence: 0.93909231875

00:24:43.420 --> 00:24:45.526 They may need emergent procedures and
NOTE Confidence: 0.93909231875

00:24:45.526 --> 00:24:47.739 then even routine tasks like hygiene,
NOTE Confidence: 0.93909231875

00:24:47.740 --> 00:24:50.398 bedding change, etc.
NOTE Confidence: 0.93909231875

00:24:50.400 --> 00:24:52.310 So talking 1st about noise.
NOTE Confidence: 0.93909231875

00:24:52.310 --> 00:24:54.435 So there are actually nocturnal
NOTE Confidence: 0.93909231875

00:24:54.435 --> 00:24:56.560 sound level recommendations from The
NOTE Confidence: 0.93909231875

00:24:56.560 --> 00:24:58.264 Who that sound at night shouldn't
NOTE Confidence: 0.93909231875

00:24:58.264 --> 00:24:59.960 be higher than 40 decibels.
NOTE Confidence: 0.93909231875

00:24:59.960 --> 00:25:01.900 And various observational studies

NOTE Confidence: 0.93909231875
00:25:01.900 --> 00:25:04.626 have shown that medical ICU's usually
NOTE Confidence: 0.93909231875
00:25:04.626 --> 00:25:07.580 missed this mark by quite a bit.
NOTE Confidence: 0.93909231875
00:25:07.580 --> 00:25:08.930 Picture below I found actually when
NOTE Confidence: 0.93909231875
00:25:08.930 --> 00:25:10.729 I was trying to prepare this talk I
NOTE Confidence: 0.93909231875
00:25:10.729 --> 00:25:12.279 was looking for some kind of image
NOTE Confidence: 0.93909231875
00:25:12.279 --> 00:25:13.889 to illustrate noise in the ICU and
NOTE Confidence: 0.93909231875
00:25:13.889 --> 00:25:15.342 came across this which was very
NOTE Confidence: 0.93909231875
00:25:15.342 --> 00:25:17.480 pertinent as it's from our own institution.
NOTE Confidence: 0.93909231875
00:25:17.480 --> 00:25:19.728 But what you can see is that the
NOTE Confidence: 0.93909231875
00:25:19.728 --> 00:25:21.973 average sound level in the ICU is 54
NOTE Confidence: 0.93909231875
00:25:21.973 --> 00:25:24.339 decibels and peaks as high as 80 decibels,
NOTE Confidence: 0.93909231875
00:25:24.340 --> 00:25:26.545 which is the left bluff city traffic.
NOTE Confidence: 0.93909231875
00:25:26.550 --> 00:25:29.224 And so this is a pretty notable observation.
NOTE Confidence: 0.93909231875
00:25:29.224 --> 00:25:30.894 ULL studies have also demonstrated
NOTE Confidence: 0.93909231875
00:25:30.894 --> 00:25:33.029 that noise is thought to be responsible
NOTE Confidence: 0.93909231875

00:25:33.029 --> 00:25:34.764 for about 20% of nocturnal arousals,
NOTE Confidence: 0.93909231875

00:25:34.764 --> 00:25:37.652 so this is a really important 'cause of.
NOTE Confidence: 0.93909231875

00:25:37.652 --> 00:25:38.564 With fragmentation,
NOTE Confidence: 0.93909231875

00:25:38.564 --> 00:25:40.844 I put this in here.
NOTE Confidence: 0.93909231875

00:25:40.850 --> 00:25:43.028 Just this is some quotations from
NOTE Confidence: 0.93909231875

00:25:43.028 --> 00:25:45.334 a survey study that was done just
NOTE Confidence: 0.93909231875

00:25:45.334 --> 00:25:46.972 to remind us again on kind of
NOTE Confidence: 0.93909231875

00:25:46.972 --> 00:25:47.790 an individual level,
NOTE Confidence: 0.93909231875

00:25:47.790 --> 00:25:49.788 what patients and staff are experiencing,
NOTE Confidence: 0.93909231875

00:25:49.790 --> 00:25:51.914 and you can see a patient at the top
NOTE Confidence: 0.93909231875

00:25:51.914 --> 00:25:53.969 says the noise is tremendous up here
NOTE Confidence: 0.93909231875

00:25:53.969 --> 00:25:56.006 at the alarms going off and beeps
NOTE Confidence: 0.93909231875

00:25:56.006 --> 00:25:57.713 going off and then even clinical
NOTE Confidence: 0.93909231875

00:25:57.713 --> 00:25:59.578 staff descriptions of the environment.
NOTE Confidence: 0.93909231875

00:25:59.580 --> 00:26:01.404 They say it's a pretty loud place noise
NOTE Confidence: 0.93909231875

00:26:01.404 --> 00:26:02.886 outside the room is a big problem.

NOTE Confidence: 0.865278501428571
00:26:02.890 --> 00:26:04.370 Thousand alarms and noise
NOTE Confidence: 0.865278501428571
00:26:04.370 --> 00:26:05.875 inside the room loud.
NOTE Confidence: 0.865278501428571
00:26:05.875 --> 00:26:08.245 It's loud, so kind of repeating.
NOTE Confidence: 0.865278501428571
00:26:08.250 --> 00:26:10.419 That that theme.
NOTE Confidence: 0.865278501428571
00:26:10.420 --> 00:26:11.910 I'm going through the study
NOTE Confidence: 0.865278501428571
00:26:11.910 --> 00:26:13.400 done by Doctor Canard again,
NOTE Confidence: 0.865278501428571
00:26:13.400 --> 00:26:14.528 and colleagues here at.
NOTE Confidence: 0.865278501428571
00:26:14.528 --> 00:26:16.220 You know this is a prospective
NOTE Confidence: 0.865278501428571
00:26:16.277 --> 00:26:17.509 observational study looking at
NOTE Confidence: 0.865278501428571
00:26:17.509 --> 00:26:19.357 the sound level in 59 Mickey
NOTE Confidence: 0.865278501428571
00:26:19.415 --> 00:26:21.107 Rooms and what they found was
NOTE Confidence: 0.865278501428571
00:26:21.107 --> 00:26:22.688 that the overnight sound level,
NOTE Confidence: 0.865278501428571
00:26:22.688 --> 00:26:24.480 as I mentioned earlier,
NOTE Confidence: 0.865278501428571
00:26:24.480 --> 00:26:27.297 was about a 54 DB on the alienated scale,
NOTE Confidence: 0.865278501428571
00:26:27.300 --> 00:26:29.636 about 63 decibels on the C weighted scale,
NOTE Confidence: 0.865278501428571

00:26:29.640 --> 00:26:31.124 with frequent high peaks.
NOTE Confidence: 0.865278501428571

00:26:31.124 --> 00:26:32.979 The difference between the scales
NOTE Confidence: 0.865278501428571

00:26:32.979 --> 00:26:34.921 suggests that perhaps low frequency
NOTE Confidence: 0.865278501428571

00:26:34.921 --> 00:26:36.806 sounds actually contribute in a
NOTE Confidence: 0.865278501428571

00:26:36.806 --> 00:26:39.097 meaningful way to the noise level in the ICU,
NOTE Confidence: 0.865278501428571

00:26:39.100 --> 00:26:40.210 and these sounds might be.
NOTE Confidence: 0.865278501428571

00:26:40.210 --> 00:26:42.128 Things like the air exchangers for instance,
NOTE Confidence: 0.865278501428571

00:26:42.130 --> 00:26:43.876 or just kind of environmental ambient
NOTE Confidence: 0.865278501428571

00:26:43.876 --> 00:26:45.510 sounds from the hospital workings.
NOTE Confidence: 0.865278501428571

00:26:45.510 --> 00:26:46.118 I mean,
NOTE Confidence: 0.865278501428571

00:26:46.118 --> 00:26:47.638 these things may be unavoidable
NOTE Confidence: 0.865278501428571

00:26:47.638 --> 00:26:48.550 to certain extent,
NOTE Confidence: 0.865278501428571

00:26:48.550 --> 00:26:50.580 and so that's important to
NOTE Confidence: 0.865278501428571

00:26:50.580 --> 00:26:52.320 acknowledge and then the two graphs
NOTE Confidence: 0.865278501428571

00:26:52.320 --> 00:26:54.118 here on the bottom show individual
NOTE Confidence: 0.865278501428571

00:26:54.118 --> 00:26:56.148 sound profiles of patient rooms,

NOTE Confidence: 0.865278501428571
00:26:56.150 --> 00:26:57.242 and they're pretty different.
NOTE Confidence: 0.865278501428571
00:26:57.242 --> 00:26:58.607 It's interesting to note that
NOTE Confidence: 0.865278501428571
00:26:58.607 --> 00:27:00.065 in the one on the left panel,
NOTE Confidence: 0.865278501428571
00:27:00.070 --> 00:27:00.622 see here,
NOTE Confidence: 0.865278501428571
00:27:00.622 --> 00:27:02.278 you can see that the average
NOTE Confidence: 0.865278501428571
00:27:02.278 --> 00:27:04.412 sound level is still above what we
NOTE Confidence: 0.865278501428571
00:27:04.412 --> 00:27:05.932 would consider to be appropriate
NOTE Confidence: 0.865278501428571
00:27:05.991 --> 00:27:07.427 for nocturnal sound level,
NOTE Confidence: 0.865278501428571
00:27:07.430 --> 00:27:08.483 but more notable,
NOTE Confidence: 0.865278501428571
00:27:08.483 --> 00:27:10.589 it also has several high peaks.
NOTE Confidence: 0.865278501428571
00:27:10.590 --> 00:27:11.826 Throughout the recording time,
NOTE Confidence: 0.865278501428571
00:27:11.826 --> 00:27:14.031 whereas on the right and we see
NOTE Confidence: 0.865278501428571
00:27:14.031 --> 00:27:15.759 this room has a relatively more
NOTE Confidence: 0.865278501428571
00:27:15.759 --> 00:27:17.588 stable sound level with fewer peaks,
NOTE Confidence: 0.865278501428571
00:27:17.590 --> 00:27:19.518 but the sound is at a higher level,
NOTE Confidence: 0.865278501428571

00:27:19.520 --> 00:27:21.795 so the profiles range quite a bit.
NOTE Confidence: 0.75896154625

00:27:23.830 --> 00:27:26.567 This isn't this is a PSG clip
NOTE Confidence: 0.75896154625

00:27:26.567 --> 00:27:27.558 from Friedman's observation,
NOTE Confidence: 0.75896154625

00:27:27.558 --> 00:27:29.950 ULL study and I like this clip because
NOTE Confidence: 0.75896154625

00:27:30.007 --> 00:27:31.862 it shows us just an exact demonstration
NOTE Confidence: 0.75896154625

00:27:31.862 --> 00:27:33.438 of what happens with the noise.
NOTE Confidence: 0.75896154625

00:27:33.440 --> 00:27:35.544 So we see that there's a spiking noise,
NOTE Confidence: 0.75896154625

00:27:35.550 --> 00:27:37.944 and sure enough the patient hasn't
NOTE Confidence: 0.75896154625

00:27:37.944 --> 00:27:40.110 arousal correctly after this happens.
NOTE Confidence: 0.75896154625

00:27:40.110 --> 00:27:41.326 On a larger scale,
NOTE Confidence: 0.75896154625

00:27:41.326 --> 00:27:43.548 this study looked to kind of try
NOTE Confidence: 0.75896154625

00:27:43.548 --> 00:27:45.528 to estimate what is that actual
NOTE Confidence: 0.75896154625

00:27:45.528 --> 00:27:47.878 impact of noise on sleep disruption.
NOTE Confidence: 0.75896154625

00:27:47.880 --> 00:27:50.769 This was a study that did 24 hour PSD's
NOTE Confidence: 0.75896154625

00:27:50.769 --> 00:27:52.064 on patients in various conditions
NOTE Confidence: 0.75896154625

00:27:52.064 --> 00:27:54.556 in the data on the slide is from

NOTE Confidence: 0.75896154625
00:27:54.556 --> 00:27:55.606 mechanically ventilated patients.
NOTE Confidence: 0.75896154625
00:27:55.610 --> 00:27:57.906 In the ICU you can see that in
NOTE Confidence: 0.75896154625
00:27:57.906 --> 00:28:00.059 various forms of trying to quantify
NOTE Confidence: 0.75896154625
00:28:00.059 --> 00:28:01.949 the sound related arousals they
NOTE Confidence: 0.75896154625
00:28:01.949 --> 00:28:04.093 were very prominent and overall
NOTE Confidence: 0.75896154625
00:28:04.093 --> 00:28:06.932 they estimated that about 21% of
NOTE Confidence: 0.75896154625
00:28:06.932 --> 00:28:09.787 arousals were related to noise.
NOTE Confidence: 0.75896154625
00:28:09.790 --> 00:28:11.653 So now that I've described noise in the ICU,
NOTE Confidence: 0.75896154625
00:28:11.660 --> 00:28:13.844 I'm going to move on to describe light.
NOTE Confidence: 0.75896154625
00:28:13.850 --> 00:28:16.318 This is a study that looked at light
NOTE Confidence: 0.75896154625
00:28:16.318 --> 00:28:18.100 exposure and making rooms depending on
NOTE Confidence: 0.75896154625
00:28:18.158 --> 00:28:19.850 which direction they were facing and
NOTE Confidence: 0.75896154625
00:28:19.850 --> 00:28:21.588 they were trying to determine whether
NOTE Confidence: 0.75896154625
00:28:21.588 --> 00:28:23.804 the light profile in the room had any
NOTE Confidence: 0.75896154625
00:28:23.810 --> 00:28:25.246 association with patient outcomes.
NOTE Confidence: 0.75896154625

00:28:25.246 --> 00:28:27.400 They weren't able to demonstrate any
NOTE Confidence: 0.75896154625

00:28:27.457 --> 00:28:29.229 association with clinical outcomes,
NOTE Confidence: 0.75896154625

00:28:29.230 --> 00:28:31.180 but I think the observational data
NOTE Confidence: 0.75896154625

00:28:31.180 --> 00:28:33.250 is very striking and interesting.
NOTE Confidence: 0.75896154625

00:28:33.250 --> 00:28:35.226 What they found was that in the rooms
NOTE Confidence: 0.75896154625

00:28:35.226 --> 00:28:36.859 that were facing every direction
NOTE Confidence: 0.75896154625

00:28:36.859 --> 00:28:38.436 except from South, on average,
NOTE Confidence: 0.75896154625

00:28:38.436 --> 00:28:39.428 the amount of lux.
NOTE Confidence: 0.75896154625

00:28:39.430 --> 00:28:41.164 Rooms received was well under 100
NOTE Confidence: 0.75896154625

00:28:41.164 --> 00:28:43.275 lux during the day and in those
NOTE Confidence: 0.75896154625

00:28:43.275 --> 00:28:44.770 in the South facing direction,
NOTE Confidence: 0.75896154625

00:28:44.770 --> 00:28:47.276 about 400 lux and just to put
NOTE Confidence: 0.75896154625

00:28:47.276 --> 00:28:48.350 this into context,
NOTE Confidence: 0.75896154625

00:28:48.350 --> 00:28:50.762 it's thought that about 180 bucks
NOTE Confidence: 0.75896154625

00:28:50.762 --> 00:28:52.842 is the minimum threshold to
NOTE Confidence: 0.75896154625

00:28:52.842 --> 00:28:54.450 achieve a biologic effect.

NOTE Confidence: 0.75896154625

00:28:54.450 --> 00:28:56.767 There is one set of guidelines that

NOTE Confidence: 0.75896154625

00:28:56.767 --> 00:28:58.935 suggested that 500 to 1000 Lux should

NOTE Confidence: 0.75896154625

00:28:58.935 --> 00:29:01.410 be kind of the target goal for daytime

NOTE Confidence: 0.75896154625

00:29:01.410 --> 00:29:03.666 light exposure and ICU patient rooms,

NOTE Confidence: 0.75896154625

00:29:03.670 --> 00:29:05.882 and then putting this into context and

NOTE Confidence: 0.75896154625

00:29:05.882 --> 00:29:08.508 more kind of regular outdoor exposures.

NOTE Confidence: 0.75896154625

00:29:08.510 --> 00:29:10.598 1000 lux is about what we would expect to

NOTE Confidence: 0.75896154625

00:29:10.598 --> 00:29:12.778 be exposed to 100 overcast day outside.

NOTE Confidence: 0.75896154625

00:29:12.780 --> 00:29:16.480 Whereas 32,230 Lux represents the

NOTE Confidence: 0.75896154625

00:29:16.480 --> 00:29:18.000 exposure from direct sunlight,

NOTE Confidence: 0.75896154625

00:29:18.000 --> 00:29:19.585 and when we're thinking about

NOTE Confidence: 0.75896154625

00:29:19.585 --> 00:29:20.536 prescribing therapeutic light

NOTE Confidence: 0.75896154625

00:29:20.536 --> 00:29:21.789 exposure for our patients,

NOTE Confidence: 0.75896154625

00:29:21.790 --> 00:29:23.799 this is usually in the range of

NOTE Confidence: 0.75896154625

00:29:23.799 --> 00:29:24.660 around 10,000 bucks.

NOTE Confidence: 0.75896154625

00:29:24.660 --> 00:29:26.886 So to say that these rooms are
NOTE Confidence: 0.75896154625

00:29:26.886 --> 00:29:28.451 experiencing under under 100 lux
NOTE Confidence: 0.75896154625

00:29:28.451 --> 00:29:30.355 through the course of the day is
NOTE Confidence: 0.75896154625

00:29:30.355 --> 00:29:31.850 really very very dim light.
NOTE Confidence: 0.857819884761905

00:29:33.920 --> 00:29:36.279 This was a study that looked at
NOTE Confidence: 0.857819884761905

00:29:36.279 --> 00:29:38.287 an environmental or survey of
NOTE Confidence: 0.857819884761905

00:29:38.287 --> 00:29:40.602 environmental factors before and after
NOTE Confidence: 0.857819884761905

00:29:40.602 --> 00:29:42.920 a quality improvement intervention.
NOTE Confidence: 0.857819884761905

00:29:42.920 --> 00:29:44.999 They looked at various conditions at morning,
NOTE Confidence: 0.857819884761905

00:29:45.000 --> 00:29:47.216 noon and night, and you can see that
NOTE Confidence: 0.857819884761905

00:29:47.216 --> 00:29:49.051 they're kind of many conditions that
NOTE Confidence: 0.857819884761905

00:29:49.051 --> 00:29:50.795 are are kind of maladaptive Lee
NOTE Confidence: 0.857819884761905

00:29:50.795 --> 00:29:52.580 applied throughout the day and night.
NOTE Confidence: 0.857819884761905

00:29:52.580 --> 00:29:54.659 What I wanted to highlight here is
NOTE Confidence: 0.857819884761905

00:29:54.659 --> 00:29:56.780 that over 990 I see patient nights.
NOTE Confidence: 0.857819884761905

00:29:56.780 --> 00:29:58.860 There were no lights on in the morning.

NOTE Confidence: 0.857819884761905
00:29:58.860 --> 00:30:00.370 Almost half of the time,
NOTE Confidence: 0.857819884761905
00:30:00.370 --> 00:30:01.684 and this is important to think
NOTE Confidence: 0.857819884761905
00:30:01.684 --> 00:30:03.830 about as light in the morning as an
NOTE Confidence: 0.857819884761905
00:30:03.830 --> 00:30:04.748 important circadian stimulus.
NOTE Confidence: 0.857819884761905
00:30:04.750 --> 00:30:06.238 To help with entrainment
NOTE Confidence: 0.857819884761905
00:30:06.238 --> 00:30:07.726 of the central clock,
NOTE Confidence: 0.857819884761905
00:30:07.730 --> 00:30:09.834 whereas bright lights were on in over 1/5
NOTE Confidence: 0.857819884761905
00:30:09.834 --> 00:30:12.225 of the rooms in the middle of the night,
NOTE Confidence: 0.857819884761905
00:30:12.230 --> 00:30:14.390 which is obvious.
NOTE Confidence: 0.857819884761905
00:30:14.390 --> 00:30:17.270 Obviously a circadian disadvantage.
NOTE Confidence: 0.857819884761905
00:30:17.270 --> 00:30:19.166 And then now I'm moving on
NOTE Confidence: 0.857819884761905
00:30:19.166 --> 00:30:20.430 to patient care interactions,
NOTE Confidence: 0.857819884761905
00:30:20.430 --> 00:30:22.098 so another common environmental
NOTE Confidence: 0.857819884761905
00:30:22.098 --> 00:30:23.766 cause of sleep disruption.
NOTE Confidence: 0.857819884761905
00:30:23.770 --> 00:30:25.180 So this was an observation.
NOTE Confidence: 0.857819884761905

00:30:25.180 --> 00:30:27.711 ULL study that looked at 147
NOTE Confidence: 0.857819884761905

00:30:27.711 --> 00:30:29.817 ICU patient nights and this was
NOTE Confidence: 0.857819884761905

00:30:29.817 --> 00:30:31.360 across different kinds of ICU,
NOTE Confidence: 0.857819884761905

00:30:31.360 --> 00:30:32.956 so they had patients in medical,
NOTE Confidence: 0.857819884761905

00:30:32.960 --> 00:30:35.780 surgical, cardiac and Neuro ICU's.
NOTE Confidence: 0.857819884761905

00:30:35.780 --> 00:30:37.804 And what they found as you can see
NOTE Confidence: 0.857819884761905

00:30:37.804 --> 00:30:39.760 here on this histogram is that from
NOTE Confidence: 0.857819884761905

00:30:39.760 --> 00:30:42.056 7:00 PM to 7:00 AM patients had
NOTE Confidence: 0.857819884761905

00:30:42.056 --> 00:30:44.166 awakenings all throughout the night.
NOTE Confidence: 0.857819884761905

00:30:44.170 --> 00:30:46.270 On average about 43 care interactions
NOTE Confidence: 0.857819884761905

00:30:46.270 --> 00:30:47.320 during the nocturnal.
NOTE Confidence: 0.857819884761905

00:30:47.320 --> 00:30:49.504 Time and they reported that of
NOTE Confidence: 0.857819884761905

00:30:49.504 --> 00:30:50.960 the nights they observed,
NOTE Confidence: 0.857819884761905

00:30:50.960 --> 00:30:53.501 only 6% of them provided patients with
NOTE Confidence: 0.857819884761905

00:30:53.501 --> 00:30:56.739 two to three hours of uninterrupted sleep,
NOTE Confidence: 0.857819884761905

00:30:56.740 --> 00:31:01.507 so that's pretty pretty horrible to imagine.

NOTE Confidence: 0.857819884761905
00:31:01.510 --> 00:31:02.830 I put this graphic here just
NOTE Confidence: 0.857819884761905
00:31:02.830 --> 00:31:04.060 to demonstrate that of course,
NOTE Confidence: 0.857819884761905
00:31:04.060 --> 00:31:05.350 when we think about taking care
NOTE Confidence: 0.857819884761905
00:31:05.350 --> 00:31:06.620 of our critically ill patients,
NOTE Confidence: 0.857819884761905
00:31:06.620 --> 00:31:08.596 we think about all the time sensitive tasks.
NOTE Confidence: 0.857819884761905
00:31:08.600 --> 00:31:10.472 But plenty of these interruptions are
NOTE Confidence: 0.857819884761905
00:31:10.472 --> 00:31:12.839 for tasks that are not time sensitive.
NOTE Confidence: 0.857819884761905
00:31:12.840 --> 00:31:15.216 These are episodes of our percentages
NOTE Confidence: 0.857819884761905
00:31:15.216 --> 00:31:17.960 rather of patients being bathed overnight,
NOTE Confidence: 0.857819884761905
00:31:17.960 --> 00:31:19.480 and you can see that there is a
NOTE Confidence: 0.857819884761905
00:31:19.480 --> 00:31:20.629 spike in patients being beings
NOTE Confidence: 0.857819884761905
00:31:20.629 --> 00:31:22.295 at four or five and 6:00 AM,
NOTE Confidence: 0.857819884761905
00:31:22.300 --> 00:31:24.364 which you can imagine it would be very
NOTE Confidence: 0.857819884761905
00:31:24.364 --> 00:31:26.120 disruptive to their sleep opportunity.
NOTE Confidence: 0.857819884761905
00:31:26.120 --> 00:31:26.702 I suspect,
NOTE Confidence: 0.857819884761905

00:31:26.702 --> 00:31:28.739 although this is based on no data,
NOTE Confidence: 0.857819884761905

00:31:28.740 --> 00:31:30.966 that this is probably related to the
NOTE Confidence: 0.857819884761905

00:31:30.966 --> 00:31:32.927 nighttime nurses trying to make sure that.
NOTE Confidence: 0.857819884761905

00:31:32.930 --> 00:31:34.382 They kind of accomplish this task
NOTE Confidence: 0.857819884761905

00:31:34.382 --> 00:31:36.069 before the date time nurses come on.
NOTE Confidence: 0.857819884761905

00:31:36.070 --> 00:31:37.886 Have a an often very busy docket of
NOTE Confidence: 0.857819884761905

00:31:37.886 --> 00:31:39.603 task to complete for the patient and
NOTE Confidence: 0.857819884761905

00:31:39.603 --> 00:31:41.904 so I see why this would make sense
NOTE Confidence: 0.857819884761905

00:31:41.904 --> 00:31:43.619 from a nursing workflow standpoint.
NOTE Confidence: 0.857819884761905

00:31:43.620 --> 00:31:44.700 But again, for the patient,
NOTE Confidence: 0.857819884761905

00:31:44.700 --> 00:31:48.078 sleep opportunities can be very disruptive.
NOTE Confidence: 0.857819884761905

00:31:48.080 --> 00:31:49.772 So now that we understand about
NOTE Confidence: 0.857819884761905

00:31:49.772 --> 00:31:50.900 some of the object,
NOTE Confidence: 0.857819884761905

00:31:50.900 --> 00:31:53.330 the environmental components that lead
NOTE Confidence: 0.857819884761905

00:31:53.330 --> 00:31:55.760 to sleep and circadian disruption,
NOTE Confidence: 0.857819884761905

00:31:55.760 --> 00:31:57.600 the noise, the light and the patient care,

NOTE Confidence: 0.857819884761905

00:31:57.600 --> 00:31:58.030 interruptions.

NOTE Confidence: 0.857819884761905

00:31:58.030 --> 00:32:00.610 All of these things together lend

NOTE Confidence: 0.857819884761905

00:32:00.610 --> 00:32:02.535 themselves to multicomponent sleep

NOTE Confidence: 0.857819884761905

00:32:02.535 --> 00:32:04.332 improvement interventions and these

NOTE Confidence: 0.857819884761905

00:32:04.332 --> 00:32:06.258 quiet time protocols have major aims

NOTE Confidence: 0.857819884761905

00:32:06.258 --> 00:32:08.308 of trying to reduce or mitigate all

NOTE Confidence: 0.857819884761905

00:32:08.308 --> 00:32:10.579 of the factors that I just mentioned.

NOTE Confidence: 0.857819884761905

00:32:10.580 --> 00:32:13.380 So they try to focus on educating

NOTE Confidence: 0.857819884761905

00:32:13.380 --> 00:32:14.820 people to reduce visitor and

NOTE Confidence: 0.857819884761905

00:32:14.820 --> 00:32:17.147 staff talking and to cut down on

NOTE Confidence: 0.857819884761905

00:32:17.147 --> 00:32:18.386 overhead announcements during.

NOTE Confidence: 0.857819884761905

00:32:18.390 --> 00:32:20.268 The sleep time they aim to

NOTE Confidence: 0.857819884761905

00:32:20.268 --> 00:32:21.520 minimize equipment beeps and

NOTE Confidence: 0.87097645137931

00:32:21.579 --> 00:32:23.523 nuisance alarms to focus on closing

NOTE Confidence: 0.87097645137931

00:32:23.523 --> 00:32:25.514 patient room doors so that hallway

NOTE Confidence: 0.87097645137931

00:32:25.514 --> 00:32:27.726 noises and light are not spilling in.

NOTE Confidence: 0.87097645137931

00:32:27.730 --> 00:32:29.308 I'm having the lights out when

NOTE Confidence: 0.87097645137931

00:32:29.308 --> 00:32:31.048 it's a dedicated sleep time and

NOTE Confidence: 0.87097645137931

00:32:31.048 --> 00:32:32.308 then clustering patient care,

NOTE Confidence: 0.87097645137931

00:32:32.310 --> 00:32:33.899 so of course they're going to be

NOTE Confidence: 0.87097645137931

00:32:33.899 --> 00:32:35.484 time sensitive and urgent tasks that

NOTE Confidence: 0.87097645137931

00:32:35.484 --> 00:32:36.904 occur in critically ill patients.

NOTE Confidence: 0.87097645137931

00:32:36.910 --> 00:32:38.596 But for those non urgent tasks

NOTE Confidence: 0.87097645137931

00:32:38.596 --> 00:32:40.333 they should be scheduled outside of

NOTE Confidence: 0.87097645137931

00:32:40.333 --> 00:32:41.989 the protected sleep time and for

NOTE Confidence: 0.87097645137931

00:32:41.989 --> 00:32:43.828 tasks that are more time sensitive.

NOTE Confidence: 0.87097645137931

00:32:43.830 --> 00:32:45.195 If possible, to consolidate these

NOTE Confidence: 0.87097645137931

00:32:45.195 --> 00:32:46.942 together so that there are fewer

NOTE Confidence: 0.87097645137931

00:32:46.942 --> 00:32:48.286 interruptions for the patients.

NOTE Confidence: 0.87097645137931

00:32:48.290 --> 00:32:51.770 Date. So this is a slide.

NOTE Confidence: 0.87097645137931

00:32:51.770 --> 00:32:53.885 This is a figure out are from one of

NOTE Confidence: 0.87097645137931

00:32:53.885 --> 00:32:55.651 Doctor Kinards paper for nap time

NOTE Confidence: 0.87097645137931

00:32:55.651 --> 00:32:57.456 protocol and these are just various

NOTE Confidence: 0.87097645137931

00:32:57.456 --> 00:32:59.367 elements and I put this up here.

NOTE Confidence: 0.87097645137931

00:32:59.370 --> 00:33:00.630 I'm not because I'm gonna read

NOTE Confidence: 0.87097645137931

00:33:00.630 --> 00:33:01.470 you every bullet point,

NOTE Confidence: 0.87097645137931

00:33:01.470 --> 00:33:03.174 but just to demonstrate that often

NOTE Confidence: 0.87097645137931

00:33:03.174 --> 00:33:04.848 these protocols can be very well

NOTE Confidence: 0.87097645137931

00:33:04.848 --> 00:33:06.556 thought out and involved quite a bit

NOTE Confidence: 0.87097645137931

00:33:06.556 --> 00:33:08.516 of different elements and those can

NOTE Confidence: 0.87097645137931

00:33:08.516 --> 00:33:10.391 range from the institutional level all

NOTE Confidence: 0.87097645137931

00:33:10.391 --> 00:33:11.999 the way down to the direct bedside care.

NOTE Confidence: 0.881185262

00:33:14.220 --> 00:33:15.864 So this is going back to

NOTE Confidence: 0.881185262

00:33:15.864 --> 00:33:16.960 that Altman paper again.

NOTE Confidence: 0.881185262

00:33:16.960 --> 00:33:18.575 The quality improvement intervention and

NOTE Confidence: 0.881185262

00:33:18.575 --> 00:33:20.988 they did show that on their environmental

NOTE Confidence: 0.881185262

00:33:20.988 --> 00:33:23.208 survey there was a significant change
NOTE Confidence: 0.881185262

00:33:23.208 --> 00:33:25.705 in conditions before and answer their
NOTE Confidence: 0.881185262

00:33:25.705 --> 00:33:26.980 quality improvement intervention.
NOTE Confidence: 0.881185262

00:33:26.980 --> 00:33:29.116 So what the graphs are showing here is
NOTE Confidence: 0.881185262

00:33:29.116 --> 00:33:31.296 conditions in the morning in the yellow bars,
NOTE Confidence: 0.881185262

00:33:31.300 --> 00:33:32.668 noon in the orange bars and
NOTE Confidence: 0.881185262

00:33:32.668 --> 00:33:34.169 at night in the blue bars.
NOTE Confidence: 0.881185262

00:33:34.170 --> 00:33:35.885 The conditions that baseline are
NOTE Confidence: 0.881185262

00:33:35.885 --> 00:33:38.004 represented by the solid bars and
NOTE Confidence: 0.881185262

00:33:38.004 --> 00:33:39.719 those after the intervention are
NOTE Confidence: 0.881185262

00:33:39.719 --> 00:33:41.430 represented by the strike bars.
NOTE Confidence: 0.881185262

00:33:41.430 --> 00:33:43.467 One thing they found was that with
NOTE Confidence: 0.881185262

00:33:43.467 --> 00:33:45.030 their quality improvement intervention.
NOTE Confidence: 0.881185262

00:33:45.030 --> 00:33:46.230 A higher proportion of patients
NOTE Confidence: 0.881185262

00:33:46.230 --> 00:33:47.770 had no lights on at night,
NOTE Confidence: 0.881185262

00:33:47.770 --> 00:33:50.090 which is a beneficial outcome,

NOTE Confidence: 0.881185262

00:33:50.090 --> 00:33:52.386 and then similarly they found that doors

NOTE Confidence: 0.881185262

00:33:52.386 --> 00:33:54.517 and windows shades were more likely to

NOTE Confidence: 0.881185262

00:33:54.517 --> 00:33:56.490 be open during the daytime at noon,

NOTE Confidence: 0.881185262

00:33:56.490 --> 00:33:58.002 and more likely to be closed

NOTE Confidence: 0.881185262

00:33:58.002 --> 00:33:59.312 and protect patients from extra

NOTE Confidence: 0.881185262

00:33:59.312 --> 00:34:00.557 light pouring in at night.

NOTE Confidence: 0.881185262

00:34:00.560 --> 00:34:02.527 So these things all kind of show

NOTE Confidence: 0.881185262

00:34:02.527 --> 00:34:04.348 that a quality improvement or

NOTE Confidence: 0.881185262

00:34:04.348 --> 00:34:05.722 multicomponent intervention can

NOTE Confidence: 0.881185262

00:34:05.722 --> 00:34:08.556 really help to promote a more

NOTE Confidence: 0.881185262

00:34:08.556 --> 00:34:11.046 favorable environment for patients to

NOTE Confidence: 0.881185262

00:34:11.046 --> 00:34:14.100 achieve a better sleep opportunity.

NOTE Confidence: 0.881185262

00:34:14.100 --> 00:34:16.046 And this was another study done by

NOTE Confidence: 0.881185262

00:34:16.046 --> 00:34:17.800 Doctor Canard and colleagues here.

NOTE Confidence: 0.881185262

00:34:17.800 --> 00:34:20.416 This was a study looking at 56 MCU

NOTE Confidence: 0.881185262

00:34:20.416 --> 00:34:22.538 patients and they tried to dedicate
NOTE Confidence: 0.881185262

00:34:22.538 --> 00:34:25.262 from midnight to 4:00 AM as a a rest
NOTE Confidence: 0.881185262

00:34:25.262 --> 00:34:26.984 time or a nap time for patients,
NOTE Confidence: 0.881185262

00:34:26.990 --> 00:34:29.078 during which, as I mentioned earlier,
NOTE Confidence: 0.881185262

00:34:29.080 --> 00:34:31.414 the focus was on keeping the
NOTE Confidence: 0.881185262

00:34:31.414 --> 00:34:33.440 environment more favorable for sleep.
NOTE Confidence: 0.881185262

00:34:33.440 --> 00:34:35.540 So again, routine care, medications,
NOTE Confidence: 0.881185262

00:34:35.540 --> 00:34:37.370 diagnostic tests should be scheduled before,
NOTE Confidence: 0.881185262

00:34:37.370 --> 00:34:39.956 after and time sensitive test clustered.
NOTE Confidence: 0.881185262

00:34:39.960 --> 00:34:41.500 What these pictures are showing.
NOTE Confidence: 0.881185262

00:34:41.500 --> 00:34:42.652 And I apologize for the letters
NOTE Confidence: 0.881185262

00:34:42.652 --> 00:34:43.420 being out of order.
NOTE Confidence: 0.881185262

00:34:43.420 --> 00:34:45.670 They're sliced from different figures.
NOTE Confidence: 0.881185262

00:34:45.670 --> 00:34:48.064 But on the left side of each
NOTE Confidence: 0.881185262

00:34:48.064 --> 00:34:49.090 is baseline conditions.
NOTE Confidence: 0.881185262

00:34:49.090 --> 00:34:51.058 The squares are the people who

NOTE Confidence: 0.881185262

00:34:51.058 --> 00:34:53.058 were randomized to usual care and

NOTE Confidence: 0.881185262

00:34:53.058 --> 00:34:54.918 the circles are those who are

NOTE Confidence: 0.881185262

00:34:54.918 --> 00:34:57.041 randomized to receive the naptime

NOTE Confidence: 0.881185262

00:34:57.041 --> 00:34:59.712 intervention and the closed boxes

NOTE Confidence: 0.881185262

00:34:59.712 --> 00:35:01.379 are before the intervention.

NOTE Confidence: 0.881185262

00:35:01.379 --> 00:35:03.990 The open boxes are after the intervention.

NOTE Confidence: 0.881185262

00:35:03.990 --> 00:35:06.488 What they found was that with the

NOTE Confidence: 0.881185262

00:35:06.488 --> 00:35:07.490 with the intervention,

NOTE Confidence: 0.881185262

00:35:07.490 --> 00:35:12.450 they were able to achieve a better.

NOTE Confidence: 0.881185262

00:35:12.450 --> 00:35:14.270 Reduction in minutes of activity.

NOTE Confidence: 0.881185262

00:35:14.270 --> 00:35:16.545 I'm sorry in their room per hour

NOTE Confidence: 0.881185262

00:35:16.545 --> 00:35:18.725 and they also were able to achieve

NOTE Confidence: 0.881185262

00:35:18.725 --> 00:35:20.150 increased rest time for the

NOTE Confidence: 0.881185262

00:35:20.150 --> 00:35:21.905 patients as well as the reduction

NOTE Confidence: 0.881185262

00:35:21.905 --> 00:35:23.579 in the main level and moving.

NOTE Confidence: 0.910489658181818

00:35:26.070 --> 00:35:27.861 So multicomponent sleep
NOTE Confidence: 0.910489658181818

00:35:27.861 --> 00:35:30.249 improvement interventions have been
NOTE Confidence: 0.910489658181818

00:35:30.249 --> 00:35:32.620 investigated by various groups.
NOTE Confidence: 0.910489658181818

00:35:32.620 --> 00:35:34.820 Overall, they have been mostly
NOTE Confidence: 0.910489658181818

00:35:34.820 --> 00:35:38.067 shown to be effective in reducing
NOTE Confidence: 0.910489658181818

00:35:38.067 --> 00:35:39.989 environmental disturbances.
NOTE Confidence: 0.910489658181818

00:35:39.990 --> 00:35:41.985 They've been described to show
NOTE Confidence: 0.910489658181818

00:35:41.985 --> 00:35:43.980 a decrease in noise levels
NOTE Confidence: 0.910489658181818

00:35:44.057 --> 00:35:45.947 as well as in some studies.
NOTE Confidence: 0.910489658181818

00:35:45.950 --> 00:35:47.326 Reduction in sound and
NOTE Confidence: 0.910489658181818

00:35:47.326 --> 00:35:48.358 light levels overnight,
NOTE Confidence: 0.910489658181818

00:35:48.360 --> 00:35:50.688 with one study reporting and increased
NOTE Confidence: 0.910489658181818

00:35:50.688 --> 00:35:53.031 likelihood of patients sleep and that
NOTE Confidence: 0.910489658181818

00:35:53.031 --> 00:35:55.203 was as described by nursing observations.
NOTE Confidence: 0.910489658181818

00:35:55.210 --> 00:35:57.709 And then again in Doctor Kennard study,
NOTE Confidence: 0.910489658181818

00:35:57.710 --> 00:35:59.908 they reduced in room activity by 9

NOTE Confidence: 0.910489658181818
00:35:59.908 --> 00:36:01.843 minutes per hour and increased rest
NOTE Confidence: 0.910489658181818
00:36:01.843 --> 00:36:04.560 time between care from 26 to 46 minutes.
NOTE Confidence: 0.910489658181818
00:36:04.560 --> 00:36:06.220 However, these protocols are
NOTE Confidence: 0.910489658181818
00:36:06.220 --> 00:36:07.465 not always effective,
NOTE Confidence: 0.910489658181818
00:36:07.470 --> 00:36:09.465 and some of the studies looking at
NOTE Confidence: 0.910489658181818
00:36:09.465 --> 00:36:11.260 these have failed to show benefit.
NOTE Confidence: 0.925343346666666
00:36:13.490 --> 00:36:15.460 One thing in particular that's
NOTE Confidence: 0.925343346666666
00:36:15.460 --> 00:36:17.430 been difficult is to demonstrate
NOTE Confidence: 0.925343346666666
00:36:17.498 --> 00:36:19.938 improvement in sleep specific outcomes.
NOTE Confidence: 0.925343346666666
00:36:19.940 --> 00:36:22.866 So there was a multi multi component
NOTE Confidence: 0.925343346666666
00:36:22.866 --> 00:36:25.129 protocol recently that looked at
NOTE Confidence: 0.925343346666666
00:36:25.129 --> 00:36:27.459 environmental control and air plugs.
NOTE Confidence: 0.925343346666666
00:36:27.460 --> 00:36:28.459 They found increased
NOTE Confidence: 0.925343346666666
00:36:28.459 --> 00:36:30.124 delirium and coma free days,
NOTE Confidence: 0.925343346666666
00:36:30.130 --> 00:36:32.776 but were unable to demonstrate sleep changes.
NOTE Confidence: 0.925343346666666

00:36:32.780 --> 00:36:35.012 Similarly, a multicomponent intervention
NOTE Confidence: 0.9253433466666666

00:36:35.012 --> 00:36:37.430 in surgical ICU's showed a significant
NOTE Confidence: 0.9253433466666666

00:36:37.430 --> 00:36:39.055 reduction in the proportion of
NOTE Confidence: 0.9253433466666666

00:36:39.055 --> 00:36:40.796 days with delirium, but again,
NOTE Confidence: 0.9253433466666666

00:36:40.796 --> 00:36:42.674 no change in patient reported perceived.
NOTE Confidence: 0.9253433466666666

00:36:42.680 --> 00:36:43.350 Like quality?
NOTE Confidence: 0.820807758

00:36:45.720 --> 00:36:49.150 So within the multicomponent interventions,
NOTE Confidence: 0.820807758

00:36:49.150 --> 00:36:51.902 I wanted to focus a little bit more
NOTE Confidence: 0.820807758

00:36:51.902 --> 00:36:54.478 specifically on noise and light mitigation.
NOTE Confidence: 0.820807758

00:36:54.480 --> 00:36:56.325 So earplugs and noise cancelling
NOTE Confidence: 0.820807758

00:36:56.325 --> 00:36:58.170 headphones are generally thought to
NOTE Confidence: 0.820807758

00:36:58.227 --> 00:37:00.147 be feasible and well tolerated and
NOTE Confidence: 0.820807758

00:37:00.147 --> 00:37:01.835 provide patients with an average
NOTE Confidence: 0.820807758

00:37:01.835 --> 00:37:03.929 sound abatement of about 10 decibels.
NOTE Confidence: 0.820807758

00:37:03.930 --> 00:37:05.304 There's this one study which I
NOTE Confidence: 0.820807758

00:37:05.304 --> 00:37:06.680 thought was kind of creative.

NOTE Confidence: 0.820807758

00:37:06.680 --> 00:37:08.605 They tried to see what effect noise

NOTE Confidence: 0.820807758

00:37:08.605 --> 00:37:09.700 cancelling headphones would have,

NOTE Confidence: 0.820807758

00:37:09.700 --> 00:37:12.524 and they use 3 polystyrene head models that

NOTE Confidence: 0.820807758

00:37:12.524 --> 00:37:15.338 they put on a shelf next to each other,

NOTE Confidence: 0.820807758

00:37:15.340 --> 00:37:17.524 and what they found they did one where

NOTE Confidence: 0.820807758

00:37:17.524 --> 00:37:19.727 they just monitored the sound one where

NOTE Confidence: 0.820807758

00:37:19.727 --> 00:37:22.006 they put on the headphones but didn't

NOTE Confidence: 0.820807758

00:37:22.006 --> 00:37:24.226 actually turn them on, and then one.

NOTE Confidence: 0.820807758

00:37:24.226 --> 00:37:26.158 But they had the headphones applied

NOTE Confidence: 0.820807758

00:37:26.158 --> 00:37:27.329 and turn them on.

NOTE Confidence: 0.820807758

00:37:27.330 --> 00:37:28.570 And as we would expect,

NOTE Confidence: 0.820807758

00:37:28.570 --> 00:37:30.887 they did find that compared to control

NOTE Confidence: 0.820807758

00:37:30.887 --> 00:37:32.687 circumstances and the noise cancelling

NOTE Confidence: 0.820807758

00:37:32.687 --> 00:37:34.937 headphones on were able to significantly

NOTE Confidence: 0.820807758

00:37:34.937 --> 00:37:36.958 reduce the sound level and again,

NOTE Confidence: 0.820807758

00:37:36.960 --> 00:37:39.264 keep in mind that 40 decibels is the goal.

NOTE Confidence: 0.820807758

00:37:39.270 --> 00:37:42.886 So we're still kind of over that goal.

NOTE Confidence: 0.820807758

00:37:42.890 --> 00:37:44.610 And they've also been randomized

NOTE Confidence: 0.820807758

00:37:44.610 --> 00:37:46.330 controlled trials looking at ear

NOTE Confidence: 0.820807758

00:37:46.385 --> 00:37:47.920 plugs and eye masks together.

NOTE Confidence: 0.820807758

00:37:47.920 --> 00:37:49.972 What they have found is an increase in M3

NOTE Confidence: 0.820807758

00:37:49.972 --> 00:37:52.040 and decrease in prolonged weight means

NOTE Confidence: 0.820807758

00:37:52.040 --> 00:37:54.330 when the earplugs actually remained in place.

NOTE Confidence: 0.820807758

00:37:54.330 --> 00:37:55.995 Although about 30% of patients

NOTE Confidence: 0.820807758

00:37:55.995 --> 00:37:58.290 did decline to use the earplugs.

NOTE Confidence: 0.820807758

00:37:58.290 --> 00:38:00.230 They also noted that earplugs,

NOTE Confidence: 0.820807758

00:38:00.230 --> 00:38:00.618 and/or,

NOTE Confidence: 0.820807758

00:38:00.618 --> 00:38:02.558 masks were associated with increased

NOTE Confidence: 0.820807758

00:38:02.558 --> 00:38:05.409 end two and three and REM stage sleep,

NOTE Confidence: 0.820807758

00:38:05.410 --> 00:38:07.655 so these are favorable outcomes and

NOTE Confidence: 0.820807758

00:38:07.655 --> 00:38:09.930 there have also been meta analysis to

NOTE Confidence: 0.820807758

00:38:09.930 --> 00:38:12.333 suggest that ear plugs and eye masks

NOTE Confidence: 0.820807758

00:38:12.333 --> 00:38:14.018 may be associated with increased

NOTE Confidence: 0.820807758

00:38:14.088 --> 00:38:16.320 total sleep time and reduce delirium.

NOTE Confidence: 0.820807758

00:38:16.320 --> 00:38:19.208 And this is just again a meta analysis

NOTE Confidence: 0.820807758

00:38:19.210 --> 00:38:21.268 looking at 13 studies and they found

NOTE Confidence: 0.820807758

00:38:21.268 --> 00:38:23.347 a sleep quality was in fact improved

NOTE Confidence: 0.820807758

00:38:23.347 --> 00:38:25.045 with use of earplugs or IMAX.

NOTE Confidence: 0.841268752631579

00:38:28.370 --> 00:38:29.898 So now I'm going to move on to

NOTE Confidence: 0.841268752631579

00:38:29.898 --> 00:38:31.677 talk a little bit about light

NOTE Confidence: 0.841268752631579

00:38:31.677 --> 00:38:33.347 interventions in a circadian sense.

NOTE Confidence: 0.841268752631579

00:38:33.350 --> 00:38:35.060 So I mentioned earlier that the

NOTE Confidence: 0.841268752631579

00:38:35.060 --> 00:38:36.460 light environment in the ICU,

NOTE Confidence: 0.841268752631579

00:38:36.460 --> 00:38:37.396 the ambient blaze,

NOTE Confidence: 0.841268752631579

00:38:37.396 --> 00:38:39.993 often quite low during the day and this

NOTE Confidence: 0.841268752631579

00:38:39.993 --> 00:38:42.415 can lead to lack of circadian entrainment.

NOTE Confidence: 0.841268752631579

00:38:42.420 --> 00:38:44.643 What we like to see is that the people
NOTE Confidence: 0.841268752631579

00:38:44.643 --> 00:38:46.561 should have kind of exposure to bright
NOTE Confidence: 0.841268752631579

00:38:46.561 --> 00:38:48.878 light with a high focus on the blue
NOTE Confidence: 0.841268752631579

00:38:48.878 --> 00:38:50.654 light spectrum early in the morning,
NOTE Confidence: 0.841268752631579

00:38:50.660 --> 00:38:52.820 and that helps to stimulate melanopsin,
NOTE Confidence: 0.841268752631579

00:38:52.820 --> 00:38:55.150 which then entrains this the
NOTE Confidence: 0.841268752631579

00:38:55.150 --> 00:38:56.548 suprachiasmatic nucleus which.
NOTE Confidence: 0.841268752631579

00:38:56.550 --> 00:38:58.220 Is where the central peripheral,
NOTE Confidence: 0.841268752631579

00:38:58.220 --> 00:39:00.790 the central circadian clock lives.
NOTE Confidence: 0.841268752631579

00:39:00.790 --> 00:39:03.558 But in order to get an infected light
NOTE Confidence: 0.841268752631579

00:39:03.558 --> 00:39:04.950 exposure and light intervention,
NOTE Confidence: 0.841268752631579

00:39:04.950 --> 00:39:06.846 we need to be mindful of many aspects
NOTE Confidence: 0.841268752631579

00:39:06.846 --> 00:39:08.569 of the light exposure itself,
NOTE Confidence: 0.841268752631579

00:39:08.570 --> 00:39:10.380 and that includes the duration,
NOTE Confidence: 0.841268752631579

00:39:10.380 --> 00:39:11.316 the intensity,
NOTE Confidence: 0.841268752631579

00:39:11.316 --> 00:39:12.720 the spectral composition

NOTE Confidence: 0.841268752631579
00:39:12.720 --> 00:39:14.592 of the light exposure.
NOTE Confidence: 0.841268752631579
00:39:14.600 --> 00:39:15.132 So again,
NOTE Confidence: 0.841268752631579
00:39:15.132 --> 00:39:16.728 what these light interventions are aiming
NOTE Confidence: 0.841268752631579
00:39:16.728 --> 00:39:18.619 to do is kind of mimic the normal,
NOTE Confidence: 0.841268752631579
00:39:18.620 --> 00:39:23.010 diurnal, bright daytime light exposure.
NOTE Confidence: 0.841268752631579
00:39:23.010 --> 00:39:25.082 And so they found a couple of
NOTE Confidence: 0.841268752631579
00:39:25.082 --> 00:39:26.695 studies have looked at such
NOTE Confidence: 0.841268752631579
00:39:26.695 --> 00:39:28.687 types of cycle lighting or bright
NOTE Confidence: 0.841268752631579
00:39:28.687 --> 00:39:30.260 daytime light interventions.
NOTE Confidence: 0.841268752631579
00:39:30.260 --> 00:39:32.925 They found overall patient satisfaction
NOTE Confidence: 0.841268752631579
00:39:32.925 --> 00:39:36.789 is improved with a superior sleep quality.
NOTE Confidence: 0.841268752631579
00:39:36.790 --> 00:39:39.772 A couple of small groups of
NOTE Confidence: 0.841268752631579
00:39:39.772 --> 00:39:41.263 patients demonstrated earlier
NOTE Confidence: 0.841268752631579
00:39:41.263 --> 00:39:43.876 postoperative mobility as well as
NOTE Confidence: 0.841268752631579
00:39:43.876 --> 00:39:45.406 reduced postoperative delirium.
NOTE Confidence: 0.841268752631579

00:39:45.410 --> 00:39:47.130 There was one pilot randomized
NOTE Confidence: 0.841268752631579

00:39:47.130 --> 00:39:48.850 controlled trial looking at times
NOTE Confidence: 0.841268752631579

00:39:48.905 --> 00:39:50.865 like intervention and critically ill
NOTE Confidence: 0.841268752631579

00:39:50.865 --> 00:39:52.825 adults with delayed circadian phase.
NOTE Confidence: 0.841268752631579

00:39:52.830 --> 00:39:54.846 What they found was that in the
NOTE Confidence: 0.841268752631579

00:39:54.846 --> 00:39:56.639 intervention group at Study day three,
NOTE Confidence: 0.841268752631579

00:39:56.640 --> 00:39:58.572 there was a 3.6 hour correction
NOTE Confidence: 0.841268752631579

00:39:58.572 --> 00:39:59.538 of that delay,
NOTE Confidence: 0.841268752631579

00:39:59.540 --> 00:40:02.060 so they had been able to use their
NOTE Confidence: 0.841268752631579

00:40:02.060 --> 00:40:03.731 light intervention to advance the
NOTE Confidence: 0.841268752631579

00:40:03.731 --> 00:40:05.675 circadian phase by almost 4 hours,
NOTE Confidence: 0.841268752631579

00:40:05.680 --> 00:40:07.085 whereas in the control group
NOTE Confidence: 0.841268752631579

00:40:07.085 --> 00:40:08.830 at the same period of time,
NOTE Confidence: 0.841268752631579

00:40:08.830 --> 00:40:10.966 the patients who are not exposed to the
NOTE Confidence: 0.841268752631579

00:40:10.966 --> 00:40:12.638 bright light continued to experience
NOTE Confidence: 0.841268752631579

00:40:12.638 --> 00:40:15.060 circadian delay by an additional 2.4 hours.

NOTE Confidence: 0.841268752631579
00:40:15.060 --> 00:40:16.610 Over those three study days.
NOTE Confidence: 0.841268752631579
00:40:16.610 --> 00:40:18.866 So this is a pretty robust
NOTE Confidence: 0.841268752631579
00:40:18.866 --> 00:40:19.994 and impressive response.
NOTE Confidence: 0.841268752631579
00:40:20.000 --> 00:40:21.850 Other studies of light interventions,
NOTE Confidence: 0.841268752631579
00:40:21.850 --> 00:40:22.270 however,
NOTE Confidence: 0.841268752631579
00:40:22.270 --> 00:40:24.370 have failed to show benefit.
NOTE Confidence: 0.841268752631579
00:40:24.370 --> 00:40:26.269 Some of the reasons why it's hard to know.
NOTE Confidence: 0.841268752631579
00:40:26.270 --> 00:40:28.020 Is it because the intervention
NOTE Confidence: 0.841268752631579
00:40:28.020 --> 00:40:29.070 itself is unsuccessful?
NOTE Confidence: 0.841268752631579
00:40:29.070 --> 00:40:31.098 Or is it because the intervention
NOTE Confidence: 0.841268752631579
00:40:31.098 --> 00:40:33.245 design was such that it didn't
NOTE Confidence: 0.841268752631579
00:40:33.245 --> 00:40:35.441 have a possibility of affecting the
NOTE Confidence: 0.841268752631579
00:40:35.441 --> 00:40:37.246 outcome that was being measured?
NOTE Confidence: 0.841268752631579
00:40:37.250 --> 00:40:39.002 So some of the things that have been
NOTE Confidence: 0.841268752631579
00:40:39.002 --> 00:40:40.571 cited are concerned that perhaps
NOTE Confidence: 0.841268752631579

00:40:40.571 --> 00:40:42.015 the control groups experienced
NOTE Confidence: 0.841268752631579

00:40:42.015 --> 00:40:43.723 the highlight exposure and that
NOTE Confidence: 0.841268752631579

00:40:43.723 --> 00:40:44.863 precluded inability to appreciate
NOTE Confidence: 0.841268752631579

00:40:44.863 --> 00:40:46.447 the effect of the intervention.
NOTE Confidence: 0.841268752631579

00:40:46.447 --> 00:40:49.506 Or perhaps the light that was applied
NOTE Confidence: 0.841268752631579

00:40:49.506 --> 00:40:52.411 was had an ineffective duration or
NOTE Confidence: 0.841268752631579

00:40:52.411 --> 00:40:54.092 timing the intensity wasn't appropriate,
NOTE Confidence: 0.841268752631579

00:40:54.092 --> 00:40:56.280 or the Spectra of light exposure wasn't
NOTE Confidence: 0.841268752631579

00:40:56.280 --> 00:40:58.045 appropriate to stimulate the melanopsin.
NOTE Confidence: 0.828274467142857

00:41:00.300 --> 00:41:01.938 So put this up as a teaser.
NOTE Confidence: 0.828274467142857

00:41:01.940 --> 00:41:04.117 This is called a Phillips vital sky.
NOTE Confidence: 0.828274467142857

00:41:04.120 --> 00:41:07.772 It's sort of us around ceiling and
NOTE Confidence: 0.828274467142857

00:41:07.772 --> 00:41:11.240 front wall light that can kind of
NOTE Confidence: 0.828274467142857

00:41:11.240 --> 00:41:12.815 provide ambient lighting can provide
NOTE Confidence: 0.828274467142857

00:41:12.815 --> 00:41:14.320 different spectrum of light along
NOTE Confidence: 0.828274467142857

00:41:14.320 --> 00:41:16.030 different angles of gays and this

NOTE Confidence: 0.828274467142857
00:41:16.080 --> 00:41:17.505 is something that doctor Canard
NOTE Confidence: 0.828274467142857
00:41:17.505 --> 00:41:19.496 is looking into trying to get as
NOTE Confidence: 0.828274467142857
00:41:19.496 --> 00:41:21.194 part of her future circadian study.
NOTE Confidence: 0.828274467142857
00:41:21.200 --> 00:41:23.856 So this may be coming to a Mickey
NOTE Confidence: 0.828274467142857
00:41:23.856 --> 00:41:25.300 room near you soon.
NOTE Confidence: 0.828274467142857
00:41:25.300 --> 00:41:27.799 Alright, so that wraps up my section
NOTE Confidence: 0.828274467142857
00:41:27.799 --> 00:41:29.203 on environmental disturbances of
NOTE Confidence: 0.828274467142857
00:41:29.203 --> 00:41:31.100 sleep in circadian rhythm in the ICU.
NOTE Confidence: 0.828274467142857
00:41:31.100 --> 00:41:32.852 So now I'm going to move on to
NOTE Confidence: 0.828274467142857
00:41:32.852 --> 00:41:34.339 our final category of sleep.
NOTE Confidence: 0.828274467142857
00:41:34.340 --> 00:41:35.310 Disruptors, switches,
NOTE Confidence: 0.828274467142857
00:41:35.310 --> 00:41:38.220 factors that are directly attributable to
NOTE Confidence: 0.828274467142857
00:41:38.220 --> 00:41:41.019 acute illness and critical care treatment.
NOTE Confidence: 0.828274467142857
00:41:41.020 --> 00:41:43.169 So as you, as you all know,
NOTE Confidence: 0.828274467142857
00:41:43.170 --> 00:41:45.378 anyone who's critically ill has a
NOTE Confidence: 0.828274467142857

00:41:45.378 --> 00:41:47.300 tremendous amount of physiologic change.

NOTE Confidence: 0.828274467142857

00:41:47.300 --> 00:41:49.268 And often these changes can directly

NOTE Confidence: 0.828274467142857

00:41:49.268 --> 00:41:51.000 impact sleep and circadian health.

NOTE Confidence: 0.828274467142857

00:41:51.000 --> 00:41:51.430 Oftentimes,

NOTE Confidence: 0.828274467142857

00:41:51.430 --> 00:41:53.580 these patients are on life

NOTE Confidence: 0.828274467142857

00:41:53.580 --> 00:41:54.440 sustaining therapy,

NOTE Confidence: 0.828274467142857

00:41:54.440 --> 00:41:57.038 and often these are quite invasive.

NOTE Confidence: 0.828274467142857

00:41:57.040 --> 00:41:59.380 These may involve mechanical ventilation,

NOTE Confidence: 0.828274467142857

00:41:59.380 --> 00:42:01.738 invasive monitoring, such as arterial lines,

NOTE Confidence: 0.828274467142857

00:42:01.740 --> 00:42:04.420 and various medical support devices.

NOTE Confidence: 0.828274467142857

00:42:04.420 --> 00:42:05.860 Sedation is often a common

NOTE Confidence: 0.828274467142857

00:42:05.860 --> 00:42:07.012 thing seen in patients,

NOTE Confidence: 0.828274467142857

00:42:07.020 --> 00:42:09.423 and I'll talk more about that as well as

NOTE Confidence: 0.828274467142857

00:42:09.423 --> 00:42:11.480 continuous enteral nutrition and immobility,

NOTE Confidence: 0.828274467142857

00:42:11.480 --> 00:42:13.340 all of which are disadvantageous.

NOTE Confidence: 0.828274467142857

00:42:13.340 --> 00:42:16.250 For sleep and circadian health.

NOTE Confidence: 0.828274467142857
00:42:16.250 --> 00:42:17.303 So mechanical ventilation.
NOTE Confidence: 0.828274467142857
00:42:17.303 --> 00:42:18.707 The relationship between that
NOTE Confidence: 0.828274467142857
00:42:18.707 --> 00:42:20.529 and sleep is quite complex.
NOTE Confidence: 0.828274467142857
00:42:20.530 --> 00:42:22.007 I'm just gonna touch on it briefly.
NOTE Confidence: 0.828274467142857
00:42:22.010 --> 00:42:24.506 For purposes of this talk today.
NOTE Confidence: 0.828274467142857
00:42:24.510 --> 00:42:27.510 But basically there's a very complex
NOTE Confidence: 0.828274467142857
00:42:27.510 --> 00:42:29.510 interplay between respiratory Physiology,
NOTE Confidence: 0.828274467142857
00:42:29.510 --> 00:42:30.530 work of breathing,
NOTE Confidence: 0.828274467142857
00:42:30.530 --> 00:42:31.890 the patient ventilator interface,
NOTE Confidence: 0.828274467142857
00:42:31.890 --> 00:42:33.829 and all of these things lining up
NOTE Confidence: 0.828274467142857
00:42:33.829 --> 00:42:35.693 to actually improve a patient sleep
NOTE Confidence: 0.828274467142857
00:42:35.693 --> 00:42:37.643 opportunity rather than detract from it.
NOTE Confidence: 0.828274467142857
00:42:37.650 --> 00:42:39.768 There have been studies to suggest
NOTE Confidence: 0.828274467142857
00:42:39.768 --> 00:42:41.605 that ventilator support may actually
NOTE Confidence: 0.828274467142857
00:42:41.605 --> 00:42:43.425 improve sleep via improving work
NOTE Confidence: 0.828274467142857

00:42:43.425 --> 00:42:45.630 of breeding in certain populations,
NOTE Confidence: 0.828274467142857

00:42:45.630 --> 00:42:47.670 and those specifically our patients with
NOTE Confidence: 0.828274467142857

00:42:47.670 --> 00:42:49.480 acute on chronic respiratory failure.
NOTE Confidence: 0.828274467142857

00:42:49.480 --> 00:42:51.230 For those who are undergoing
NOTE Confidence: 0.828274467142857

00:42:51.230 --> 00:42:52.280 prolonged ventilator weaning,
NOTE Confidence: 0.828274467142857

00:42:52.280 --> 00:42:54.902 and in these patient populations those
NOTE Confidence: 0.828274467142857

00:42:54.902 --> 00:42:57.032 who receive mechanical ventilation tended
NOTE Confidence: 0.828274467142857

00:42:57.032 --> 00:42:58.934 to have an increased sleep efficiency
NOTE Confidence: 0.828274467142857

00:42:58.934 --> 00:43:01.388 and as a longer total sleep time.
NOTE Confidence: 0.828274467142857

00:43:01.390 --> 00:43:01.700 However,
NOTE Confidence: 0.828274467142857

00:43:01.700 --> 00:43:02.940 as you can imagine,
NOTE Confidence: 0.828274467142857

00:43:02.940 --> 00:43:05.415 ventilator desynchrony or alarms can
NOTE Confidence: 0.828274467142857

00:43:05.415 --> 00:43:08.830 obviously be disruptive to sleep opportunity.
NOTE Confidence: 0.828274467142857

00:43:08.830 --> 00:43:10.336 So I really like this figure
NOTE Confidence: 0.828274467142857

00:43:10.336 --> 00:43:12.235 on this came out of the paper
NOTE Confidence: 0.828274467142857

00:43:12.235 --> 00:43:13.909 cited on the bottom corner here.

NOTE Confidence: 0.828274467142857
00:43:13.910 --> 00:43:15.370 This basically kind of illustrates
NOTE Confidence: 0.828274467142857
00:43:15.370 --> 00:43:17.099 the fact that we're really looking
NOTE Confidence: 0.828274467142857
00:43:17.099 --> 00:43:18.819 for the sweet spot on when we when
NOTE Confidence: 0.828274467142857
00:43:18.819 --> 00:43:20.502 it comes to optimizing ventilator
NOTE Confidence: 0.828274467142857
00:43:20.502 --> 00:43:21.914 settings for these patients,
NOTE Confidence: 0.828274467142857
00:43:21.920 --> 00:43:23.579 and so you can imagine a patient
NOTE Confidence: 0.828274467142857
00:43:23.579 --> 00:43:25.628 who has a serious respiratory or
NOTE Confidence: 0.828274467142857
00:43:25.628 --> 00:43:27.748 neuromuscular disease if we provide
NOTE Confidence: 0.828274467142857
00:43:27.748 --> 00:43:29.680 under assistance on the ventilator,
NOTE Confidence: 0.828274467142857
00:43:29.680 --> 00:43:30.640 they're going to have increased
NOTE Confidence: 0.828274467142857
00:43:30.640 --> 00:43:31.216 work of reading.
NOTE Confidence: 0.828274467142857
00:43:31.220 --> 00:43:32.252 Their vent is going to be
NOTE Confidence: 0.828274467142857
00:43:32.252 --> 00:43:32.940 alarming all the time.
NOTE Confidence: 0.828274467142857
00:43:32.940 --> 00:43:34.805 That's clearly going to disrupt
NOTE Confidence: 0.828274467142857
00:43:34.805 --> 00:43:35.924 their sleep opportunity.
NOTE Confidence: 0.828274467142857

00:43:35.930 --> 00:43:37.718 However we can swing too far
NOTE Confidence: 0.828274467142857

00:43:37.718 --> 00:43:38.910 in the opposite direction.
NOTE Confidence: 0.828274467142857

00:43:38.910 --> 00:43:40.578 And if we provide over assistance,
NOTE Confidence: 0.828274467142857

00:43:40.580 --> 00:43:42.096 then what can happen?
NOTE Confidence: 0.828274467142857

00:43:42.096 --> 00:43:44.370 Is the patient actually has hyperventilation.
NOTE Confidence: 0.828274467142857

00:43:44.370 --> 00:43:46.308 They become hypercapnic and this can
NOTE Confidence: 0.828274467142857

00:43:46.308 --> 00:43:48.329 lead to central apneas or periodic
NOTE Confidence: 0.828274467142857

00:43:48.329 --> 00:43:50.333 breathing patterns that can also be
NOTE Confidence: 0.828274467142857

00:43:50.333 --> 00:43:52.049 disruptive to sleep opportunity.
NOTE Confidence: 0.828274467142857

00:43:52.050 --> 00:43:53.325 So really what we're looking
NOTE Confidence: 0.828274467142857

00:43:53.325 --> 00:43:54.600 for is to try to
NOTE Confidence: 0.904427986

00:43:54.665 --> 00:43:56.510 improve the pet patient ventilator
NOTE Confidence: 0.904427986

00:43:56.510 --> 00:43:58.355 interface as much as possible,
NOTE Confidence: 0.904427986

00:43:58.360 --> 00:44:00.115 and you know there are many more kind of
NOTE Confidence: 0.904427986

00:44:00.115 --> 00:44:01.747 more detailed discussions about this,
NOTE Confidence: 0.904427986

00:44:01.750 --> 00:44:04.108 but I'm going to leave our

NOTE Confidence: 0.904427986

00:44:04.108 --> 00:44:06.090 discussion at that for now.

NOTE Confidence: 0.904427986

00:44:06.090 --> 00:44:08.050 So moving on to sedation.

NOTE Confidence: 0.904427986

00:44:08.050 --> 00:44:11.056 So sedating medications are often required

NOTE Confidence: 0.904427986

00:44:11.056 --> 00:44:14.410 or implemented in caring for ICU patients.

NOTE Confidence: 0.904427986

00:44:14.410 --> 00:44:17.165 I'm various papers have have

NOTE Confidence: 0.904427986

00:44:17.165 --> 00:44:19.388 investigated the effect of sedating

NOTE Confidence: 0.904427986

00:44:19.388 --> 00:44:21.056 medications on sleep architecture,

NOTE Confidence: 0.904427986

00:44:21.060 --> 00:44:22.902 and there's good evidence to support

NOTE Confidence: 0.904427986

00:44:22.902 --> 00:44:24.645 the fact that narcotics and benzo

NOTE Confidence: 0.904427986

00:44:24.645 --> 00:44:26.485 suppress REM and stage N 3 sleep on

NOTE Confidence: 0.904427986

00:44:26.542 --> 00:44:28.509 both there which are thought to be

NOTE Confidence: 0.904427986

00:44:28.509 --> 00:44:30.659 the most restorative aspects of sleep.

NOTE Confidence: 0.904427986

00:44:30.659 --> 00:44:33.690 Propofol is also known to suppress REM,

NOTE Confidence: 0.904427986

00:44:33.690 --> 00:44:36.266 whereas on the flipside,

NOTE Confidence: 0.904427986

00:44:36.266 --> 00:44:36.910 Dexmedetomidine.

NOTE Confidence: 0.904427986

00:44:36.910 --> 00:44:38.674 Press it X actually has been shown
NOTE Confidence: 0.904427986

00:44:38.674 --> 00:44:39.919 to increase sleep efficiency
NOTE Confidence: 0.904427986

00:44:39.919 --> 00:44:41.227 and reduce fragmentation,
NOTE Confidence: 0.904427986

00:44:41.230 --> 00:44:43.596 so this might be something to consider.
NOTE Confidence: 0.904427986

00:44:43.600 --> 00:44:45.546 We also know that benzos and opiates
NOTE Confidence: 0.904427986

00:44:45.546 --> 00:44:47.258 can increase the risk of delirium
NOTE Confidence: 0.904427986

00:44:47.258 --> 00:44:49.169 and so just be mindful and thinking
NOTE Confidence: 0.904427986

00:44:49.225 --> 00:44:50.905 about which sedating medications to
NOTE Confidence: 0.904427986

00:44:50.905 --> 00:44:52.965 choose for patients and when possible,
NOTE Confidence: 0.904427986

00:44:52.965 --> 00:44:55.590 always try to minimize the dosage and
NOTE Confidence: 0.904427986

00:44:55.590 --> 00:44:57.566 use intermittent dosing over continuous
NOTE Confidence: 0.904427986

00:44:57.566 --> 00:44:59.506 drips if that's a possibility.
NOTE Confidence: 0.904427986

00:44:59.510 --> 00:45:02.374 This is just the top half of the
NOTE Confidence: 0.904427986

00:45:02.374 --> 00:45:05.316 picture from the the ICU delirium trial.
NOTE Confidence: 0.904427986

00:45:05.320 --> 00:45:07.490 This just goes to show that guidelines.
NOTE Confidence: 0.904427986

00:45:07.490 --> 00:45:09.518 Do recommend doing Protocolized

NOTE Confidence: 0.904427986

00:45:09.518 --> 00:45:11.039 spontaneous awakening trials.

NOTE Confidence: 0.904427986

00:45:11.040 --> 00:45:12.123 In this table.

NOTE Confidence: 0.904427986

00:45:12.123 --> 00:45:13.928 They're kind of combining spontaneous

NOTE Confidence: 0.904427986

00:45:13.928 --> 00:45:15.574 awakening trials and spontaneous

NOTE Confidence: 0.904427986

00:45:15.574 --> 00:45:16.438 breathing trials,

NOTE Confidence: 0.904427986

00:45:16.440 --> 00:45:18.778 which I'm not going to discuss today,

NOTE Confidence: 0.904427986

00:45:18.780 --> 00:45:21.097 but I wanted to just briefly mention

NOTE Confidence: 0.904427986

00:45:21.097 --> 00:45:22.441 that spontaneous awakening trials

NOTE Confidence: 0.904427986

00:45:22.441 --> 00:45:23.911 should only happen in patients

NOTE Confidence: 0.904427986

00:45:23.911 --> 00:45:25.620 and whom it's safe to do so.

NOTE Confidence: 0.904427986

00:45:25.620 --> 00:45:27.013 So of course we want to do

NOTE Confidence: 0.904427986

00:45:27.013 --> 00:45:27.930 the safety screen first.

NOTE Confidence: 0.904427986

00:45:27.930 --> 00:45:29.267 Make sure the patient is not on.

NOTE Confidence: 0.904427986

00:45:29.270 --> 00:45:30.518 Paralytics, for instance,

NOTE Confidence: 0.904427986

00:45:30.518 --> 00:45:32.182 are undergoing alcohol withdrawal

NOTE Confidence: 0.904427986

00:45:32.182 --> 00:45:34.547 and then they have their their
NOTE Confidence: 0.904427986

00:45:34.547 --> 00:45:36.312 sedation interrupted and then we
NOTE Confidence: 0.904427986

00:45:36.312 --> 00:45:38.587 monitor them very closely for any
NOTE Confidence: 0.904427986

00:45:38.587 --> 00:45:40.095 signs of clinical deterioration.
NOTE Confidence: 0.904427986

00:45:40.100 --> 00:45:42.354 If they do fail their spontaneous awakening,
NOTE Confidence: 0.904427986

00:45:42.360 --> 00:45:43.668 trial recommendations are to
NOTE Confidence: 0.904427986

00:45:43.668 --> 00:45:45.630 research sedatives at half the dose,
NOTE Confidence: 0.904427986

00:45:45.630 --> 00:45:47.940 so there's still kind of a built-in
NOTE Confidence: 0.904427986

00:45:47.940 --> 00:45:50.311 assessment to try to really make sure
NOTE Confidence: 0.904427986

00:45:50.311 --> 00:45:52.356 that patients are were reducing the sedation.
NOTE Confidence: 0.904427986

00:45:52.356 --> 00:45:54.522 So we kind of achieve just the minimum
NOTE Confidence: 0.904427986

00:45:54.522 --> 00:45:56.634 that they need to be comfortable and safe.
NOTE Confidence: 0.816483144888889

00:45:59.190 --> 00:46:01.110 So moving on now to continue
NOTE Confidence: 0.816483144888889

00:46:01.110 --> 00:46:02.070 his enteral nutrition.
NOTE Confidence: 0.816483144888889

00:46:02.070 --> 00:46:03.966 I'm sure a lot of you have heard
NOTE Confidence: 0.816483144888889

00:46:03.966 --> 00:46:05.570 me talk about this before.

NOTE Confidence: 0.816483144888889

00:46:05.570 --> 00:46:07.280 We know that nutrition schedule

NOTE Confidence: 0.816483144888889

00:46:07.280 --> 00:46:08.648 can be very influential,

NOTE Confidence: 0.816483144888889

00:46:08.650 --> 00:46:10.558 as at Gabor for peripheral clocks

NOTE Confidence: 0.816483144888889

00:46:10.558 --> 00:46:12.672 and what that means is that the

NOTE Confidence: 0.816483144888889

00:46:12.672 --> 00:46:14.120 scheduling which nutrients are

NOTE Confidence: 0.816483144888889

00:46:14.120 --> 00:46:16.446 provided can actually help to entrain

NOTE Confidence: 0.816483144888889

00:46:16.446 --> 00:46:18.258 the peripheral circadian clocks,

NOTE Confidence: 0.816483144888889

00:46:18.260 --> 00:46:20.696 particularly in the gut and liver.

NOTE Confidence: 0.816483144888889

00:46:20.700 --> 00:46:22.842 And you can imagine that continuous

NOTE Confidence: 0.816483144888889

00:46:22.842 --> 00:46:25.030 feeding over 24 hours is not very

NOTE Confidence: 0.816483144888889

00:46:25.030 --> 00:46:27.210 advantageous from a circadian perspective.

NOTE Confidence: 0.816483144888889

00:46:27.210 --> 00:46:29.234 It's not how most of us normally would.

NOTE Confidence: 0.816483144888889

00:46:29.240 --> 00:46:31.352 And this can lead to internal

NOTE Confidence: 0.816483144888889

00:46:31.352 --> 00:46:32.056 circadian desynchrony,

NOTE Confidence: 0.816483144888889

00:46:32.060 --> 00:46:34.292 which is a misalignment between the

NOTE Confidence: 0.816483144888889

00:46:34.292 --> 00:46:36.220 central and peripheral circadian clocks.

NOTE Confidence: 0.816483144888889

00:46:36.220 --> 00:46:37.960 So there was an icy pilot

NOTE Confidence: 0.816483144888889

00:46:37.960 --> 00:46:39.473 done by Van ***** group.

NOTE Confidence: 0.816483144888889

00:46:39.473 --> 00:46:41.944 They looked at a 12 hour enteral

NOTE Confidence: 0.816483144888889

00:46:41.944 --> 00:46:43.313 nutrition interruption to try

NOTE Confidence: 0.816483144888889

00:46:43.313 --> 00:46:44.818 to do some macronutrient fast,

NOTE Confidence: 0.816483144888889

00:46:44.820 --> 00:46:46.638 and they found that this did

NOTE Confidence: 0.816483144888889

00:46:46.638 --> 00:46:48.660 result in arresting or sorry in

NOTE Confidence: 0.816483144888889

00:46:48.660 --> 00:46:50.140 a metabolic faxing response.

NOTE Confidence: 0.816483144888889

00:46:50.140 --> 00:46:52.462 Our own IC pilot that we did here at

NOTE Confidence: 0.816483144888889

00:46:52.462 --> 00:46:54.832 Yale did show that I'm restricted

NOTE Confidence: 0.816483144888889

00:46:54.832 --> 00:46:56.877 and intermittent and grill nutrition

NOTE Confidence: 0.816483144888889

00:46:56.946 --> 00:46:58.706 pilot was safe and feasible.

NOTE Confidence: 0.816483144888889

00:46:58.710 --> 00:47:01.034 And we do have an ongoing randomized

NOTE Confidence: 0.816483144888889

00:47:01.034 --> 00:47:03.446 control trial at Yale in SRC trying

NOTE Confidence: 0.816483144888889

00:47:03.446 --> 00:47:05.474 to evaluate the safety and efficacy

NOTE Confidence: 0.816483144888889

00:47:05.541 --> 00:47:07.641 of this project and this protocol

NOTE Confidence: 0.816483144888889

00:47:07.641 --> 00:47:09.398 and also the circadian effects.

NOTE Confidence: 0.816483144888889

00:47:09.398 --> 00:47:11.834 So just as far as a further

NOTE Confidence: 0.816483144888889

00:47:11.834 --> 00:47:14.070 definition of the feeding schedule,

NOTE Confidence: 0.816483144888889

00:47:14.070 --> 00:47:16.674 continuous feeding is constant rate of

NOTE Confidence: 0.816483144888889

00:47:16.674 --> 00:47:19.428 enteral nutrition over 24 hours per day.

NOTE Confidence: 0.816483144888889

00:47:19.430 --> 00:47:21.122 Cyclic feeding is a constant rate

NOTE Confidence: 0.816483144888889

00:47:21.122 --> 00:47:23.308 for less than 24 hours per day

NOTE Confidence: 0.816483144888889

00:47:23.308 --> 00:47:24.973 and then intermittent bolus feeds

NOTE Confidence: 0.816483144888889

00:47:24.973 --> 00:47:26.673 involved in providing the feeds

NOTE Confidence: 0.816483144888889

00:47:26.673 --> 00:47:28.629 over a shorter duration of time.

NOTE Confidence: 0.816483144888889

00:47:28.630 --> 00:47:30.196 And there's thought that that may

NOTE Confidence: 0.816483144888889

00:47:30.196 --> 00:47:31.956 be advantageous from a metabolic in

NOTE Confidence: 0.816483144888889

00:47:31.956 --> 00:47:33.280 neurohormonal perspective and then

NOTE Confidence: 0.816483144888889

00:47:33.280 --> 00:47:34.971 the time restriction is providing

NOTE Confidence: 0.816483144888889

00:47:34.971 --> 00:47:36.526 a prolonged period of fasting,
NOTE Confidence: 0.816483144888889

00:47:36.530 --> 00:47:38.552 ideally to be aligned with the
NOTE Confidence: 0.816483144888889

00:47:38.552 --> 00:47:39.563 nocturnal time period.
NOTE Confidence: 0.816483144888889

00:47:39.570 --> 00:47:41.187 And that's not to be the most
NOTE Confidence: 0.816483144888889

00:47:41.187 --> 00:47:42.688 important piece in helping to
NOTE Confidence: 0.816483144888889

00:47:42.688 --> 00:47:43.816 promote circadian alignment.
NOTE Confidence: 0.816483144888889

00:47:43.820 --> 00:47:45.295 And so our protocol tries
NOTE Confidence: 0.816483144888889

00:47:45.295 --> 00:47:46.770 to combine aspects of both.
NOTE Confidence: 0.8749841264

00:47:49.210 --> 00:47:51.496 So shifting gears now to discuss
NOTE Confidence: 0.8749841264

00:47:51.496 --> 00:47:54.131 immobility so anyone who's cared for ICU
NOTE Confidence: 0.8749841264

00:47:54.131 --> 00:47:56.567 patients knows that it's very common for
NOTE Confidence: 0.8749841264

00:47:56.640 --> 00:47:59.160 them to have multifactorial immobility.
NOTE Confidence: 0.8749841264

00:47:59.160 --> 00:48:00.384 They're severely ill.
NOTE Confidence: 0.8749841264

00:48:00.384 --> 00:48:03.240 I'm often times this may be complicated
NOTE Confidence: 0.8749841264

00:48:03.307 --> 00:48:06.163 by critical care myopathy or other
NOTE Confidence: 0.8749841264

00:48:06.163 --> 00:48:07.924 neuromuscular disease, and in addition,

NOTE Confidence: 0.8749841264

00:48:07.924 --> 00:48:09.264 there are many physical barriers

NOTE Confidence: 0.8749841264

00:48:09.264 --> 00:48:10.748 imposed by the support devices,

NOTE Confidence: 0.8749841264

00:48:10.750 --> 00:48:12.290 so lines, tubes, etc.

NOTE Confidence: 0.8749841264

00:48:12.290 --> 00:48:14.215 There were studies to show

NOTE Confidence: 0.8749841264

00:48:14.215 --> 00:48:16.490 that even in healthy subjects,

NOTE Confidence: 0.8749841264

00:48:16.490 --> 00:48:18.466 being on bed rest in a period of.

NOTE Confidence: 0.8749841264

00:48:18.470 --> 00:48:19.174 In mobility,

NOTE Confidence: 0.8749841264

00:48:19.174 --> 00:48:21.638 and especially if they were in hypoxia,

NOTE Confidence: 0.8749841264

00:48:21.640 --> 00:48:23.572 hypoxic conditions could cause

NOTE Confidence: 0.8749841264

00:48:23.572 --> 00:48:25.987 respiratory instability during sleep and

NOTE Confidence: 0.8749841264

00:48:25.987 --> 00:48:28.988 a higher proportion of stage one sleep,

NOTE Confidence: 0.8749841264

00:48:28.990 --> 00:48:31.328 which is light and less restorative sleep.

NOTE Confidence: 0.8749841264

00:48:31.330 --> 00:48:32.975 So you can imagine if this was

NOTE Confidence: 0.8749841264

00:48:32.975 --> 00:48:34.200 seen in healthy subjects.

NOTE Confidence: 0.8749841264

00:48:34.200 --> 00:48:35.870 It's probably even more profound

NOTE Confidence: 0.8749841264

00:48:35.870 --> 00:48:38.190 of an effect in ICU patients.
NOTE Confidence: 0.8749841264

00:48:38.190 --> 00:48:40.686 We also know that daytime exercise
NOTE Confidence: 0.8749841264

00:48:40.686 --> 00:48:41.934 maintains circadian alignment
NOTE Confidence: 0.8749841264

00:48:41.934 --> 00:48:44.010 and increases nocturnal sleep,
NOTE Confidence: 0.8749841264

00:48:44.010 --> 00:48:46.320 and so these things together leads in
NOTE Confidence: 0.8749841264

00:48:46.320 --> 00:48:48.998 part to the push for early mobility.
NOTE Confidence: 0.8749841264

00:48:49.000 --> 00:48:51.002 And there was an A trial looking
NOTE Confidence: 0.8749841264

00:48:51.002 --> 00:48:52.946 at early mobility along with the
NOTE Confidence: 0.8749841264

00:48:52.946 --> 00:48:54.661 Sleep Promotion Bundle and they
NOTE Confidence: 0.8749841264

00:48:54.661 --> 00:48:56.678 found reduced incidence of delirium
NOTE Confidence: 0.8749841264

00:48:56.678 --> 00:48:58.374 and continuous sedation needs.
NOTE Confidence: 0.8749841264

00:48:58.380 --> 00:48:58.841 However,
NOTE Confidence: 0.8749841264

00:48:58.841 --> 00:49:01.607 no change was detected in patient
NOTE Confidence: 0.8749841264

00:49:01.607 --> 00:49:03.670 perception of sleep quality.
NOTE Confidence: 0.8749841264

00:49:03.670 --> 00:49:05.448 And I put the slide up just
NOTE Confidence: 0.8749841264

00:49:05.448 --> 00:49:06.880 to kind of show how,

NOTE Confidence: 0.8749841264

00:49:06.880 --> 00:49:09.172 how related sleep and circadian health

NOTE Confidence: 0.8749841264

00:49:09.172 --> 00:49:11.682 is to other aspects of the ABCDEF bundle,

NOTE Confidence: 0.8749841264

00:49:11.682 --> 00:49:13.730 which is thought to be a kind of

NOTE Confidence: 0.8749841264

00:49:13.791 --> 00:49:15.471 a standard of care and a really

NOTE Confidence: 0.8749841264

00:49:15.471 --> 00:49:17.229 great way to practice medicine.

NOTE Confidence: 0.8749841264

00:49:17.230 --> 00:49:20.294 To promote good patient outcomes in the ICU.

NOTE Confidence: 0.8749841264

00:49:20.300 --> 00:49:22.178 So for a we've already talked

NOTE Confidence: 0.8749841264

00:49:22.178 --> 00:49:23.430 about managing patients pain,

NOTE Confidence: 0.8749841264

00:49:23.430 --> 00:49:24.902 we've talked about spontaneous

NOTE Confidence: 0.8749841264

00:49:24.902 --> 00:49:26.374 awakening trials and being

NOTE Confidence: 0.8749841264

00:49:26.374 --> 00:49:28.228 mindful for choices of sedation.

NOTE Confidence: 0.8749841264

00:49:28.230 --> 00:49:29.604 Delirium has been tied into outcomes

NOTE Confidence: 0.8749841264

00:49:29.604 --> 00:49:31.501 for a lot of the studies I've spoken

NOTE Confidence: 0.8749841264

00:49:31.501 --> 00:49:33.255 about and is thought to be highly

NOTE Confidence: 0.8749841264

00:49:33.255 --> 00:49:35.055 related to sleep and circadian health.

NOTE Confidence: 0.8749841264

00:49:35.060 --> 00:49:36.140 And then early mobility
NOTE Confidence: 0.8749841264

00:49:36.140 --> 00:49:37.220 we're talking about now.
NOTE Confidence: 0.8749841264

00:49:37.220 --> 00:49:38.420 And I like this picture too,
NOTE Confidence: 0.8749841264

00:49:38.420 --> 00:49:40.030 because this shows this woman
NOTE Confidence: 0.8749841264

00:49:40.030 --> 00:49:41.640 who she's clearly I'm still
NOTE Confidence: 0.8749841264

00:49:41.698 --> 00:49:43.278 very much requiring support.
NOTE Confidence: 0.8749841264

00:49:43.280 --> 00:49:45.394 She has a tracheostomy and event later,
NOTE Confidence: 0.8749841264

00:49:45.400 --> 00:49:46.440 she has an Ng tube.
NOTE Confidence: 0.8749841264

00:49:46.440 --> 00:49:49.104 She has various forms of Ivs and a Foley,
NOTE Confidence: 0.8749841264

00:49:49.110 --> 00:49:50.040 and she's still able to get
NOTE Confidence: 0.8749841264

00:49:50.040 --> 00:49:51.149 out of bed and walk around.
NOTE Confidence: 0.8749841264

00:49:51.150 --> 00:49:53.142 And this is something that I think we
NOTE Confidence: 0.8749841264

00:49:53.142 --> 00:49:55.590 should be striving towards more in our ICU.
NOTE Confidence: 0.911549065333333

00:49:57.660 --> 00:49:59.484 So I hope with that you all have
NOTE Confidence: 0.911549065333333

00:49:59.484 --> 00:50:01.300 a better understanding of patient
NOTE Confidence: 0.911549065333333

00:50:01.300 --> 00:50:03.470 environmental and acute illness and

NOTE Confidence: 0.911549065333333

00:50:03.470 --> 00:50:05.380 treatment related factors that can

NOTE Confidence: 0.911549065333333

00:50:05.380 --> 00:50:07.348 disrupt sleep and circadian health and

NOTE Confidence: 0.911549065333333

00:50:07.348 --> 00:50:10.158 our patients and have some ideas of how

NOTE Confidence: 0.911549065333333

00:50:10.158 --> 00:50:12.680 we can optimize this moving forward.

NOTE Confidence: 0.911549065333333

00:50:12.680 --> 00:50:13.607 Just to summarize,

NOTE Confidence: 0.911549065333333

00:50:13.607 --> 00:50:15.152 some of the practice recommendations

NOTE Confidence: 0.911549065333333

00:50:15.152 --> 00:50:17.494 we can think about paying attention to

NOTE Confidence: 0.911549065333333

00:50:17.494 --> 00:50:19.164 psychological distress and pain and

NOTE Confidence: 0.911549065333333

00:50:19.217 --> 00:50:20.837 discomfort and using non pharmacologic

NOTE Confidence: 0.911549065333333

00:50:20.837 --> 00:50:23.304 methods to manage these as best as we can.

NOTE Confidence: 0.911549065333333

00:50:23.304 --> 00:50:25.360 We can make sure that we attend to

NOTE Confidence: 0.911549065333333

00:50:25.360 --> 00:50:27.205 underlying sleep disorders and habitual

NOTE Confidence: 0.911549065333333

00:50:27.205 --> 00:50:29.000 sleep preferences as part of our.

NOTE Confidence: 0.911549065333333

00:50:29.000 --> 00:50:30.412 Care for our patients?

NOTE Confidence: 0.911549065333333

00:50:30.412 --> 00:50:32.530 Be on the lookout for multicomponent

NOTE Confidence: 0.911549065333333

00:50:32.593 --> 00:50:34.711 sleep promotion bundles which aim to
NOTE Confidence: 0.911549065333333

00:50:34.711 --> 00:50:37.489 reduce stimuli as well as perception of
NOTE Confidence: 0.911549065333333

00:50:37.489 --> 00:50:39.659 environmental disturbances such as noise,
NOTE Confidence: 0.911549065333333

00:50:39.660 --> 00:50:41.958 light and interruptions for patient care.
NOTE Confidence: 0.911549065333333

00:50:41.960 --> 00:50:43.900 And then another exciting area.
NOTE Confidence: 0.911549065333333

00:50:43.900 --> 00:50:46.066 Future research is finding out more
NOTE Confidence: 0.911549065333333

00:50:46.066 --> 00:50:48.241 about how chronotropic bright light or
NOTE Confidence: 0.911549065333333

00:50:48.241 --> 00:50:50.269 time restricted and your own nutrition
NOTE Confidence: 0.911549065333333

00:50:50.269 --> 00:50:52.673 protocols may be able to help promote
NOTE Confidence: 0.911549065333333

00:50:52.673 --> 00:50:54.338 circadian alignment in our patients.
NOTE Confidence: 0.911549065333333

00:50:54.340 --> 00:50:57.132 And then finally when we think about aspects
NOTE Confidence: 0.911549065333333

00:50:57.132 --> 00:50:59.628 of the patient care that are at regeneca.
NOTE Confidence: 0.911549065333333

00:50:59.630 --> 00:51:01.290 Make sure to optimize the
NOTE Confidence: 0.911549065333333

00:51:01.290 --> 00:51:02.286 patient ventilator interface,
NOTE Confidence: 0.911549065333333

00:51:02.290 --> 00:51:04.490 avoiding over support as well
NOTE Confidence: 0.911549065333333

00:51:04.490 --> 00:51:05.810 as under support.

NOTE Confidence: 0.911549065333333

00:51:05.810 --> 00:51:07.450 Minimize sedation and be mindful

NOTE Confidence: 0.911549065333333

00:51:07.450 --> 00:51:09.704 of the choice of sedation that you

NOTE Confidence: 0.911549065333333

00:51:09.704 --> 00:51:11.952 pick for the patient and then have

NOTE Confidence: 0.911549065333333

00:51:11.952 --> 00:51:13.104 protocolized spontaneous awakening

NOTE Confidence: 0.911549065333333

00:51:13.104 --> 00:51:15.459 trials to try to minimize that

NOTE Confidence: 0.911549065333333

00:51:15.459 --> 00:51:17.349 regularly and then promoting early

NOTE Confidence: 0.911549065333333

00:51:17.349 --> 00:51:19.668 mobility may be really helpful too.

NOTE Confidence: 0.911549065333333

00:51:19.670 --> 00:51:21.590 I and ending this talk.

NOTE Confidence: 0.911549065333333

00:51:21.590 --> 00:51:23.878 I just wanted to touch briefly on future

NOTE Confidence: 0.911549065333333

00:51:23.878 --> 00:51:25.699 directions for research in this field.

NOTE Confidence: 0.911549065333333

00:51:25.700 --> 00:51:28.166 I'm so you may have noticed as I went

NOTE Confidence: 0.911549065333333

00:51:28.166 --> 00:51:30.484 through the talk and presented a lot

NOTE Confidence: 0.911549065333333

00:51:30.484 --> 00:51:32.616 of different studies that there's sort

NOTE Confidence: 0.911549065333333

00:51:32.616 --> 00:51:35.227 of one one really central lacking feature,

NOTE Confidence: 0.911549065333333

00:51:35.230 --> 00:51:37.400 which is a precise definition of what

NOTE Confidence: 0.911549065333333

00:51:37.400 --> 00:51:39.702 actually is sleep deficiency or circadian
NOTE Confidence: 0.911549065333333

00:51:39.702 --> 00:51:41.887 misalignment among these ICU patients.
NOTE Confidence: 0.911549065333333

00:51:41.890 --> 00:51:44.026 And I think it's really important
NOTE Confidence: 0.911549065333333

00:51:44.026 --> 00:51:46.258 that we work together to define
NOTE Confidence: 0.911549065333333

00:51:46.258 --> 00:51:48.108 a reliable and feasible metric
NOTE Confidence: 0.911549065333333

00:51:48.110 --> 00:51:49.850 to define sleep and circadian.
NOTE Confidence: 0.911549065333333

00:51:49.850 --> 00:51:52.066 Outcomes and this is going to be really
NOTE Confidence: 0.911549065333333

00:51:52.066 --> 00:51:53.958 important for testing these sleep
NOTE Confidence: 0.911549065333333

00:51:53.958 --> 00:51:55.670 promotion and circadian alignment
NOTE Confidence: 0.911549065333333

00:51:55.670 --> 00:51:57.518 interventions moving forward so that
NOTE Confidence: 0.911549065333333

00:51:57.518 --> 00:51:59.430 they can be validated and tested
NOTE Confidence: 0.911549065333333

00:51:59.430 --> 00:52:01.230 in or reproducible way.
NOTE Confidence: 0.911549065333333

00:52:01.230 --> 00:52:02.900 This is likely to involve
NOTE Confidence: 0.911549065333333

00:52:02.900 --> 00:52:03.568 subjective measures,
NOTE Confidence: 0.911549065333333

00:52:03.570 --> 00:52:05.530 so patient reported symptom scales,
NOTE Confidence: 0.911549065333333

00:52:05.530 --> 00:52:06.100 for instance,

NOTE Confidence: 0.911549065333333
00:52:06.100 --> 00:52:08.095 to get a sense of patient perception
NOTE Confidence: 0.911549065333333
00:52:08.095 --> 00:52:10.138 of sleep and then also objective
NOTE Confidence: 0.911549065333333
00:52:10.138 --> 00:52:11.833 sleep and circadian parameters in
NOTE Confidence: 0.911549065333333
00:52:11.894 --> 00:52:13.886 the past from a sneak side of things,
NOTE Confidence: 0.911549065333333
00:52:13.890 --> 00:52:16.767 these have involved a lot of PSG,
NOTE Confidence: 0.911549065333333
00:52:16.770 --> 00:52:18.390 which has been pretty bulky and
NOTE Confidence: 0.911549065333333
00:52:18.390 --> 00:52:20.170 that can have a pretty big.
NOTE Confidence: 0.911549065333333
00:52:20.170 --> 00:52:22.216 Barrier for both patient and staff
NOTE Confidence: 0.911549065333333
00:52:22.216 --> 00:52:24.303 involvement and there are kind of
NOTE Confidence: 0.911549065333333
00:52:24.303 --> 00:52:26.283 new creative thinking about how to
NOTE Confidence: 0.911549065333333
00:52:26.283 --> 00:52:28.045 perhaps involve smaller or easier to
NOTE Confidence: 0.911549065333333
00:52:28.045 --> 00:52:30.274 apply EEG leads to to get a better
NOTE Confidence: 0.911549065333333
00:52:30.274 --> 00:52:32.756 sense and an easier way of what sleep
NOTE Confidence: 0.911549065333333
00:52:32.756 --> 00:52:34.448 might look like in these patients.
NOTE Confidence: 0.911549065333333
00:52:34.450 --> 00:52:36.335 And then circadian parameter is
NOTE Confidence: 0.911549065333333

00:52:36.335 --> 00:52:38.220 historically the gold standard for
NOTE Confidence: 0.911549065333333

00:52:38.277 --> 00:52:40.569 that was measurements of melatonin or
NOTE Confidence: 0.911549065333333

00:52:40.569 --> 00:52:42.790 a surrogate urinary melatonin metabolite.
NOTE Confidence: 0.911549065333333

00:52:42.790 --> 00:52:44.430 But in order to get us the definition
NOTE Confidence: 0.911549065333333

00:52:44.430 --> 00:52:45.669 of a circadian phase,
NOTE Confidence: 0.911549065333333

00:52:45.670 --> 00:52:47.728 these measurements have to be taken.
NOTE Confidence: 0.8410300775

00:52:47.730 --> 00:52:49.070 You know, every hour,
NOTE Confidence: 0.8410300775

00:52:49.070 --> 00:52:50.410 ideally or very frequently,
NOTE Confidence: 0.8410300775

00:52:50.410 --> 00:52:51.490 and that can be.
NOTE Confidence: 0.8410300775

00:52:51.490 --> 00:52:52.570 Labor intensive as well,
NOTE Confidence: 0.8410300775

00:52:52.570 --> 00:52:54.522 and so one thing that's kind of up
NOTE Confidence: 0.8410300775

00:52:54.522 --> 00:52:56.747 and coming that our lab talks about a lot,
NOTE Confidence: 0.8410300775

00:52:56.750 --> 00:52:59.490 is the advent of genomics,
NOTE Confidence: 0.8410300775

00:52:59.490 --> 00:53:00.930 metabolomics and other omics that
NOTE Confidence: 0.8410300775

00:53:00.930 --> 00:53:03.135 may help to kind of have one or
NOTE Confidence: 0.8410300775

00:53:03.135 --> 00:53:04.773 two lab tests that can give the

NOTE Confidence: 0.8410300775

00:53:04.831 --> 00:53:06.519 circadian profile for patients.

NOTE Confidence: 0.8410300775

00:53:06.520 --> 00:53:08.530 And so these are still being

NOTE Confidence: 0.8410300775

00:53:08.530 --> 00:53:10.304 validated but may again make

NOTE Confidence: 0.8410300775

00:53:10.304 --> 00:53:12.470 things a little bit less resource

NOTE Confidence: 0.8410300775

00:53:12.470 --> 00:53:14.546 intensive or more accessible and

NOTE Confidence: 0.8410300775

00:53:14.546 --> 00:53:15.926 then important to always remember

NOTE Confidence: 0.8410300775

00:53:15.926 --> 00:53:17.293 thinking about our critical care

NOTE Confidence: 0.8410300775

00:53:17.293 --> 00:53:18.613 patient outcomes that we want to

NOTE Confidence: 0.8410300775

00:53:18.613 --> 00:53:20.040 know how these interventions actually

NOTE Confidence: 0.8410300775

00:53:20.040 --> 00:53:21.830 affect the overall patient outcomes.

NOTE Confidence: 0.8410300775

00:53:21.830 --> 00:53:22.878 With things like delirium,

NOTE Confidence: 0.8410300775

00:53:22.878 --> 00:53:23.664 length of stay,

NOTE Confidence: 0.8410300775

00:53:23.670 --> 00:53:25.445 mortality and then an interesting

NOTE Confidence: 0.8410300775

00:53:25.445 --> 00:53:28.282 thing to think about is that as

NOTE Confidence: 0.8410300775

00:53:28.282 --> 00:53:29.776 implementation science advances,

NOTE Confidence: 0.8410300775

00:53:29.780 --> 00:53:32.146 this may lead to better ability to
NOTE Confidence: 0.8410300775

00:53:32.146 --> 00:53:34.154 create and sustain multicomponent
NOTE Confidence: 0.8410300775

00:53:34.154 --> 00:53:35.080 interventions,
NOTE Confidence: 0.8410300775

00:53:35.080 --> 00:53:36.438 which I think is going to be
NOTE Confidence: 0.8410300775

00:53:36.438 --> 00:53:37.276 an important future direction
NOTE Confidence: 0.8410300775

00:53:37.276 --> 00:53:38.554 for this part of the field.
NOTE Confidence: 0.869033150526316

00:53:40.660 --> 00:53:42.704 So just in summary, we've talked a
NOTE Confidence: 0.869033150526316

00:53:42.704 --> 00:53:44.763 lot about how sleep and circadian
NOTE Confidence: 0.869033150526316

00:53:44.763 --> 00:53:46.995 health is disrupted in ICU patients
NOTE Confidence: 0.869033150526316

00:53:47.000 --> 00:53:49.660 due to the factors that we discussed.
NOTE Confidence: 0.869033150526316

00:53:49.660 --> 00:53:51.490 I mentioned that these are important
NOTE Confidence: 0.869033150526316

00:53:51.490 --> 00:53:53.149 to think about because they're
NOTE Confidence: 0.869033150526316

00:53:53.149 --> 00:53:54.697 associated with poor clinical
NOTE Confidence: 0.869033150526316

00:53:54.697 --> 00:53:56.632 outcomes and poor patient experience,
NOTE Confidence: 0.869033150526316

00:53:56.640 --> 00:53:58.896 and there are a lot of non pharmacologic
NOTE Confidence: 0.869033150526316

00:53:58.896 --> 00:54:00.283 interventions to think about that

NOTE Confidence: 0.869033150526316

00:54:00.283 --> 00:54:02.082 can be useful to optimize sleep and

NOTE Confidence: 0.869033150526316

00:54:02.136 --> 00:54:03.816 circadian health and our patients.

NOTE Confidence: 0.869033150526316

00:54:03.820 --> 00:54:05.549 And we talked about how future research

NOTE Confidence: 0.869033150526316

00:54:05.549 --> 00:54:07.600 in this field will change moving forward,

NOTE Confidence: 0.869033150526316

00:54:07.600 --> 00:54:09.692 hopefully with better definitions

NOTE Confidence: 0.869033150526316

00:54:09.692 --> 00:54:10.738 of outcomes.

NOTE Confidence: 0.869033150526316

00:54:10.740 --> 00:54:14.260 And advances in implementation science.

NOTE Confidence: 0.869033150526316

00:54:14.260 --> 00:54:16.897 So with that I will open up to questions

NOTE Confidence: 0.869033150526316

00:54:16.897 --> 00:54:19.555 I wanted to say thank you so much to

NOTE Confidence: 0.869033150526316

00:54:19.555 --> 00:54:22.634 my lab members and I work closely with

NOTE Confidence: 0.869033150526316

00:54:22.634 --> 00:54:24.781 Taylor and Darren Veronica salmon.

NOTE Confidence: 0.869033150526316

00:54:24.781 --> 00:54:27.386 They're both postdocs or postgrads,

NOTE Confidence: 0.869033150526316

00:54:27.390 --> 00:54:30.000 rather and then Doctor Canaller,

NOTE Confidence: 0.869033150526316

00:54:30.000 --> 00:54:31.800 who's been an amazing mentor in

NOTE Confidence: 0.869033150526316

00:54:31.859 --> 00:54:33.103 both personally and professionally

NOTE Confidence: 0.869033150526316

00:54:33.103 --> 00:54:35.340 for me over the past few years,
NOTE Confidence: 0.869033150526316

00:54:35.340 --> 00:54:36.668 and I'm so lucky to have had the
NOTE Confidence: 0.869033150526316

00:54:36.668 --> 00:54:37.870 chance to work with all of you.
NOTE Confidence: 0.767400692

00:54:42.130 --> 00:54:45.458 Thank you Amy. That was a turtle forest
NOTE Confidence: 0.767400692

00:54:45.460 --> 00:54:49.048 and really interesting to listen to.
NOTE Confidence: 0.767400692

00:54:49.050 --> 00:54:50.994 As Janet noted, you all can put questions
NOTE Confidence: 0.767400692

00:54:50.994 --> 00:54:53.050 in the chat or you can at this point,
NOTE Confidence: 0.767400692

00:54:53.050 --> 00:54:56.110 unmute yourself and ask questions directly.
NOTE Confidence: 0.767400692

00:54:56.110 --> 00:54:59.590 I think as folks get ready to do that all
NOTE Confidence: 0.767400692

00:54:59.675 --> 00:55:02.538 ask you know you highlighted a lot of the
NOTE Confidence: 0.767400692

00:55:02.538 --> 00:55:04.466 complexity of what's going on in the field,
NOTE Confidence: 0.767400692

00:55:04.470 --> 00:55:06.158 and I know you and I have talked
NOTE Confidence: 0.767400692

00:55:06.158 --> 00:55:07.609 about this now for three years,
NOTE Confidence: 0.767400692

00:55:07.610 --> 00:55:09.423 but if folks are gonna walk away
NOTE Confidence: 0.767400692

00:55:09.423 --> 00:55:11.243 today with one like one thing they
NOTE Confidence: 0.767400692

00:55:11.243 --> 00:55:13.010 could do for sleep in the ICU,

NOTE Confidence: 0.767400692

00:55:13.010 --> 00:55:14.074 what would you tell him to do?

NOTE Confidence: 0.927564023333333

00:55:15.480 --> 00:55:17.220 That's a great question. I think.

NOTE Confidence: 0.927564023333333

00:55:17.220 --> 00:55:19.327 I think the most important thing to

NOTE Confidence: 0.927564023333333

00:55:19.327 --> 00:55:22.014 do is to just a lot of this is is.

NOTE Confidence: 0.927564023333333

00:55:22.020 --> 00:55:23.838 Easily accessible with common sense and

NOTE Confidence: 0.927564023333333

00:55:23.838 --> 00:55:25.775 I think just keep sleeping circadian

NOTE Confidence: 0.927564023333333

00:55:25.775 --> 00:55:27.785 health on your radar when you're

NOTE Confidence: 0.927564023333333

00:55:27.785 --> 00:55:29.656 taking care of ICU patients because

NOTE Confidence: 0.927564023333333

00:55:29.656 --> 00:55:31.658 there is so much that's really minimal

NOTE Confidence: 0.927564023333333

00:55:31.658 --> 00:55:33.048 interventions that are easy things

NOTE Confidence: 0.927564023333333

00:55:33.048 --> 00:55:35.118 to pick off and help patients with.

NOTE Confidence: 0.927564023333333

00:55:35.120 --> 00:55:36.832 If you're walking by the room at night

NOTE Confidence: 0.927564023333333

00:55:36.832 --> 00:55:38.657 and you see the TV is on or the hall

NOTE Confidence: 0.927564023333333

00:55:38.657 --> 00:55:40.300 door is open and the lights are on,

NOTE Confidence: 0.927564023333333

00:55:40.300 --> 00:55:41.560 these are all little adjustments

NOTE Confidence: 0.927564023333333

00:55:41.560 --> 00:55:43.500 that you can make to help promote
NOTE Confidence: 0.9275640233333333

00:55:43.500 --> 00:55:44.756 this patient sleep opportunity
NOTE Confidence: 0.9275640233333333

00:55:44.756 --> 00:55:46.434 or have more favorable circadian
NOTE Confidence: 0.9275640233333333

00:55:46.434 --> 00:55:47.918 environment for the patients.
NOTE Confidence: 0.9275640233333333

00:55:47.920 --> 00:55:50.692 I think on an individual level to
NOTE Confidence: 0.9275640233333333

00:55:50.692 --> 00:55:52.562 think about implementing a unit.
NOTE Confidence: 0.9275640233333333

00:55:52.562 --> 00:55:54.949 Wide naptime protocol that's going to be
NOTE Confidence: 0.9275640233333333

00:55:54.949 --> 00:55:57.178 something that's more resource intensive,
NOTE Confidence: 0.9275640233333333

00:55:57.180 --> 00:55:58.180 but for all of us,
NOTE Confidence: 0.9275640233333333

00:55:58.180 --> 00:55:59.850 there are very readily accessible
NOTE Confidence: 0.9275640233333333

00:55:59.850 --> 00:56:01.520 interventions that we can do
NOTE Confidence: 0.9275640233333333

00:56:01.576 --> 00:56:03.326 ourselves to help the patients
NOTE Confidence: 0.9275640233333333

00:56:03.326 --> 00:56:05.076 have a superior sleep opportunity.
NOTE Confidence: 0.9275640233333333

00:56:05.080 --> 00:56:07.933 And I think as a critical care doctor and
NOTE Confidence: 0.9275640233333333

00:56:07.933 --> 00:56:10.280 a sleep doctor looking at all of this,
NOTE Confidence: 0.9275640233333333

00:56:10.280 --> 00:56:11.820 I've really become a lot more introspective

NOTE Confidence: 0.927564023333333

00:56:11.820 --> 00:56:13.525 of my own practices and thinking about

NOTE Confidence: 0.927564023333333

00:56:13.525 --> 00:56:15.359 what are all these awful things that I,

NOTE Confidence: 0.927564023333333

00:56:15.360 --> 00:56:15.812 you know,

NOTE Confidence: 0.927564023333333

00:56:15.812 --> 00:56:17.620 that I that I do to patients that

NOTE Confidence: 0.927564023333333

00:56:17.677 --> 00:56:19.437 are not necessary that really

NOTE Confidence: 0.927564023333333

00:56:19.437 --> 00:56:20.845 disrupted their opportunity for

NOTE Confidence: 0.927564023333333

00:56:20.845 --> 00:56:22.888 sleep overnight and how necessary is.

NOTE Confidence: 0.927564023333333

00:56:22.890 --> 00:56:23.810 That blood draw at,

NOTE Confidence: 0.927564023333333

00:56:23.810 --> 00:56:24.270 you know,

NOTE Confidence: 0.927564023333333

00:56:24.270 --> 00:56:24.760 4:00 AM,

NOTE Confidence: 0.927564023333333

00:56:24.760 --> 00:56:26.475 and sometimes it is really necessary and

NOTE Confidence: 0.927564023333333

00:56:26.475 --> 00:56:28.181 we really have to get the procedures

NOTE Confidence: 0.927564023333333

00:56:28.181 --> 00:56:29.789 done and get the testing done.

NOTE Confidence: 0.927564023333333

00:56:29.790 --> 00:56:31.710 And you know that's important.

NOTE Confidence: 0.927564023333333

00:56:31.710 --> 00:56:33.198 But there are plenty of times

NOTE Confidence: 0.927564023333333

00:56:33.198 --> 00:56:34.421 where they're easy changes that
NOTE Confidence: 0.9275640233333333

00:56:34.421 --> 00:56:35.909 we can make if we just are mindful
NOTE Confidence: 0.9275640233333333

00:56:35.909 --> 00:56:37.442 of the fact that our patients are
NOTE Confidence: 0.9275640233333333

00:56:37.442 --> 00:56:38.890 humans who like to sleep too.
NOTE Confidence: 0.834618955714286

00:56:43.830 --> 00:56:46.658 Thank you and then Janet has a.
NOTE Confidence: 0.834618955714286

00:56:46.660 --> 00:56:48.050 A question in the chat.
NOTE Confidence: 0.839583746

00:56:50.210 --> 00:56:51.170 Also interesting idea are
NOTE Confidence: 0.839583746

00:56:51.170 --> 00:56:52.682 there are ways that we can be
NOTE Confidence: 0.839583746

00:56:52.682 --> 00:56:54.088 systematic in optimizing sleep?
NOTE Confidence: 0.839583746

00:56:54.088 --> 00:56:56.780 For example protocols and epic, etc.
NOTE Confidence: 0.897075916666667

00:56:58.050 --> 00:56:59.560 Yeah, so that's a very
NOTE Confidence: 0.897075916666667

00:56:59.560 --> 00:57:00.768 that is very interesting.
NOTE Confidence: 0.897075916666667

00:57:00.770 --> 00:57:02.338 I think that's something and doctor Karen.
NOTE Confidence: 0.897075916666667

00:57:02.340 --> 00:57:02.970 I don't know if you want
NOTE Confidence: 0.897075916666667

00:57:02.970 --> 00:57:03.550 to speak more to this.
NOTE Confidence: 0.897075916666667

00:57:03.550 --> 00:57:04.864 I don't mean to put words in your mouth,

NOTE Confidence: 0.897075916666667
00:57:04.870 --> 00:57:06.795 but I think that's something that Doctor
NOTE Confidence: 0.897075916666667
00:57:06.795 --> 00:57:08.589 Kennard has thought about in particular,
NOTE Confidence: 0.897075916666667
00:57:08.590 --> 00:57:10.528 like with ordering practices and defaults.
NOTE Confidence: 0.897075916666667
00:57:10.530 --> 00:57:12.708 So there are meds that are ordered Q 8
NOTE Confidence: 0.897075916666667
00:57:12.708 --> 00:57:14.808 that don't really or Q6 for instance,
NOTE Confidence: 0.897075916666667
00:57:14.810 --> 00:57:16.802 that the timing of administration just
NOTE Confidence: 0.897075916666667
00:57:16.802 --> 00:57:19.204 goes right from when you enter the
NOTE Confidence: 0.897075916666667
00:57:19.204 --> 00:57:20.894 medication instead of defaulting to
NOTE Confidence: 0.897075916666667
00:57:20.894 --> 00:57:22.935 a schedule and that for instance may
NOTE Confidence: 0.897075916666667
00:57:22.935 --> 00:57:24.624 result in the patient being disrupted
NOTE Confidence: 0.897075916666667
00:57:24.624 --> 00:57:26.768 at odd hours just to get a medication
NOTE Confidence: 0.897075916666667
00:57:26.768 --> 00:57:28.378 that may not necessarily have.
NOTE Confidence: 0.897075916666667
00:57:28.380 --> 00:57:31.613 Can be given at a time sensitive interval
NOTE Confidence: 0.897075916666667
00:57:31.613 --> 00:57:34.517 or at a specific time around the clock,
NOTE Confidence: 0.897075916666667
00:57:34.520 --> 00:57:36.808 so I think that's one area that I
NOTE Confidence: 0.897075916666667

00:57:36.808 --> 00:57:38.789 thought was a really interesting idea
NOTE Confidence: 0.897075916666667

00:57:38.789 --> 00:57:41.526 to try to leverage Epic and just make
NOTE Confidence: 0.897075916666667

00:57:41.526 --> 00:57:43.794 the defaults more more kind of mindful
NOTE Confidence: 0.897075916666667

00:57:43.794 --> 00:57:45.484 of sleep and circadian considerations.
NOTE Confidence: 0.897075916666667

00:57:45.484 --> 00:57:48.380 And then I wonder from an environmental,
NOTE Confidence: 0.897075916666667

00:57:48.380 --> 00:57:49.532 you know management perspective,
NOTE Confidence: 0.897075916666667

00:57:49.532 --> 00:57:51.827 would there be a way that you know
NOTE Confidence: 0.897075916666667

00:57:51.827 --> 00:57:53.605 the unit lights or the patient room
NOTE Confidence: 0.897075916666667

00:57:53.605 --> 00:57:55.054 lights could kind of default to
NOTE Confidence: 0.897075916666667

00:57:55.054 --> 00:57:56.610 turning off at like a certain time
NOTE Confidence: 0.897075916666667

00:57:56.610 --> 00:57:58.484 and the IT would have to be kind of
NOTE Confidence: 0.897075916666667

00:57:58.484 --> 00:58:00.122 an opt in to turn them on instead of.
NOTE Confidence: 0.897075916666667

00:58:00.130 --> 00:58:01.834 Just leaving them on until someone
NOTE Confidence: 0.897075916666667

00:58:01.834 --> 00:58:03.570 flips the switch and I think things
NOTE Confidence: 0.897075916666667

00:58:03.570 --> 00:58:04.670 like that would be interesting.
NOTE Confidence: 0.897075916666667

00:58:04.670 --> 00:58:05.762 I'm sure there's a really long

NOTE Confidence: 0.897075916666667
00:58:05.762 --> 00:58:07.115 list of you know others would sit
NOTE Confidence: 0.897075916666667
00:58:07.115 --> 00:58:08.279 down and think about it too.
NOTE Confidence: 0.663660485
00:58:12.990 --> 00:58:14.208 Very nice talk Amy. Thank you.
NOTE Confidence: 0.663660485
00:58:14.210 --> 00:58:15.750 I'm just going to talk instead
NOTE Confidence: 0.663660485
00:58:15.750 --> 00:58:16.600 of putting in this chat.
NOTE Confidence: 0.891822704285714
00:58:18.620 --> 00:58:20.000 You know the question for you
NOTE Confidence: 0.891822704285714
00:58:20.000 --> 00:58:21.718 guys who do this kind of work is
NOTE Confidence: 0.90156389
00:58:22.910 --> 00:58:24.620 it? Is it the duration of
NOTE Confidence: 0.90156389
00:58:24.620 --> 00:58:26.200 rest time that's important?
NOTE Confidence: 0.90156389
00:58:26.200 --> 00:58:27.600 Is it actually sleep?
NOTE Confidence: 0.90156389
00:58:27.600 --> 00:58:31.320 And what is sleep in ICU? And.
NOTE Confidence: 0.90156389
00:58:31.320 --> 00:58:32.960 Yeah, you can address that.
NOTE Confidence: 0.90156389
00:58:32.960 --> 00:58:34.380 Yeah, that's a great question.
NOTE Confidence: 0.90156389
00:58:34.380 --> 00:58:36.366 Last 60 seconds that yeah, yeah,
NOTE Confidence: 0.90156389
00:58:36.366 --> 00:58:38.788 so doctor allowed me to invite me
NOTE Confidence: 0.90156389

00:58:38.788 --> 00:58:40.785 to participate with an ATS workshop
NOTE Confidence: 0.90156389

00:58:40.785 --> 00:58:43.005 that was focused on some of these
NOTE Confidence: 0.90156389

00:58:43.005 --> 00:58:44.588 areas and one it was a privilege
NOTE Confidence: 0.90156389

00:58:44.588 --> 00:58:46.179 for me to get to hear all of these.
NOTE Confidence: 0.90156389

00:58:46.180 --> 00:58:47.735 Like very senior experienced people
NOTE Confidence: 0.90156389

00:58:47.735 --> 00:58:49.564 talk about these questions and the
NOTE Confidence: 0.90156389

00:58:49.564 --> 00:58:50.890 question you asked came up quite
NOTE Confidence: 0.90156389

00:58:50.890 --> 00:58:52.685 a bit like what actually is the
NOTE Confidence: 0.90156389

00:58:52.685 --> 00:58:54.299 definition of sleep in ICU patients.
NOTE Confidence: 0.90156389

00:58:54.300 --> 00:58:55.828 It's actually an interesting
NOTE Confidence: 0.90156389

00:58:55.828 --> 00:58:57.356 question because you know,
NOTE Confidence: 0.90156389

00:58:57.360 --> 00:58:59.579 typically we don't think of really being
NOTE Confidence: 0.90156389

00:58:59.579 --> 00:59:02.070 able to apply those same ichd criteria.
NOTE Confidence: 0.90156389

00:59:02.070 --> 00:59:03.358 The patients who are critically ill for
NOTE Confidence: 0.90156389

00:59:03.358 --> 00:59:04.890 some of the reasons that I alluded to,
NOTE Confidence: 0.90156389

00:59:04.890 --> 00:59:07.113 so there are a lot of kind of background

NOTE Confidence: 0.90156389

00:59:07.113 --> 00:59:09.106 EEG changes that these patients may

NOTE Confidence: 0.90156389

00:59:09.106 --> 00:59:11.222 experience in the setting of their

NOTE Confidence: 0.90156389

00:59:11.222 --> 00:59:13.436 critical illness and self allopathy etc.

NOTE Confidence: 0.90156389

00:59:13.440 --> 00:59:15.408 So I think that's one of the areas

NOTE Confidence: 0.90156389

00:59:15.408 --> 00:59:17.285 that's kind of actively on the

NOTE Confidence: 0.90156389

00:59:17.285 --> 00:59:18.613 docket for further clarification

NOTE Confidence: 0.90156389

00:59:18.613 --> 00:59:20.527 is getting a better definition of

NOTE Confidence: 0.90156389

00:59:20.527 --> 00:59:22.321 what actually sleep in ICU should

NOTE Confidence: 0.90156389

00:59:22.330 --> 00:59:24.430 be defined as and what that entails,

NOTE Confidence: 0.90156389

00:59:24.430 --> 00:59:25.910 so I don't have a great answer except

NOTE Confidence: 0.90156389

00:59:25.910 --> 00:59:27.718 to say that I think a lot of great

NOTE Confidence: 0.90156389

00:59:27.718 --> 00:59:29.290 minds are wondering the same thing as you.

NOTE Confidence: 0.90156389

00:59:29.290 --> 00:59:31.693 And then you know what is the the important

NOTE Confidence: 0.90156389

00:59:31.693 --> 00:59:33.580 factor here, whether it's through.

NOTE Confidence: 0.90156389

00:59:33.580 --> 00:59:34.870 Restoration of sleep.

NOTE Confidence: 0.90156389

00:59:34.870 --> 00:59:36.865 I think these are all questions that
NOTE Confidence: 0.90156389

00:59:36.865 --> 00:59:38.426 are difficult to actually answer
NOTE Confidence: 0.90156389

00:59:38.426 --> 00:59:40.687 until we kind of clarify what the
NOTE Confidence: 0.90156389

00:59:40.687 --> 00:59:42.200 definition of sleep actually is.
NOTE Confidence: 0.90156389

00:59:42.200 --> 00:59:44.048 But these are all some of the the
NOTE Confidence: 0.90156389

00:59:44.048 --> 00:59:45.741 questions that I think are going to
NOTE Confidence: 0.90156389

00:59:45.741 --> 00:59:47.264 be important to clarify with this
NOTE Confidence: 0.90156389

00:59:47.264 --> 00:59:49.315 research moving forward and how do we
NOTE Confidence: 0.90156389

00:59:49.315 --> 00:59:50.902 actually determine you know what is
NOTE Confidence: 0.90156389

00:59:50.902 --> 00:59:52.390 beneficial and what the outcomes are,
NOTE Confidence: 0.90156389

00:59:52.390 --> 00:59:54.532 and I think the research in this
NOTE Confidence: 0.90156389

00:59:54.532 --> 00:59:56.878 area has struggled a little bit to
NOTE Confidence: 0.90156389

00:59:56.878 --> 00:59:58.588 define those outcomes measures and
NOTE Confidence: 0.90156389

00:59:58.588 --> 01:00:00.805 that's 11 area that the workshop group
NOTE Confidence: 0.90156389

01:00:00.805 --> 01:00:03.360 identified as an important focus for future.
NOTE Confidence: 0.77313281

01:00:07.500 --> 01:00:08.900 All right, thank you everyone for coming.

NOTE Confidence: 0.77313281

01:00:08.900 --> 01:00:11.924 Thank you Amy for a great talk.

NOTE Confidence: 0.77313281

01:00:11.930 --> 01:00:13.351 It was just a pleasure to hear

NOTE Confidence: 0.77313281

01:00:13.351 --> 01:00:15.270 all this take care. Everyone.

NOTE Confidence: 0.77313281

01:00:15.270 --> 01:00:17.186 Thank you. Thanks everyone.

NOTE Confidence: 0.77313281

01:00:17.186 --> 01:00:18.398 Thanks Amy. Triple talk.