ADVISORY COUNCIL ON RADIATION PROTECTION

Bureau of Radiation Control

Tampa Airport Mariott

Tampa, Florida

Tuesday, May 12, 2015

10 a.m. - 3:25 p.m

Reported by:
Rita G. Meyer, RDR, CRR, CBC, CCP

Realtime Reporter and Notary Public
State of Florida at Large

MEMBERS PRESENT:

Randy Schenkman, M.D., Chairman

Mark S. Seddon, Vice-Chairman, MP, DABR, DABMP

Armand Cognetta, M.D.

Alberto Tineo, CNMT

Patricia M. Dycus, BS, RRA(R)(M), RDMS

Tim Richardson, RT(R)

Kathy Drotar, M.Ed., RT. (R)(N)(T)

Paul Burress, CHP

William Atherton, D.C.

Carol V. Bonanno, CNMT, FSNMTS

Timothy R. Williams, M.D., FACR

DEPARTMENT OF HEALTH, BUREAU OF RADIATION CONTROL STAFF:

James Futch, Health Physicist Administrator

Brenda Andrews, Business Consultant

Yvette Forrest, Environmental Administrator

Tim Dunn, Emergency Response Manager

Giles Toole, Environmental Specialist III

DEPARTMENT OF HEALTH, MEDICAL QUALITY ASSURANCE STAFF PRESENT:

Gail Curry, Regulatory Consultant

GUESTS PRESENT:

Chantel M. Corbett, A.S., CNMT, RT(N), RSO, FusionPhysics

Cybil Nielsen, CNMT, NMTCB

Richie Spangler, CHMM, CDGP, Sandia National Laboratories

A G E N D A

RANDY SCHENKMAN, CHAIRPERSON: Hi everybody. It's time, I guess, to get started for the meeting. Welcome. I think maybe we should just go around and everybody introduce themselves. Even though most of us know each other, not everybody does, so --

PAUL BURRESS: I'm Paul Burress and I'm here representing the Florida Health Physics Society.

TIMOTHY WILLIAMS: I'm Tim Williams representing Florida Radiological Society, private practice, Boca Raton.

KATHY DROTAR: Kathy Drotar. I am the radiation therapy board member and work at Keiser University.

YVETTE FORREST: Yvette Forrest. I'm with the Bureau of Radiation Control, the Radiation Machine program.

TIM DUNN: I'm Tim Dunn, Florida Bureau of Radiation Control, Emergency Response Manager.

GAIL CURRY: Gail Curry, Department of Health, Medical Quality Assurance.

CHANTEL CORBETT: Chantel Corbett, guest today from Fusion Physics.

MARK SEDDON: Mark Seddon from Florida Hospital in Orlando. I'm representing medical physicists.

GILES TOOLE: Giles Toole, Bureau of Radiation

Control, technologist.

JAMES FUTCH: James Futch, Bureau of Radiation Control, Technology Standards and CE.

RANDY SCHENKMAN, CHAIRPERSON: Randy Schenkman, radiologist now retired.

BRENDA ANDREWS: Brenda Andrews, Radiation Control, DOH.

CYBIL NIELSEN: Cybil Nielsen. I'm here representing the NMTCB.

TIM RICHARDSON: I'm Tim Richardson. I represent the Florida Society of Radiologic Technologists. I'm a radiographer and a semi-retired program director (laughter) soon to be retired, hopefully.

PATRICIA DYCUS: Patty Dycus, representing radiologist assistants.

ARMAND COGNETTA: Armand Cognetta, dermatologist, Tallahassee.

WILLIAM ATHERTON: Bill Atherton, chiropractor, Miami.

CAROL BONANNO: Carol Bonanno representing the CNMT medical techs.

ALBERTO TINEO: Alberto Tineo from Daytona Beach, Florida.

RANDY SCHENKMAN, CHAIRPERSON: Okay. So we

have a pretty full agenda today. We're going to start off by passing the previous -- the minutes from the last meeting. Does anybody have any questions, comments? Okay.

(No Response)

RANDY SCHENKMAN, CHAIRPERSON: Do we have a motion to approve?

CAROL BONANNO: I so move.

KATHY DROTAR: Second.

RANDY SCHENKMAN, CHAIRPERSON: Okay. All in favor?

ALL: Aye.

RANDY SCHENKMAN, CHAIRPERSON: Any opposed?

(No Response)

RANDY SCHENKMAN, CHAIRPERSON: So we'll move on from there.

Gail is going to do the MQA update.

GAIL CURRY: Morning, everyone.

James has a slide on the board for you. It will show the numbers we're looking at at this time. Those were run as of this morning. So you can see each category how many licensees we have. And our computed tomography, those new modifiers that we started, they are doing really well. We're really getting quite a few. Mostly the CTs. And I don't

really need to elaborate much. You can see there for yourselves.

So we have 28,448 licensed practitioners in the State of Florida for all of our rad tech section. We are working applications in two days from the day that we get them in our office, so we're really staying on top of it. I know some providers had a little bit of a problem with our December graduation. And I will let you know that all those issues have been resolved. We did have a new computer system go in place. A new data system. We lost an employee, and EMTs and paramedics and rad techs were all graduating at the same time. So with two processors, we got behind. But everything is running smoothly now. We're back up to 100% on our employees and our system is starting to function better. So that's kind of where we are.

We do have a new executive director, Allison Dudley. She, unfortunately, had a situation come up that she couldn't attend today. She had planned on being here. She is going to attend the next meeting so you can meet her. She was our acting bureau chief for a short period of time and then chose to come over and take over as executive director for EMT, paramedic and pharmacy, because we're all

lumped together in one unit. And that's about it.

JAMES FUTCH: I wanted to ask a question or a two about this.

GAIL CURRY: Sure.

JAMES FUTCH: I notice it says 28,448, so I'm guessing that what they are actually counting is certifications and not people. Because the people is like 26, 27,000.

GAIL CURRY: Correct. Because one -- like a general radiographer can hold more than one license. They can also hold a mammography, a CT, an MR. They can hold several licenses. Several modifiers with one license. So, yes, that number would be lower.

JAMES FUTCH: Right. So we're always going to have more licenses or credentials, if you will, than we are people.

GAIL CURRY: Right. When you look at these numbers, those would be licenses, not licensees. So, like I said, a general radiographer may hold three different licenses. Three different modifiers.

PATRICIA DYCUS: What is the difference between the CT and the CTT?

GAIL CURRY: We were just talking about that.

JAMES FUTCH: Thank you. You get the second

prize of the morning.

We had a long time ago a category of computed tomography technologist that was closed by the act of Legislature, like in 1987, to any new licensees. And so, that seven down below is that category, that old category. And those are people who have just continued to renew those licenses and continue to practice in that area.

The new category you can see up there, computed tomography, is 193. That's the one we approved. The Legislature passed in 2012, specialty technologists. I think a year or so later, a year and a half later, we got the rules and that's the largest category, if you look at all the possible applicants from either ARRT or from NMTCB, the largest number of specialty techs is in the computed tomography category.

It's kind of interesting the number of MR techs is actually slightly more than the number of mammo techs. That's partly a reflection of the new specialty licenses are not required for practice in those areas if you are in the primary area covered by that.

So, for example, you could be a -- today, you could be a general radiographer, practicing computed

tomography, and never have sought the CT license from ARRT or maybe you did seek it and you just didn't bother to apply for the Florida license. Because CT is in the primary of area of x-ray, under Florida law anyway, you're still fully authorized to perform them.

And I guess that's its. They are actually -- there are some other licenses under Florida law. Like the basic x-ray machine operator and the basic x-ray machine operator podiatric, there is a, from a different board, the Board of Podiatric Medicine in Florida, there's a certified podiatric x-ray assistant and those folks are more numerous than the 42 you see there. In fact, those 42 are probably also licensed by the other board. Go ahead, somebody asked me why we have two licenses to do almost the same thing in Florida. I don't know. But this one was here for decades before the other one was created. I don't know the current status --

PATRICIA DYCUS: Why is the RA not listed there?

JAMES FUTCH: Actually that's a good question.

GAIL CURRY: They should be.

JAMES FUTCH: The way the database is, the licensing database is set up in Gail's system --

GAIL CURRY: They should be.

JAMES FUTCH: All of these fall underneath --

GAIL CURRY: 7601 or --

JAMES FUTCH: -- 7601 profession. All the RAs, since they came along many years later, they set them up underneath a different profession number, 7602. And whoever generated these numbers didn't bother producing them for the 7602. We can actually probably try and get that before the end of the day and see if we can get them.

I think the last time we checked, it was in the 40s, I want to say Gail.

GAIL CURRY: Yeah. I had it written down but I don't know where I wrote it down.

JAMES FUTCH: I don't think it's correct.

GAIL CURRY: I have it.

JAMES FUTCH: Gail's got it.

GAIL CURRY: No, I don't have it. Sorry.

JAMES FUTCH: You're teasing us, Gail.

YVETTE FORREST: We're trying to keep you on your toes.

GAIL CURRY: I have radiologic assistants but it's how many licenses we issued since June, July 1st of last year. We've issued two new licenses.

JAMES FUTCH: You're probably less than 50

still, I think.

GAIL CURRY: Yeah. I think it's, like, in the 20s. Oh, I have it. I knew I had it somewhere. We have 30, 30 licenses. And have all the names, too, if you want to look at them.

JAMES FUTCH: You're on there.

GAIL CURRY: We have 30 active licenses. There were a lot of people that actually applied for that license that weren't qualified. You know, because they thought if they had a general radiography, they can just get an assistant license.

PATRICIA DYCUS: Sure.

GAIL CURRY: So there were a lot of them that we had to ask for ARRT information that they could never supply for us. So we had a lot of people applying, but only 30 of them actually qualified.

PATRICIA DYCUS: It's a lot of work.

GAIL CURRY: And Patty was the first.

RANDY SCHENKMAN, CHAIRPERSON: Gail, what's going to happen next December? Is everything straightened out so that --

GAIL CURRY: We are straight. We are straight. As a matter of fact, a lot of the schools are already starting to graduate so we're already seeing an influx of applications. And they are staying

right on top of it. Like I said, I ran this report on Monday morning and they are working at two days. So that's like a really, really good number. Well, actually, the report I ran from January 1st to Monday, the 11th, they are working at one day. With 448 applications coming in.

Now, we also do EMTs and paramedics along with that, too. So they are really staying on top of things right now.

RANDY SCHENKMAN, CHAIRPERSON: Okay.

JAMES FUTCH: One, I wanted to make sure. I don't see the PET license folks up there. So I'm assuming that means they haven't licensed anybody in PET?

GAIL CURRY: I don't think we've licensed a PET license yet, but I'll check on it.

JAMES FUTCH: Okay.

TIMOTHY WILLIAMS: I wanted to try to connect these dots in my own head. So if you're a general radiographer, you can't do nuclear medicine technology or radiation therapy technology.

CHANTEL CORBETT: You can have two licenses. We have dual certification.

GAIL CURRY: You'd have to hold a second license.

JAMES FUTCH: Underneath the one license, you're correct.

TIMOTHY WILLIAMS: Don't make it too complex.

JAMES FUTCH: It's only 10:30, right.

TIMOTHY WILLIAMS: So if you're a nuclear medicine technologist, you can't do general radiography or RTT.

GAIL CURRY: Correct.

TIMOTHY WILLIAMS: But if you're an RTT, you can't do nuclear medicine or general radiography.

JAMES FUTCH: Right.

TIMOTHY WILLIAMS: But a general radiographer can do CT, MRI and mammography. And then a radiation therapist technologist cannot do CT, MR and mammography; is that right?

JAMES FUTCH: Let's leave MR out of it for just a second.

TIMOTHY WILLIAMS: Okay. An RTT cannot do CT or mammography.

JAMES FUTCH: They can do CT for simulation purposes.

TIMOTHY WILLIAMS: Right. Right. I'm talking diagnostic, full credential, whatever that means.

JAMES FUTCH: Yeah.

TIMOTHY WILLIAMS: A nuclear medicine

technologist cannot do CT, MR or mammography?

JAMES FUTCH: Not full diagnostic CT.

TIMOTHY WILLIAMS: Right. They can't do attenuation.

So who can do MR? Anybody?

JAMES FUTCH: Essentially, anybody can do MR.

The MR license, I don't know if you remember the history of going through the Legislature -- this is always hard to explain, so bear with me, okay?

MR, of course, doesn't use any ionizing radiation.

TIMOTHY WILLIAMS: Right.

JAMES FUTCH: The teeth in the statute, the prohibition, the criminal penalties, the unlicensed practice penalties, all the rest of that, they are all tied to somebody using ionizing radiation still to this day. So, yes, even though we have an MR license, you could still -- and many people are -- trust me, I imagine there's far more than 95 people out there practicing in Florida. You can still go out there and do MR and really have no penalty for it because of the way the law is currently written. And the law is written that way because the original bill did modify the definition of the word radiation so that all the penalties would've applied, but

there was some blow back from different segments of the industry out there that didn't really want that and so that didn't get changed in the bill.

TIMOTHY WILLIAMS: So just as a side bar, for the MR people, we don't care about the gadolinium contrast, the IV, the safety, all that stuff. The renal failure, the skin reactions.

JAMES FUTCH: Let me flip over to the machine side of it.

The same statute 404 that gives us the authority to go out and inspect all of your ionizing machines and so forth and so on, doesn't give us any authority over the MR at all.

TIMOTHY WILLIAMS: Yeah.

JAMES FUTCH: So let's bring them into the fold slowly, I guess. It's a step in the right direction maybe. And perhaps after I'm retired and maybe some of you are still on the council, maybe you can --

(Laughter)

JAMES FUTCH: -- go to the Legislature and get the law changed and you know --

RANDY SCHENKMAN, CHAIRPERSON: Is there a reason it's never come up?

JAMES FUTCH: Well, years ago, in a different regulatory climate, we went to the Legislature and

stated the case for why some of these other things needed to be in there. And the answer that we got from way back then was, where -- I'll just put it bluntly. Where are the dead bodies?

CAROL BONANNO: That was before contract.

PATRICIA DYCUS: They take them into CT.

JAMES FUTCH: Wow, it's amazing what a table of numbers can generate in terms of questions.

I would point out one more thing about this table. When I first started as the head of the certification program back when it was still in the bureau entirely, 1998, the number of nuclear medicine techs and the number of radiation therapy techs was roughly equivalent. And over the years, the trends that I've been seeing is nuclear med techs have been increasing and therapy techs actually slightly, about the same, maybe slightly decreased.

TIMOTHY WILLIAMS: That was my next question was what the trends were. The RTT number, I don't think it's changed substantially in ten years.

JAMES FUTCH: The basic machine operator number has also, started out, it was around 4,000. In the 4,000 range.

KATHY DROTAR: That was drastic. Way back

when, I thought that was almost half of the total number of licenses.

GAIL CURRY: But I think that's because we don't license all of those anymore. No, I'm thinking podiatry.

JAMES FUTCH: Yeah, you're thinking the subspecialty. But the full basic machine operator is trending downward.

GAIL CURRY: It is. We don't see nearly as many as we used to.

KATHY DROTAR: So new applications for BMO have decreased and these are mostly people that are renewing, do you think?

GAIL CURRY: Yeah. I mean, we still get some, but not -- because we used to get a whole bunch. The same time we would start getting your RTs and GRs, we'd see an influx of basics. But we're not seeing that so much anymore. We have maybe one or two schools that graduate that we'll see those come in that way. But we used to have a lot come in by individual, just --

RANDY SCHENKMAN, CHAIRPERSON: Offices.

GAIL CURRY: -- looking at the study guide and that and we're not seeing that very much anymore.

JAMES FUTCH: There are no -- I haven't checked

in a little while, but last time I checked a couple years ago, there were no more public basic schools at all.

GAIL CURRY: Oh, really?

JAMES FUTCH: There were some, mostly medical assisting programs that do an x-ray component and that's mostly who, besides the one or two schools that actually, the private schools that still do the basic.

GAIL CURRY: Yeah. There's only a couple of those.

RANDY SCHENKMAN, CHAIRPERSON: A lot of private offices don't have their own equipment anymore because a lot of individuals are now becoming groups, part of groups. And the group buys all the x-ray equipment; and therefore, they usually have a general radiographer.

GAIL CURRY: That's true. On staff.

JAMES FUTCH: Anymore questions about the numbers and the trends?

RANDY SCHENKMAN, CHAIRPERSON: Okay. So --

JAMES FUTCH: In that case.

RANDY SCHENKMAN, CHAIRPERSON: Now Cybil, it's your turn.

CYBIL NIELSEN: Hi.

JAMES FUTCH: Let's get this set up here.

We want to thank you for coming also, by the way.

CYBIL NIELSEN: I want to thank you for inviting me. Thank you so much. I appreciate the invitation to come down and address you.

I am from the NMTCB and I've been on the board of directors for going on eight years now. Yep. I actually own one of these.

JAMES FUTCH: Good, if it breaks, I'm coming to you.

CYBIL NIELSEN: I own one because I'm an educator. So I do -- I run a nuclear medicine technology program out of Indiana University School of Medicine. And I've been doing that for the last three years, but I've been an educator for about ten years.

But again, I come to you today as a representative of the NMTCB. I have been on the Board of Directors for eight years now and certainly appreciate you letting me come and present our new NMTCB(CT) credential.

Our objective is that we're trying to get this credential recognized and incorporated in anywhere, any standard or regulation that specifically

addresses CT licensing. So we're talking to different states. We've been working with Arizona and Oregon, and now Florida. We're also talking to accrediting bodies. We're talking to employers, just to get this credential recognized.

And what I'll be doing today is just giving you an overview what the NMTCB is. I'll explain a little bit about the NMTCB(CT) credential, why it was created and what its intended purpose is. And then at the end, we should have some time to have some discussion answer any questions that you might have.

So what is the NMTCB? The NMTCB was with formed in the late '70s and the purpose was to create high quality certification exams specifically for nuclear medicine technologists. It was formed out of the Society of Nuclear Medicine. Back in 1977, nuclear medicine really started to become its own specialty. Before then, as you know, it was like a subspecialty of radiography. And in the '70s, the Society of Nuclear Medicine recognized that nuclear medicine is really its own specialty and they wanted an exam that would reflect not just the current practice, but the entire scope of practice for nuclear medicine technology.

So the NMTCB was formed and in 1978, we gave the first exam. And it was to about 650 individuals nationwide that sat for that very first exam. 2015, 37 years later, we're still going strong. Today we have five exams that we offer. We offer the entry-level CNMT exam, and that exam is recognized in any state that requires nuclear medicine certification.

We also have a cardiology exam, the NCT. We have a PET exam, nuclear medicine advanced associate, the NMAA exam. That is like the RA, except specific to nuclear medicine. And we have, I believe, 13 individuals that hold that credential right now. And then our newest exam is the NMTCB(CT) exam.

Currently, we have over 23,780 active NMTCB certificants and over 2,000 of those are practicing right here in the State of Florida.

Couple statistics. Our entry-level exam, in 2014, we had 816 people sit for that exam. Our pass rate was right just shy of 88%. This exam is what we call on demand, which means once eligibility is established, you can make an appointment and take the exam. It's also a computer adaptive test, which means that it uses an algorithm. If you get a

question right, it gives you a more difficult one. If you get it wrong, it gives you an easier one until it figures out what your score is.

Our two specialty exams, the PET exam. The PET exam is open to radiographers as well as nuclear medicine technologists. We had 212 individuals sit for that exam last year. You can see the pass rate is a little bit lower. The pass rate for specialty exams is usually lower because most of the people sitting for those exams are -- they meet eligibility requirements on their own. They don't really go through a program.

The cardiology exam, we had 81 individuals sit for that exam with a pass rate about 80%. Both of these exams are on demand. Again, that means that once eligibility is established, you can make an appointment and sit for the exam.

Our total numbers, for CNMT, these numbers actually change daily. So we have over 23,000 nationally. 2,112 technologists in Florida hold the CNMT credential. There are actually 31 technologists in Florida that hold the PET credential. 44 in Florida that hold the NCT and our new NMTCB credential, we have 185 of those, and 11 hold that credential here in the State of Florida.

The mission of the NMTCB is to promote quality health care by certifying individuals through psychometrically sound examinations to practice and advance in nuclear medicine and molecular imaging. So our purpose is just for the nuclear medicine technologists.

Our vision is to be recognized as the certification organization of choice for nuclear medicine and molecular imaging. So when a need comes up for nuclear medicine technologists, we follow our mission and vision to determine how we can address that.

One of the ways that we live by our mission is we periodically do what is called a task analysis. And the task analysis is a survey that looks at the frequency in which technologists perform particular tasks, but also the criticality. So if it's something that is brand new and it's deemed critical, we will give that a higher weight than something that may be done more frequently. So we take a look at both of those things, frequency as well as criticality.

The last task analysis that we did was in 2013. We're getting ready to do another one. We do them pretty often. Especially now with our field

changing as rapidly as it does.

In the last task analysis, one of the questions we asked was, who operates the CT scanner portion of a high-risk scanner and we found that 77% of the people responded that the CT portion was being performed by a nuclear medicine technologist. And so that kind of, you know, piqued our interest and, you know, maybe we needed to look a little further at this.

So when CT was first added to hybrid scanners -- actually, even if you go back when PET first came out, the attenuation correction was done with rod sources and those rod sources, they worked okay. They provided the information that we needed. But they also lead to very long scan times. And with longer scan times, we had motion artifacts. So CT was added just for attenuation correction. In the beginning, we had two slides, four slides CT and it did very well.

However, once that was added on there, people soon began to realize that we could have a much higher quality CT and have fusion with these images. And so attenuation correction, what we're finding is to only use the CT portion for attenuation correction anymore is not as common as it used to

be. We're finding that anatomic localization, physicians really want to have a quality CT enough to localize different things. And then, of course, many of the PET CTs have 64 slide CT that are used for diagnostic purposes.

And so, both the anatomic localization and the diagnostic purposes, some would deem that they produce diagnostic image quality exam. Even if the dose is a little bit less, but again, attenuation correction only is becoming much more rare.

And then now there are machines that can do a combination of these on the same patient. So no longer can we say this patient will have an attenuation-only scan and this one will have an anatomic localization. We're finding that a patient who may have had a chest CT and they don't need another diagnostic quality CT, so they may have attenuation correction only for the chest and then diagnostic purpose for the abdomen and pelvis. So even on the same patient, you can have a combination of these different things.

The NMTCB also looked at how the nuclear medicine field has been changing over the years. And in 2008, the nuclear medicine technology curriculum for educational programs included CT.

This curriculum was written by the SNMMI but it's also been endorsed by the ASRT. When you go to the ASRT website, they have endorsed this curriculum.

In 2011, the JRCNMT, which is the accrediting body for nuclear medicine technology schools, they started requiring CT content. And at that same time, the NMTCB added CT to the CNMT entry-level exam. The ARRT did that as well. So on the RTN exam, there is CT.

In 2012, the ASRT practice standard for nuclear medicine technologists, they were updated and it now includes CT in the practice standards for nuclear medicine technologists. However, the practice standards for radiography does not include CT.

The other thing that we looked at is we were getting information from our certificants that some of their employees are requiring them to be CT certified. Accrediting bodies, which we'll talk about in just a bit, were requiring CT certification. Many states were requiring that they become CT certified. And so in order to live up to our mission and our vision, which is to provide certification exams for nuclear medicine technologists, we thought we didn't have a choice except to offer a CT certification specifically for

nuclear medicine technologists.

Today, the CNMT and the AARTN exam both test on CT. The ARRT-R exam does not include CT. And then there are two exams that are currently available for nuclear techs to become CT certified, they can take either the ARRT-CT or the NMTCB-CT.

A couple questions we've been asked is what does it mean to have the NMTCB(CT) credential. From our point of view, having the credential demonstrates CT qualification. It is an extension of the nuclear medicine certification exam and it tests specifically in CT.

And we're asked this question all the time: Does this credential allow technologists to perform CT? That's not up to us. That's up to states and facilities to determine what qualifications they are going to require for technologists to perform CT. From our perspective, the CNMT entry-level test does test on CT subject matter and it speaks to minimal qualifications to perform CT. The NMTCB-CT credential has been designed for nuclear medicine technologists that wanted to concentrate their practice in CT.

And we do anticipate the CT description to be recognized in every state that requires CT

certification. Again, the exam has only been around for six months now and Arizona and Oregon have both recognized our CT credential.

Accrediting bodies. We have been in communication with all three accrediting bodies. Currently, the ACR requires ARRT-CT and we've talked to them about incorporating our NMTCB credential. They are on a set schedule of when they update their standards and so, we've been told that they will be in communication with us when that time comes and we're optimistic that they're going to include our credential.

The IAC, the wording for their standards for CT is a qualified medical imaging technologist, so they don't specifically name one exam over another. And the Joint Commission -- in your agenda is the latest draft from the Joint Commission. It is not for dispersal because it is not finalized, but that came out probably about maybe a month or two ago and it specifically recognizes the ARRT-CT credential as well as the NMTCB-CT credential.

So what is on our CT exam? Our CT exam, what we did is we looked at what nuclear medicine technologists are being taught, what they are tested on and what is that gap in knowledge between what

they are taught and what they need to be a CT technologist. So these are content specifications. In your handout, in your agenda you have the longer version, which gives some more subheadings under each of those headings. And you'll see that procedures and anatomy is quite a big portion. We recognize that nuclear medicine technologists are physiology imagers and many of us may lack in anatomy, so we wanted to test heavily on anatomy.

So our CT credential specifically looks at that gap in knowledge. Looks at what nuclear medicine technologists already know. Where we know iterative reconstruction, we know some of those things, and what we don't know. We don't know KBP and MA, so our CT exam is specific to meet that gap.

The exam, itself, has 200 multiple choice questions. The questions were written by CT technologists, physicists, pharmacists, physicians. We also have a psychometrician that works with us on all of our exams.

To sit for the exam, the eligibility requirement, you must be a nuclear medicine technologist with a current active NMTCB, ARRT or the Canadian nuclear medicine certification. You must have a minimum of 500 total clinical hours in

PET CT, SPECT CT and/or CT. And you must complete a minimum of 35 didactic hours. We're going to talk about number two and three in just a little bit.

So the clinical hours, you must obtain those 500 hours within three years of sitting for the exam. So if you do PET CT once a month, you're not going to be able to take this exam. We need those 500 hours concentrated.

Those hours may be acquired as a student in a programmatically accredited nuclear medicine program. It can be on one type of scanner or a combination of multiple scanners. And the hours may be obtained prior to being certified as a nuclear medicine technologist. But you cannot sit for the board until after you are a certified nuclear medicine technologist.

Those hours can be confirmed by your program director, your technical supervisor or your supervising physician. So there has to be a statement that is signed, that verifies the number of hours that were performed and the dates that those hours were done.

The 35 didactic hours, so these are continuing education units. We pulled out four specific categories and these categories, again, were chosen

based on the knowledge gap between nuclear medicine and CT. So a minimum of four hours has to come from each of these categories: Contrast administration, cross-sectional anatomy, x-ray physics and CT radiation safety. And then the remainder of those hours must be CT-related topics.

To maintain the credential. You have to maintain your nuclear medicine credential. But in addition, you have to obtain 12 CEUs that are specific to CT every two years. And this is in addition to the 24 hour CEU requirements. So this is pretty strict and most people don't really like it, but we felt that because CT is a little bit different, that we wanted our CT certificants to have these specific CEUs in CT every two years. And also because the field is changing so rapidly, that technologists really need to be kept up on those changes.

And then, of course, you know, there's always being to be a renewal fee, so a $30 renewal fee.

Our first exam was November 15th, so just about six months ago. We had 102 individuals that passed the exam. The pass rate was around 80%. I don't have the exact number in my head. Our second exam was given on April 17th. We had 83 people pass.

And again, 11 are from the state of Florida.

Our next exam is going to be given November 20th and we anticipate greater than 100 to sit for this exam. We've had an overwhelming response to this exam. And we anticipate our numbers to go up greatly once people start meeting that 35 didactic requirement. That's kind of what is taking so long is to find those CEUs that are specific to CT. Especially finding things like cross-sectional anatomy, continuing education. They are having a little bit of hard time doing that.

After this exam in November, we should have adequate statistics to go on demand. So again, once eligibility is established, then they can make an appointment and take the exam any time they want to.

A couple frequently asked questions that maybe some of you have right now is: What is the scope of practice or practice standard if you have this NMTCB-CT credential? We don't set the scope of practice or practice standards as a certifying organization. That's up to the professional societies. So I would direct you to the ASRT Practice Standards for CT technologists. Currently, their practice standards specifically say ARRT-CT certification. We have been in communication with

them and once those practice standards are up for revision, we've been told that they will sit and allow us to present to them the rationale for including the NMTCB-CT credential. I'm pretty optimistic, based on our communication, that they are going to do that.

Another question we're asked is, why do you require hours in lieu of competencies? All of our post primary exams have always been hours based. So the PET exam, the NCT exam, those are hours based. You have to have so many clinical hours in order to sit for those exams.

And also, we've found that you can get a minimum number of competencies in a short period of time. I've heard some stories about people doing a trauma rotation and getting their competencies in just a couple of weeks. We really felt like for a nuclear medicine technologist to be skilled in CT, they needed to put in those 500 hours.

And then another question is, can you be CT certified only performing SPECT CT and/or PET CT? Our rationale is that CT is CT, no matter where it is done. And most CT that is done on a hybrid scanner is yielding diagnostic image quality exams, even if using it for attenuation correction only, so

I've talked to some of my colleagues that they are doing the CT portion for attenuation correction only, but they are using diagnostic doses. And so, that was another rationale. And then we have our didactic requirement as well to fill those gaps.

And then the last question is, is this an exam for hybrid imaging or CT? This is a CT exam. It does not have SPECT on it. It does not have PET on it. It just has CT on it. And the exam tests for minimal qualifications to perform CT.

And with that, I'd be happy to take any questions that you have.

WILLIAM ATHERTON: What kind of questions would a pharmacist write for a CT exam?

CYBIL NIELSEN: Contrast questions. Contrast administration questions.

ALBERTO TINEO: Under 500 hours, going back to those, how do we know that on those 500 hours, they are well qualified to perform diagnostic exam of individual areas, such as abdomen, pelvis? I understand your philosophy of the 500 hours.

RANDY SCHENKMAN, CHAIRPERSON: How is it documented?

ALBERTO TINEO: Yes. How is that -- because I -- I'm kind of having a hang up on the 500 hours

more than anything else. So if you can --

CYBIL NIELSEN: Right. Sure. It's documented by the person who signs off on them. Just like for a competency-based eligibility, the person that signs off on that, that is how it is documented. And again, with our PET program, which is hours based as well, that's the same thing is, we can't know if they've done every type of exam. But they have been signed off by somebody that they have performed those hours.

And also, with any entry-level exam, there are so many different types of exams that can be done and you cannot insure that everybody has done every single type of exam. But once you are a certified tech, you are still able to do those exams. So for example, red blood cell scans or red blood cell studies, most technologists are not doing those, but yet, under their certification, it allows them to do red blood cell studies. So even on a competency based, you can't insure that every type of study has been done. We felt that 500 hours was enough for the individual to be able to see what was needed to be seen.

CHANTEL CORBETT: I know on the ARRT exam to get in as a nuclear medicine tech or as an x-ray

tech for that matter, there's a list of competencies that you need to do. However, you can skip a lot of those competencies and still meet the criteria because you can do one type five times.

So you can do a third of the group five times and never do the rest. Because I've got technologists who have sat for that exam or tried to sit for that exam and they are, let's say, in an oncology setting. So they have a lot of exams on there that they will never do at their employer. And they do full CT all the time. So it's a little bit, it's a limited --

JAMES FUTCH: I was going to add to that, when we were considering whether to accept the ARRT CT exam a couple years back, we worked through this, this is a couple-years-old knowledge here. But if I remember right, it was seven areas, and you got to pick from among the seven areas. You had to do at least five. And then whatever areas you did you had to do a certain number of minimums. I think the total exams that I came out with was like 125.

KATHY DROTAR: 125.

CHANTEL CORBETT: Possibilities.

RANDY SCHENKMAN, CHAIRPERSON: But do you have a number of exams that they have to do in those 500

hours or what types of exams, what criteria for categories of types of exams and how many they have to do?

CYBIL NIELSEN: No. Our exams are hours based. The PET exam, NCT and the CT exam are all hours based, so they must perform a minimum numbers of hours. But we also have the didactic requirement that goes with our CT exam.

JAMES FUTCH: I wanted to digest some of this and make sure I understood it.

The exam is open to folks who have nuclear medicine but not radiography and not radiation therapy.

CYBIL NIELSEN: Correct.

JAMES FUTCH: The 500 hours could be done entirely on SPECT or PET CT machine or full diagnostic machines in the radiology department.

CYBIL NIELSEN: Correct.

JAMES FUTCH: And you may have said this and I apologize, but is -- so the intent is to have someone from the nuclear medicine background, but can do full diagnostic. They can go to a radiology department and they can start doing whatever kind of CT you might want to do on that machine in the radiology department.

CYBIL NIELSEN: Right. Go ahead.

JAMES FUTCH: The current scope of practice, one of the things -- I should have mentioned this in the beginning. If we were to accept an NMTCB-CT and either set up a new license or use the existing license, one of the key things the law requires that we have is a scope of practice. And I think you partially answered or maybe fully answered one of the questions I had, which is that right now, as I understand it, the SNMI scope of practice is just the NMT scope of practice. There's not like a separate scope like there is for PET, for example.

We had that issue when we considered adopting the PET certification in the first, for NMTCB, we actually somehow, I forget through some of the nuclear medicine techs from Florida and from the national group I think went back to Society for Nuclear Medicine and asked for a PET scope by itself. And that's what we ended up adopting.

And I don't know if you speak for all of the NMTCB, we're just giving a discussion today, but if we were to consider this and if the time scales for Florida regulation and adoption, you're looking like a year, year and a half out, unless they come up with something new, in which case it would be two

years out. Because things move -- glacial is an overstatement for how fast regulations change. But would the NMTCB want us to use the existing CT license and the existing scope of practice from the ASRT derivation or would they want us to create a separate CT license from the NMTCB pathway? Which is their preference and feel free to say whatever.

CYBIL NIELSEN: I would prefer that the ASRT scope of practice for CT technologists, I would prefer going that route, because we have had communications with the ASRT and we're confident that they're going to incorporate an NMTCB-CT into those practice standards, so that work's already been done. So I think that's where I would prefer the direction go instead of having an entire new document done. They adopt ours; we adopt theirs. We work together really well.

Then if I could respond on the minimal qualifications to do CT, many states allow radiographers to do CT exams and consider them qualified. And we feel that our 35 didactic hours and 500 clinical hours is at least equivalent as a radiographer's qualifications to do CT. So even if they've, you know, had mostly PET CT and only a few weeks in CT, they've had some CT educationally, that

would be at least equivalent to a radiographer.

And for the -- you look at a nuclear medicine technologist, since 2011, they are all tested on CT. If they go further and get the NMTCB-CT credential, now they've been tested on CT twice. And I would think that being tested on twice is at least equivalent to the qualifications that a radiographer would have.

PATRICIA DYCUS: I disagree with your assertion that the radiographer -- the radiographer has a wealth of background for the radiation. The different types of radiation as opposed to nuclear medicine than your 35 didactic hours. They have the anatomy and physiology. They have the positioning.

Now, granted, they don't have the 3D or the cross-sectional anatomy. But I think that that's kind of a misstatement, in my opinion. I don't know how everybody else feels.

CYBIL NIELSEN: I think you're absolutely right before 2008. Since 2008, nuclear medicine technology programs have incorporated into their entry-level education, x-ray physics and CT content so --

PATRICIA DYCUS: My statement wasn't what nuclear medicine didn't know, it was more what

radiographers do know.

CYBIL NIELSEN: Right. I'm not saying that radiographers don't know. No, I'm arguing that they do know. Absolutely. I'm just saying that after 2008, the curriculum has changed for nuclear medicine technologists to incorporate CT content.

RANDY SCHENKMAN, CHAIRPERSON: When is the ACR going to address this?

CYBIL NIELSEN: That's a great question. We have been in communication with them for the last year. And they've had some turn over in who's responsible for the CT standards through the ACR, so it's kind of been pushed back several times. But we're staying in constant communication with them. And once they address it, we're going to ask that they recognize this as well.

CHANTEL CORBETT: The issue currently with nuclear medicine technologists wanting to do CT in Florida, is that a lot of them technically, could meet their criteria. However, to meet the criteria on the exam basis that the ARRT requires, it technically requires you to push the CT button. Which in Florida, as a nuke med tech, you're not allowed to do for a diagnostic setting. So you could technically do everything else under your

scope of practice as a nuclear medicine technologist except physically touch the button and meet all the exam criteria and be able to sit for the ARRT CT. But in Florida, you're not allowed to touch the button for diagnostic study. So you can't legally sit for that exam as a nuclear medicine technologist in Florida unless you go back to a formal school that's approved.

So we've had to have, some technologists have even gone as far as to go out of state and work with another hospital to get their competencies because they are allowed to touch the CT button, you know, out of state and come back and get those criteria done. But there's a lot of -- you know, they can meet all the other criteria. They've been in a PET CT environment for years. You know, they can get all of those exams. But the technicality of literally the finger to the button here in Florida, prevents them from sitting for that exam currently.

RANDY SCHENKMAN, CHAIRPERSON: Even under supervision?

CHANTEL CORBETT: Correct. Yes. Unless they're under a school program.

JAMES FUTCH: Let me speak to that issue. We've touched on these a number of times.

All of these are post primary. When you run into a post primary exam that's been taken by somebody who is -- not an exam, but prerequisite procedures, that's being done by someone from a different primary area, for example, the general radiographer who wants to meet the PET certification entrance exam requirements or the nuclear medicine tech who wants to meet the CT exam requirements. That's when you run into the problem because you're doing something in a post primary that's outside of your primary area.

And in Florida, as in many states, you've got a prohibition on taking, practicing, technology, nuclear medicine, unless you're licensed to do so and the only way around that is the student exception. That's, by the way, the same law that prevents people from doing unlicensed practice for whatever reason they want to do it.

So in order to qualify, Chantel is right. In order to qualify for the minimum number of procedures, in Florida, you would have to do it underneath the auspices of the student exception, which some of the programs have adapted and catered to that market, like Valencia, for example, in Orlando.

However, my question to Chantel would be, how would it be any different for the person trying to qualify for the 500 hours?

CHANTEL CORBETT: What do you mean?

JAMES FUTCH: Well, I'm assuming we're still talking about someone actually performing the exams. Whether it be for ARRT purposes or for NMTCB's purposes.

CHANTEL CORBETT: Well, in Florida, you can do an exam as a portion of a preset protocol if you're not editing that protocol. If it's part of the PET exam, even if it's a diagnostic CT, as long as it's a preset is our understanding.

JAMES FUTCH: I think the same prohibition would prevent someone from getting the prerequisite 500 hours for NMTCB's exam purposes or for the 125 exams for ARRT's purposes. Either way, you're saying I've done these number of exams or I've done this number of hours of these exams. And if you're doing it outside of your primary area as a nuclear medicine tech would, you still got the same problem with the Florida law either way.

CHANTEL CORBETT: And I guess if it would depend on if you're considering the attenuation correction portion of the CT or if it needs to be --

because the only difference technically is the --

JAMES FUTCH: You're right in the sense that, the way I read it -- I'm not sure if it's the way NMTCB intends it -- but the way I read it, you could be a nuclear medicine tech and because of the way the scope was changed many years ago, to perform that portion of the CT for attenuation and the rest of it, you could run a PET CT machine all day long for 500 hours, however many days that would take, and perform a whole bunch of nuclear medicine procedures in that fashion, and still do that within your license and qualify for the NMTCBs 500 hours. That part of it you're right about.

CHANTEL CORBETT: That's the only way.

JAMES FUTCH: My follow-up question to that would be, I'm still -- I'm a physicist by degree and practice, not a technologist, so I haven't been out there. I'm still trying to wrap my head around how someone does 500 hours as an nuclear medicine tech on a PET CT machine doing nuclear medicine procedures that, yes, use CT as an adjunct to the procedure and then sits for the test. And as you say, I'm sure the test is very extensive, passes that and then goes to work in radiology doing full CT of that type. And that's -- I understand that's

the intention, right?

CYBIL NIELSEN: Yes, it is. Yes.

I have a follow-up question also with the, you know, physically, pushing the button of how do you get around it with the PET exam? Because I believe you do recognize the PET exam. So radiographers --

JAMES FUTCH: They have to do it underneath the auspices of a nuclear medicine program. There are far fewer of those, so it is a bigger problem for those folks, right.

CYBIL NIELSEN: I see.

JAMES FUTCH: The radiography programs, the total number of programs in Florida is something like 70 plus. Kathy could probably tell us the exact number. Most of those are radiography. That's the biggest area.

A lot of the radiography programs have seen the nuclear medicine market and have started to adapt, so that they are doing essentially CT programs to qualify the person for the ARRT exam. And that's why.

CHANTEL CORBETT: Yeah. I think that in nuclear medicine versus x-ray school, as you said, x-ray technologists get all this positioning. But that not necessarily comes into play on CT as much

as it does for plain, you know, plain radiography. Whereas nuclear medicine has almost strictly always gotten cross-sectional anatomy for the SPECT. So that's always been a portion of ours, which comes more into play in the CT realm. So I think that that's part of just the differences. So I would never want to walk in and do basic, you know, general x-ray. Because, like you said, positioning is key and there are so many more things to learn.

PATRICIA DYCUS: Also, I was speaking to the radiation protection and the different types of radiation.

CHANTEL CORBETT: I think radiation protection is, there's probably equal amounts of education on both sides but not crossing into either. So x-ray coming in and nuclear medicine, it's a whole different world in x-ray protection and vice versa. So I think that either party could be educated to cross. So I think that x-ray technologists could be educated well into coming into the radiation protection on nuclear medicine and vice versa.

PATRICIA DYCUS: I think we can all agree that with the proper educators, both -- anybody can be educated to do whatever it is they do. My concern is that we're muddying the water on what

qualifications mean. As an employer, it's going to become more and more difficult to find out who you're really hiring.

CHANTEL CORBETT: Well, if the credentialing bodies come down and say you're going to have to have a CT license to do CT, it's going to be up to the individual states or governing bodies as to who can sit for that license.

RANDY SCHENKMAN, CHAIRPERSON: Tim, you wanted to say something?

TIMOTHY WILLIAMS: I have two questions. One, is it possible to meet the qualifications for eligibility for this exam and never do a standalone CT scan?

CYBIL NIELSEN: We're not prescriptive on that. We just want 500 total hours. Logistically, I think that would be rare because --

TIMOTHY WILLIAMS: It's possible.

CYBIL NIELSEN: It is possible, yes.

TIMOTHY WILLIAMS: It's possible you can go through the entire eligibility program and never do a CT scan.

Is it possible for an ARRT radiographer to go through their program, get an R certification, and never do a CT scan and do CT scans?

CHANTEL CORBETT: Yes.

JAMES FUTCH: R certification or CT certification?

TIMOTHY WILLIAMS: R. In this state you can be an R and do CT scans. Can you get an R and never do a CT scan?

CHANTEL CORBETT: Yes.

TIMOTHY WILLIAMS: So you can be an ARRT-R and never do a CT scan and start doing CT scans?

CHANTEL CORBETT: Correct.

TIMOTHY WILLIAMS: Yet we're saying you can -- and so in theory, you can do the same thing with NMTCB. Never do a CT scan and do a CT -- and do a CT scan if we allow this?

JAMES FUTCH: Tim, I guess the difference would be --

TIMOTHY WILLIAMS: What's the difference?

JAMES FUTCH: The difference would be what's desired is a license in CT. Not a license in radiography. So you're saying this person has achieved the higher post -- whatever criteria the two agencies come up with, this person has achieved that extra specialty in this post-primary specific area. That's one difference that I see.

The other difference is, you know, if you look

at the history how we came to this place, radiography has been here for far, far longer. It's one of the three primary areas. And certification in Florida started in '78. Of course, it was the first thing.

Part of the reasoning, the situation you described not necessarily desirable, that you can have a radiography certification and do CT necessarily. It's an artifact of the licensure and the history from when it came to be. Because back then, it's like, okay, you can do x-ray. You can do any kind of x-ray. We didn't deal with separate licenses. Well, we shouldn't call it license. Separate federal requirements for mammography, for example, either back then.

CHANTEL CORBETT: But basically, what he's saying is, there's no educational difference. Like, you can go to either route, and never physically do a CT. But yet one's allowed currently and one's not allowed.

JAMES FUTCH: When those federal -- I'm sorry. When those reimbursement authorities or those certification bodies start looking, as Chantel said, for a CT license, the radiographer is going to be out of luck --

KATHY DROTAR: If I could.

JAMES FUTCH: -- whereas the CT folks are not.

KATHY DROTAR: The programs, most programs have sectional anatomy and radiography. The students also are given coursework in advanced modalities, which include CT, which includes some of the basic operations. And they also do either observations or actually go into the suite and do scans.

So while it's possible to not have done it, the probability is that in a lot of programs, our radiography programs, that students have actually performed CTs. Because they can also use that any scans or any time done in CT towards this post-primary CT licensure or certification.

CHANTEL CORBETT: Right. And we did multi-modality education in nuclear medicine in my school way back in 2000. So we've always had cross-modality education in our programs as well.

KATHY DROTAR: Yeah, so that does occur. So it's not that the radiographer when they graduate and are licensed as a general radiographer in Florida, don't have that basic background in order to do it. Because they are the ones, they go out and they actually get those jobs because they have proven themselves to be competent in doing CT.

And also that, just going back for the curriculum, ARRT, and I think it was in 2010 or 12, was going to put CT as an optional competency in the exam, but it wasn't yet in the ASRT curriculum. And so when they redid the ASRT radiography curriculum, it was put in, to introduce it, it was put in as an elective. But most programs incorporated some type of anatomy and physiology, pathology, cross-sectional anatomy so it would be worked into. And then we'll see what -- probably when the next, I think radiography comes up in the next two years for --

JAMES FUTCH: Reevaluation.

KATHY DROTAR: -- reevaluation. We may see all that change.

RANDY SCHENKMAN, CHAIRPERSON: Tim?

TIMOTHY WILLIAMS: I mean, I understand all that. I mean, the CT scans, chest x-ray, are 21st century. I never order plain films anymore. I can't remember the last time I ordered a plain film actually. I always order, you know, CT scans.

But I'm not sure you can -- as of today's conversation, I'm not sure that you can make a recommendation based on speculation of what we think is going to happen in two years from now. I mean,

the vast majority of people that are doing CT scans are ours. I mean, 90% of them, based on the numbers that I saw up on the board there; is that correct? More or less?

KATHY DROTAR: I think so.

MARK SEDDON: I think that's just the licensed folks, though. That's not the people that are ARRT CT certified. because I think it might be --

GAIL CURRY: He is saying they are.

CHANTEL CORBETT: No, no, he's saying regular general.

JAMES FUTCH: There are more general radiographers.

TIMOTHY WILLIAMS: Right. So you could be an R. Never do a CT scan, get your R and start doing CT scans the next day. The hospital can employ you, you can be doing CT scans, right?

CHANTEL CORBETT: Right.

CAROL BONANNO: They wouldn't, would they?

CHANTEL CORBETT: That's a normal practice.

TIMOTHY WILLIAMS: I'm not saying what they can. I'm saying what they should do. The regulations say you can be an R and start doing CT scans. And I'm sure a lot of them are. I mean, I don't know what the transition is in a lot of

hospitals, but a lot of them are fairly thin from the standpoint of manpower.

Let me finish. You'll be happy.

So it just seems to me that if you can be an R and we don't really have a policy or a position or a statement about whether they should transition into CT with the credential or without the credential. We've never really, that I know, you know, had a statement about that. And now you can be an NMTCB and you can get 500 hours of whatever, probably a lot of them, I speculate, would just be sitting at a CT PET scanner all day doing CT PET scans and then logging that off as time, until they get their 500 hours. And start doing CTs. And they get some training. And then start doing CTs.

To be honest with you, I'm not sure there's that much of a difference in them, because at least if you look at the minimum way to sneak through the system, if you want to do a CT scan, you can go either way. Never do a CT scan by the time the state credentials you, and start doing CT scans; is that correct?

PATRICIA DYCUS: Well, the state doesn't credential you do an CT, but you're an R, so yes, technically.

TIMOTHY WILLIAMS: So is there a difference?

PATRICIA DYCUS: I think I didn't make myself clear. I think that the nuclear medicine techs are going to be well qualified to do it. I think my question is, is why don't you let the ARRT license them? I mean, or certify them?

JAMES FUTCH: That was actually another question I wanted to ask Cybil was, from the numbers you saw with Gail, we've got 193, 198 currently licensed CT techs, let's just call it by the ARRT pathway.

When we looked at the numbers of ARRT qualified CT techs in Florida a few years, I don't know how many numbers, but there was scads and scads of them in the State of Florida. It's a technical term. I want to say many hundred. I don't want to say a thousand. It was between many hundreds and a thousand. It was a lot of them. So it's no -- it's no wonder that there's, you know, 193. I would've thought there would've been even more.

You graduated so far, roughly, five new CT techs by the NMTCB pathway every time you do an exam, give or take. So by the time you finish the next exam, probably about 15 in Florida, maybe 16.

As a regulatory agency, our supervisors and

supervisors, folks farther up the chain, kind of look askance at us every time we want to add a license that has, like, five people in it or nobody in it so far, like the PET license that we just put in place, was it last year?

KATHY DROTAR: Last year.

JAMES FUTCH: Now -- I don't want to keep anybody from practicing what they want to practice. What I'm wondering is, what I suspect is, knowing the history how these things came to be, an awful lot of those 193, whatever, are probably nuclear medicine techs who went the pathway of ARRT. So there wasn't really complete blockage on getting nuclear medicine techs. We were getting this whole law passed in -- remember, we tried for what, four years, I think, maybe more with the Legislature to get to the ability where we could issue specialty licenses.

And I'll tell you this is the guy who was on the phone with many of them, the main reason that we kept doing that was because we were getting pounded by nuclear medicine techs who wanted to -- who had taken the ARRT CT exam and had the license in their hand and they couldn't practice full diagnostic CT in Florida because we didn't have a license type to

give them. That was the main reason and that was the pressure. So I view it as that was the escape valve and a lot of those folks got satisfied at that point.

So my question to you Cybil is, how many of those NMTCB-CT certified folks do you think are certified by ARRT and are you ever going to see appreciable numbers? I think that's two questions.

CYBIL NIELSEN: Well, we had quite a few. I mean, I don't have the numbers in front of me. I would probably estimate like 70% did not hold their CT credential when they sat for -- there was a handful. I would guess anywhere between 20 and 40% had the CT credential for that first round.

How many do we anticipate? Most -- I can't say most because I don't have actual numbers, but I do serve on the education committee for the Society of Nuclear Medicine and I'm in communication with educators around the country. And many programs are changing their curriculum to incorporate the minimum number of hours in CT in order to be eligible to take the CT exam. So most of -- I can't say most again -- many of the programs that I've talked to, including my own program, all of their graduates will be sitting for the nuclear medicine exam, and

then followed by the CT exam.

If I could look in my crystal ball, I would say maybe we'll get 4, 500 a year. I don't know. Because right now, we're certifying anywhere between 800 and 900 nuclear medicine technologists. And with the curricular changes, I think many of those new graduates are going to be sitting for a CT exam.

Many of the programs in the State of Florida, the one in Jacksonville, the one in Orlando, I'm good friends with their program directors, and they have changed their curriculum to incorporate the CT competencies to sit for the ARRT CT exams. So this provides another choice for those technologists.

You also asked me why would the NMTCB make this when the ARRT already has this pathway. Our mission is to provide certification exams for nuclear medicine technologists. And many people want to have their certifications with one organization and so, we needed to provide that option for them.

CHANTEL CORBETT: I think a lot of the technologists in Florida don't necessarily have both certifications. So when they came out of school, they either went with ARRT or NMTCB. A lot of them didn't go with both. If you only went to NMTCB, there's no route to take the ARRT for those

technologists. And if you only went with ARRT, obviously, in Florida, unless you go back to school, then you can't sit for the ARRT either. So you're kind of caught. And I think that you're not going to see the numbers increase on the exam from the existing nuke med body, unless there's a way to give some type of exemption for them to get the clinical in Florida without going back to school. Because there's so many of the technologists -- and I don't think the primary goal for most of the nuke med techs in Florida, is to do diagnostic CT. Like to go into an ER and sit there and do regular CT. The majority of the nuke med techs in Florida want to get this so that they are not being pushed out of their jobs and getting cut to part time because they are in an oncology place that does both PET and CT. And they can't push the CT button right now.

So if they were dual certified, fully, and as a CT license and a nuclear medicine tech license, then they can do a full CT, and then squeeze in a diagnostic maybe every once in a while on that oncology PET CT unit. But the majority of those guys are not looking to go to an ER and just do plain CT. It really is, the push is really for the PET CT aspect of this. And as consultants, I can't

suggest to them to go sit for anything right now, because legally, they can't do ARRT competencies. And now, if the State of Florida is not going to recognize NMTCB, I can't tell them to waste their money and do that either, because it's time and money out of their pockets and their schedules for something that's not going to be recognized.

So until there's one or the other, I don't see an increase in numbers just because they're not going to have an end game. There's nothing -- they could go do the work, but there's nothing at the end for them.

RANDY SCHENKMAN, CHAIRPERSON: Okay. Anybody else have any other comments?

(No Response)

RANDY SCHENKMAN, CHAIRPERSON: We appreciate your being here. Thank you.

CYBIL NIELSEN: Thank you.

RANDY SCHENKMAN, CHAIRPERSON: And I think it was a very good discussion. I think everybody has a different, probably a little different view than we started out with, but I don't think we're going to come to a conclusion right now.

JAMES FUTCH: I think one of the important things will be -- when did you say you expected

decision by ASRT on the scope, including people from the NMTCB pathway.

CYBIL NIELSEN: They are on a schedule of when they -- and I'm not sure if it's in the next year or two years. But they have -- we've had very favorable communication with ASRT.

JAMES FUTCH: I think it would be an important development because one of the key things, I mentioned this before that we've got to have if we decide to adopt an NMTCB(CT), we've got to have a scope of practice. And if they were to do that, it would be very simple for us because we have the same scope of practice. I'm all for not creating the same license with two different scopes of practice, slightly different that you can, you know, lawyers and attorneys can have fun with playing those off against one another one day.

But I do appreciate you all coming and this has been a very, very valuable discussion. And I think we're going to chew on this, seems like for a little bit, and come back to it probably. And maybe there will be some different facts at that point.

CYBIL NIELSEN: Okay.

RANDY SCHENKMAN, CHAIRPERSON: Thank you.

CYBIL NIELSEN: You're welcome.

KATHY DROTAR: Thank you.

CYBIL NIELSEN: Do you need me for anymore of the meeting?

JAMES FUTCH: You're welcome to stay if you want, but --

CYBIL NIELSEN: Okay. Thank you so much. I appreciate it.

BRENDA ANDREWS: Do you want to take a break now.

RANDY SCHENKMAN, CHAIRPERSON: Okay. We're going to take a break and then we will continue on. Just five minutes. A mini break.

(Proceedings recessed at 11:37 a.m.)

(Proceedings resumed at 11:43 a.m.)

RANDY SCHENKMAN, CHAIRPERSON: Okay. We're giving the floor to Yvette.

YVETTE FORREST: We'll switch switching gears a little bit.

At the very back of our book, Miss Brenda was kind enough to add in Section B, there's a supplement to go along with this little presentation. It gives a brief summary of the events that we're going to review. It gives each event a little bit better detail because the slides are very brief.

JAMES FUTCH: Can I do one thing?

YVETTE FORREST: Yes.

JAMES FUTCH: I wanted to mention that we have kind of been looking at all of our different programs in the Bureau and decided to bring some more of the more relevant, current type stuff. So Yvette graciously agreed to come and give this talk.

YVETTE FORREST: He basically threatened to beat me if I didn't. So that's gracious.

(Laughter)

TIM DUNN: I called it roped in in my talk.

YVETTE FORREST: I was beaten. He was roped in.

JAMES FUTCH: One of the reasons that I wanted to do this was, we recently hired Giles Toole as head of our enforcement investigation section. And one of Giles' jobs is to accompany Yvette and her crew when a medical event happens in a therapy facility. When I hired Giles, he asked me, well, how often do I go out and do this? Which means flying to other parts of Florida. I said, oh, we get a couple, two, three of those in a year. He was on the job about a month and he's done, like, six I think, so --

GILES TOOLE: Bad luck.

YVETTE FORREST: It's James' fault.

JAMES FUTCH: I should have been -- maybe I thought it's time to talk about medical errors in therapy again. So thank you, Yvette. Please proceed.

YVETTE FORREST: In fact, he said, I just hired Giles and I said, it's been really quiet coming out of your office. Because that's all we do. Clearly I do nothing else but eat bonbons and wait for these. I do nothing else. Nothing else. He said, I haven't seen come across your radar. Literally the next day, we got two within 48 hours. I called James and said, shut up. Don't ever call me, don't send me another e-mail.

JAMES FUTCH: It hasn't stopped yet.

YVETTE FORREST: And it hadn't stopped. So right now we have quite a few of them that are open.

Anyway, as James was saying, Giles and Amy Carlson, some of you remembered Amy from other events and other meetings. She's the lead investigator out of my office and she's not here with us today, but you'll see her name on the slides, but she's also the other member of our team that goes out in the field with us.

The Joint Commission gives us a brief

definition. They are -- I'll let you read that, then I'll move on.

Facilities delivering radiation therapy are required to report medical events to us. And they defined a few brief things here. Dose delivered by wrong mode of treatment, wrong treatment, or wrong treatment site. Or dose of radiation that differs greater than a total dose of 30% of prescribed dose in a week or 20% of total prescribed dose.

Those are the definitions which constitute a medical event. And what we find is it's the good facilities that self-report.

Facilities are required to report medical events within 24 hours of determination whenever that's made at their facility. They report that to our office and we are, as you know, located in Orange Park. We're one of the few that are outside of Tallahassee.

Currently, thanks to James, this is what we're dealing with: We have eleven medical events that we're investigating and that's what we're going to review here today. There's a breakdown.

Seven were delivered to the wrong body part or field. One was delivered the wrong treatment. Three were actually delivered, believe it or not, to

the wrong patient. We still are dealing with that this day and time.

BRENDA ANDREWS: That's scary.

YVETTE FORREST: Yep. Got a little trigger happy there. That's going to happen.

In Section B, you'll have a larger breakdown. But first event was wrong brain, wrong treatment. Prescribed treatment was 3750 cGy in 15 fractions of 250 cGy using IMRT. This was actually delivered dose equaled to 10 fractions of 375 cGy. The error was discovered after the seventh fraction.

We find this is typically what happens in medical events. They will be in the course of a treatment. It's typically not the first fraction but it's somewhere along the treatment plan where the error occurs. This one was done on the seventh fraction and the treatment was reviewed and approved by the dosimetrist, the oncologist, the physicist and the therapist before the delivery.

The corrective action: A new policy regarding verification of physician prescription.

The effect on the patient: The administered dose was evaluated and treatment was modified to give biologically equivalent dose over the originally planned treatment of duration.

Event number two, we'll go over the summary together. A 91-year-old man received a single treatment to the right trigeminal neuropathy for whom the left side was intended. The treating and referring physician both planned and approved a prescription for the incorrect right side. The radiation oncologist and the neurosurgeon reviewed the patient's images and testified an approximate five millimeter segment of the right trigeminal nerve for palliative treatment with 60 Gy of gamma radiation utilizing CyberKnife. The treatment plan was developed and approved based on this prescription. The treatment was delivered as prescribed without incident.

The treating and referring physician both planned and approved the prescription for the incorrect side. That was the root cause of this.

The reason I pulled this one out is if you jump down to the very bottom of this summary, this one was actually discovered a year and a half after the incident. It was still reported as it should have been.

The corrective action: The facility has implemented new quality assurance checklist for both patients which verifies lateral -- laterality

against the neurosurgery. I can't talk this morning. History and -- I'm not going to be able to say that word either. This step is signed by the neurosurgery attending and the radiation oncology attending physician.

Event three, left posterior arm, wrong treatment site. Prescribed treatment, 19.8 Gy in 11 fractions of 1.8 Gy each using EBR. Prescription did not clearly identify the anatomic location of the treatment site. This prescription was poorly written. The treatment site was -- and the treatment site outline had washed off. The therapist used an old treatment set-up photo and the third fraction delivered to the previous treatment site. All of these things combined led to this misadministration.

The corrective action: The anatomic site names repeated in the prescriptions only for retreatment. The corrective actions: This facility is implementing a quality assurance processes which includes a dosimetry pass. This pass would verify the prescription site by source documents such as pathology, radiology reports, surgical notes, et cetera. In addition, a duplicate site description from the previous prescription will only be used for

retreatment of the previously treated site. And the intention -- if the intention is to treat an adjacent area to the previous site, the therapist will verify the specific site description. For clinical electron set-ups, special attention should be paid to set-up photos as they will be the primary set-up image.

Event four. Right breast, wrong treatment site. Prescribed treatment, total 6640 cGy. You can see the spot function button was disengaged displaying inaccurate values. Therapist, physicist and oncologist attribute increased separation measurements to variation in patient thickness and positioning.

Because I've done so well with the clicker, now you're adding even more technology? I'm not reading clearly today and you're handing me more. This is not a good thing for me.

A 50-year-old female was receiving post-lumpectomy image guiding radiation therapy, IGRT for ductal carcinoma of the right breast. The total prescribed dose for this treatment was 6640 cGy including 5040 cGy in external beam radiation, EBR, following a boost portion of 1600 cGy. The boost portion was to be delivered using AccuBoost

high-dose rate, HGR, Brachytherapy afterdose loader technique in eight fractions.

After the third fraction, the spot functionality button on the display panel was unintentionally disengaged and that was key in this particular event. That the button could actually be disengaged during the treatment.

Misrepresenting the actual patient separation. This resulted in five incorrect treatment times and doses following the IBRT. The spot function button disengaged displayed inaccurate values. The therapist, physicist and oncologist attributed increased separation measurements and various -- in variations in patient thickness and positioning. Even though the patient had varying stages and thicknesses, because of the weekend and because of the swelling, the therapist did not pick it up and they passed it off as it was actually part of the patient and that's what led to it going for five fractions in treatment. And it wasn't caught even though there was clearly a variation in thickness.

The physicist did not verify the plate separation measurements prior to continuing the treatment.

Corrective action. The facility has

implemented a quality assurance process for the patients with AccuBoost procedures. On the first date of the treatment for each patient, a set-up photo and two plane positions, CC and ML, will be taken with a ruler placed against the plates to document the actual separation.

And the reason that took a moment to explain that about the patient's thickness, how sometimes patients have swelling and that's kind of a reason that you would notice a separation, is even though technology has advanced and we rely on our machines and they do a lot of thinking for us, the simple fix with this was a ruler. And that's what we've done. That was one with of the corrective measures is here we have this modern piece of equipment that does all these wonderful things for us, and they actually -- one of the corrective measures was to actually tape a ruler to the side of the machine. And that's about as old school as you can get and that's a very valid corrective action.

Measurements will be taken and recorded on each treatment day for each patient to compare the actual plate separation with the reading displayed by the AccuBoost unit. The recording will be recorded and signed off by the physicist and physician. If

there's more than one centimeter variation in the readings from the previous day's treatment, therapists will notified the physicist to validate the set up before proceeding with the calculations.

Effect on the patient. Another interesting side note with this particular medical event is the manufacturer has been notified so that this disengagement button cannot be disengaged without the therapist being notified. Because up until that point, none of the staff members knew that this button could actually be disengaged throughout the treatment. So sometimes, an unintended consequence of a medical event is you learn things about your equipment that you weren't even aware of. And so, that's another benefit of the medical event investigations. It helps all of us.

Event number four -- number five, excuse me. Posterior fifth rib, wrong treatment site. Prescribed treatment, total 3750 cGy in 15 fractions of 250 cGy daily using IGRT. Delivered dose was one fraction of 250 cGy to one half target volume and four centimeters inferior to the intended site. Four therapists on five days used incorrect tattoos as reference point for target -- for treatment target. Oncologist approved IGRT imaging which did

not indicate tattoo positioning. Therapists failed to document or communicate to other therapists the large couch shifts to adjust after IGRT imaging. Ribs appeared aligned in IGRT imaging due to magnification, hiding adjacent peripheral anatomy.

On treatments seven through ten, different therapists set up to a tattoo from previous treatment. After IGRT imaging requiring a couch position shift, four centimeters superiorly and two centimeters laterally to adjust.

Now, before we even continue, I see a lot of you shaking your heads already. You can see a lot already going with this event. We have a lot of therapists involved and there's not a lot of communication already.

On treatment 11, original therapist returns, also uses incorrect tattoos. IGRT imaging and applies only a two centimeter lateral shift. We had a lot of shifts; not a lot of communication.

Corrective actions. Therapists applying shifts greater than one centimeter require approval from a physician, physicist or dosimetrist. They are now following ASTRO guidelines. A triple point tattoo is applied when new tattoo is within 15 centimeters of prior tattoo. IGRT matching is verified is

matched by second therapist, physician, physicist or dosimetrist. Set-up notes are updated with parameter changes.

Left lower leg. Wrong treatment site. Prescribed treatment, 5,500 cGy of EBR in 22 fractions of 250 cGy. Delivered one fraction of 250 cGy to an area three centimeters anterior to intended site on left leg.

Patient had multiple lesions on the same body part. Set-up photos were taken at a distance and angles inadequately demonstrating landmark structures and adjacent treatment site. This is something we commonly see when we have a misadministration is that the typical set-up photos were taken and they were not taken to show anatomy that when you look at the set-up photos, they don't show either a knee -- if it's a lower leg, they don't show a knee or an ankle, so you can't get any anatomy to see where you're at on the photo.

The Vacloc immobilization device, transparent template and set-up sheet all lacked adequate labeling to prevent incorrect positioning of a patient.

Corrective action. Detailed labeling information on transparent template and set-up sheet

will identify at least three structures. Vacloc indexed and labeled for fixed location on table for simulation. Multiple set-up photos and multiple angle and distances will document patient positioning.

And that's critical because you can't go back and recreate a photo if it doesn't have everything indexed on it properly the first time. You can't recreate it. You can't second guess it and go back and get that information.

Event number seven. Mid lobe lung, wrong treatment site. Prescribed treatment, 5926.3 cGy of SBRT and five fractions of 11.85.26 cGy. Delivered one fraction of 97.66 cGy to an area seven centimeters medial to intended site of left lung.

Positioning couch lateral shift was made to allow for a gantry rotation between the arcs to the next position. However, unfortunately, the table was not returned to the correct position following the lateral shift and neither of the therapists noticed this. The therapist or the oncologist did not verify the couch positioning parameters before proceeding with the treatment.

The corrective action. A time out is required prior to the treatment of the first field. After

imaging shifts are made, a separate check sheet will document vertical, longitudinal and lateral table values.

Fractional shifts greater than three millimeters require further examination. Set-up adjustments will now require two therapists in the room. Four infrared localizations spheres are now required. Prior to that, they were not required to have the infrared localization spheres documented.

Event number eight. And this will be the last event that you will have summarized. The remaining slides we'll go over, but they're not summarized for you because those are ones that are currently still under investigation thanks to James.

JAMES FUTCH: I will continue to accept full responsibility.

YVETTE FORREST: Yes, he will.

Event number eight. Prostate wrong treatment site; wrong patient. Patient A, an 80-year-old man was receiving IMRT for localized adenocarcinoma of the prostate. The local prescribed dose for this treatment was 79.20 Gy delivered in 44 fractions of 1.80 Gy per fraction. The event occurred during the delivery of fraction 26. Administrative personnel working at the front desk at the work flow computer

screen intended to check in patient A, clicking the associated box. However, in error, they selected completed. This is the box that the therapist would normally check after completion of the treatment.

The patient appeared as they completed the treatment queue. And the patient then loaded the next patient's treatment plan, patient B. The therapist escorted patient A to the treatment room and delivered intended treatment B for patient B.

Both patients were to receive treatment to the prostate. The patients had similar last names. The error was then discovered, was discovered prior to the treatment of patient B. Patient A received a daily dose of 1.32 cGy versus the prescribed 1.80 cGy delivered using minor shifts of greater than, greater than 10 millimeter. Patient B was treated correctly without incident.

Obviously, we've all clicked the wrong thing on a computer keyboard and can see how this can happen. But unfortunately, the therapist did not use proper patient identification, so it magnified the problem.

Root cause. Administrative personnel identified the patient as completed in error. The therapist did not verify patient identification prior to treatment.

The therapist did not verify the accuracy of the treatment fields by use of fiducials or patient anatomy prior to treatment.

The therapist selected an administrative treatment of intended for another patient.

This facility had a large corrective action plan. The facility has implemented new policy and procedures for the image guided radiation therapy, IGRT and IMRT. The patient identification will be verified by the therapist before entering the treatment room. A time out is required prior to treatment to verify the treatment plan and corresponding patient. Name alerts will be used for patients with similar names. An additional monitor will be placed in the treatment room with patient photo and treatment plan visible inside the vault. The number of fiducials used to navigation source will be included in the set-up notes. Staff has been instructed in manual completion reversal of patient appointments. The facility has requested the product software change allowing treatments to be listed as completed from the treatment work stations only.

This is another example of how we find something that's designed in our software very

similar to the exam that we saw with the software with the equipment with the breast. Where there's a manufacturer's, something with their equipment, and we come back later and go back to the manufacturer we see there's a fix that we need that we can implement after we have a medical event. They actually went back to the manufacturer and actually had the software changed and now when you look on the screen, they've actually separated. Because the complete button and the check-in keys were side by side. And the manufacturer's now gone back and separated them so now it's a little bit more difficult to make that same mistake.

Event number nine. Spine T11, L5 wrong treatment, wrong patient. Once again, another wrong patient. Patient treatment. 328 cGy of EBRT and 8 daily fractions. Delivered one fraction of 400 cGy EBRT to an area outside of the prescribed spinal site, including liver and kidneys. Patient scheduled for treatment became ill. Next patient on schedule was brought into the treatment room without identification validation at treatment console. Patient was positioned using tattoos. Therapist did not verify the accuracy of the treatment field prior to treatment. And therapist did not verify the

treatment plan and administered treatment intended for the first patient.

Corrective action. Positive patient identification is obtained upon arrival at facility and before patient enters treatment room via identification arm band and photo badge. A treatment console patient I.D. is confirmed with badge, treatment chart photo and face sheet. Prior to patient treatment set up on table, a time out performing using patient procedure confirmation check sheet.

Event ten, urinary bladder, wrong treatment. Again, wrong patient. Prescribed treatment, 63 Gy of IMRT in 25 and 10 daily fractions of 1.8 Gy to small pelvis. Delivered one fraction of .9 Gy to small pelvis. Therapist set up room and treatment plan for first patient on schedule. Patient that entered treatment room was the second patient on schedule. Again, they didn't identify this. Positive patient identification was not obtained by the therapist prior to patient entering the room.

Therapist used a Vacloc immobilization device labeled to confirm the patient. Instead of using an arm band or a chart, they actually used the Vacloc to identify the patient and asked the patient, is

this your Vacloc. Patient incorrectly identified themselves using the Vacloc. Therapist did not verify accuracy of the treatment plan and administered treatment intended for the first patient.

Current policy and procedure for patient identification and time out will be reinforced. And the retraining of therapy staff.

Our eleventh event brings us to a level lower leg for wrong treatment site. Prescribed treatment: 6,000 cGy of EBRT in 20 fractions of 300 cGy. This was delivered by one fraction of 300 cGy to an area with a negative biopsy result not intended for treatment.

The patient had multiple lesions in the same area. Simulation set-up photos were taken at a distance and again, at an angle that inadequately demonstrated landmarks. Again, this just reemphasizes how important the initial photos really are.

A transparent template or skin map was not created at the time of simulation. Treatment fields outlines were not visible at the time of patient's first treatment. The therapist delivered a treatment to the patient without verification of the

treatment site. And the facility lacked policy and procedure for treatment simulation and verification of treatment site.

Another large corrective action plan. Policy and procedure for treatment simulation has been implemented, requiring simulation photos that included larger anatomical reference points. A clear plastic skin map of the treatment field and any other reference points to include scars, tattoos, et cetera, and containing anatomical orientation labels will be created. Upon the patient's first treatment, the skin map will confirm the treatment area. Prior to the first treatment, the radiation oncologist will be called into the treatment room to verify the field.

You see the common thread with most of these events by now. We'll go through the event commonalties we see as investigators when we visit these facilities. We see a failure to follow or recognize deficiencies in policies and procedures. An inadequacy to transfer information to all staff members. I'm sure you've seen how throughout most of these medical events, we see where new therapists come on after the second, third or even fourth fractions, and most of these could've been avoided

if they'd been given the proper information, including patient set ups.

Staff relied on minimal methods of verification for treatment set ups and most importantly, patient identification. Staff counterintuitively resisted the need to verify patient identification treatment plans or review with radiation oncologists. Again, if they would stop and ask a simple question, most of this could've been avoided.

Brief summary. Medical events occur following a breakdown of two or more controlled elements. Every facility is vulnerable to these events. Facilities who have clear, well-developed policies and procedures and who train on these procedures minimize their risk. Event reporting is mandatory and should ultimately aid a facility in the revision or development of good policies and procedures following an investigation.

And the contact information again, I mentioned earlier, Amy Carlson is our lead investigator and that's her contact information. She's always available if any of you have a question or concern or just want to speak to someone nice and friendly on the phone, she's your girl. And thank you.

JAMES FUTCH: Thank you.

RANDY SCHENKMAN, CHAIRPERSON: Anybody have questions or comments?

YVETTE FORREST: Or concerns or you just want to badger James?

PAUL BURRESS: I have a question, just for information maybe only.

YVETTE FORREST: Yes.

PAUL BURRESS: It seems to me that the ultimate responsibility for this, even though it's shared, oncologists, dosimetrist, physicist, is with the person that delivers the radiation to the patient.

What happens? Is the work load, you know, is the through put for the center driving their lack of effort to verify that ultimate responsibility, do you think? You know, is that a barrier why they do it? Is it lazy?

GILES TOOLE: I think it has some influence. I was trained 32 years ago in radiation therapy. We've gone from total manual input of technical parameters to almost total mechanistic delivery from computer systems. And I think that we've become so dependent in administration of radiation therapy through those systems, that a lot of times we don't go back and focus on Radiation Oncology 101.

In the two months we've been on these

investigations, I'm surprised at the number of treatments that are given due to misidentification of patients, which to me, is incredible. Or no pretreatment time out that you verified, I'm treating a lumbar spine, I'm giving 400 monitored units or you're treating an area at 10 centimeters inferior to the intended site.

So to me, I think it's taking the time to go back and carefully look at stuff and have policy and procedures in place that you're utilizing every single day. And if the policy and procedures are not working, you need to as a team, I think, dosimetrist, therapists, front office, nurses, get together and revise.

So the through put, the through put is an issue. I think you have to address that as management-wise to do that. But I'm very surprised at the number of misidentifications. That really concerns me. That we're treating a James Futch with Giles Toole's treatment plan.

PAUL BURRESS: It almost feels like the ultimate weight of that responsibility, responsibility 100%, they feel like the whole team is looking out, and while they would've checked this, so I don't need to worry as much.

YVETTE FORREST: It's exactly what you're saying. In fact, believe it or not, Giles and I conducted an investigation this morning before the meeting. We finished and one of the things we were emphasizing to them is that complacency. I've done this so many times, I've done this forever. I know how to identify a patient. Especially therapy patients. You've seen them. I've seen that patient. They're going to be here for, you know, three, six months. They get complacent.

And we gave the example this morning, I did, that you walk into a hospital. We're all professionals, but yet we're still reading posters and we're still being taught in regular training sessions on how to wash our hands. We still need to have that type of attitude, in the clinical setting, on patient identification. We still need to be reminded and trained with our policy and procedures, regularly, on we know this is the way it needs to be done, but we need to be reminded and not become complacent on these core critical issues on patient identification and awareness. And we all know how to wash our hands, but you can't walk in a hospital right now and walk down the hall and not see a poster on good hand washing. And it's that type of

attitude that they still need to have because they do get complacent on some of these key critical things, these barriers. And once that slips, I mean, we just -- how many of those did you just see up there where one of the elements that one of the gates that they fell through was they misidentified a patient.

TIM RICHARDSON: Yvette, who writes the corrective action plan?

YVETTE FORREST: The facility writes it with input from us based on the investigation, but it's up to the facility to submit a corrective action plan to the State.

TIM RICHARDSON: Any further monitoring as to compliance?

YVETTE FORREST: Yes, sir. The state goes back in.

JAMES FUTCH: I wanted to mention one thing to give you a full picture on this.

We have two sets of laws that we're responsible for. Yvette has the facility. The registrant, people who registered the radiation-producing devices. So what happens on the front end is, Yvette and Giles and Amy will do the on-site investigation after it's self-reported. And then

Yvette will make a decision about what's going to happen to the facility. And often, that will end up in not only corrective action, but it will end up in a fine.

Giles takes the output from the investigation and Yvette's process, and then he'll submit to the disciplinary folks at the department, the people who are in charge of disciplining the doctors, the medical physicists, radiation therapists, a complaint which is basically the results of our investigation and we'll send it in.

Now, some of that comes back because I sit as the probable cause determiner for one of the professions, which is the radiation therapists are involved.

So after the complaint goes into the department's regulatory framework, they decide if it meets minimum legal sufficiency. It always would or we'd never submit it. They will farm it out and we'll see the parts from the prosecuting attorneys, who come to me and they will say, look, do you think there's probable cause a violation has occurred? And the violation will typically be something like unprofessional conduct, specifically negligence, or something along those lines for the therapists.

Now, we never see any complaints that derive with the prosecuting authorities for the physicians or for the medical physicists. Of course, the dosimetrists aren't licensed in Florida so they're never going to be disciplined. Have I left anybody out?

And we may -- there's specified disciplinary guidelines in our practice standards that would range from maybe a letter of guidance, which is like, you know, you're going on record. We know about this. By the way, here's the law. Don't do this again. And that could be a fine or anything up through reprimand, suspension or even revocation, theoretically.

So that's the kind of punitive behind-the-scenes measures that happen. And I guess one question that I've got, separate from all this is, we've been doing this for years. Yvette's predecessor, Don Steiner and Amy's predecessor, Tom Tomczak, as they do now, they will go to AAPM meetings. They will go to different places. They've been talking about all these. You've seen this presentation. You can change some of the specific facts and you've seen this same thing for decades over and over and over again. And a

question for me, maybe not right now since we're trying to get to lunch, is you guys are the council, do you think we ought to be doing something different? Do you think we need to be changing regulations? Do you think we should be perhaps saying, you know, after the facility does this, as we've had once in a while here lately, a facility, this may be their third go around. Maybe not the exact same problems happened each time, but they've always been medical events spurred on by one of a combination of these things.

You know, do we need a disciplinary guideline that says, okay, first offense is a range of penalties. Second offense is an elevated range of penalties and the third offense is, you know, we revoke your registration and you're not using that machine anymore.

And I know it's kind of a weighty thing to dump on you right before lunch. Spur some conversations maybe.

KATHY DROTAR: Just on another flip side of that. A conversation that I had with Debbie Gilly, who formerly worked for the Department and was with IAEA and had a whole international initiative going --

JAMES FUTCH: She set up a database.

KATHY DROTAR: -- so that it would be self-reporting so we would find these errors so people wouldn't be afraid to come forward. So I kind of don't think that we need so much punitive, but making people realize that, oh, this is wrong but being able to bring it forward and we found two machine errors in this and could go back to the manufacturer.

So, you know, that's just -- I don't think -- I think we need harsh and punitive, but depending on what it is.

CHANTEL CORBETT: I think if we have three incidents and they are all three different, you know, reasons, you know, that's different than having the same error over and over and I think that maybe a specification of that type would be --

JAMES FUTCH: And Giles has mentioned something that I hadn't thought about in years when he came back and started. Returned employee from 1990.

GILES TOOLE: 1990. 25-year break.

YVETTE FORREST: It just means once the state get their hooks in you, they eventually draw you back in.

JAMES FUTCH: Yeah, Debbie, by the way, is

still working in Austria working for IAEA.

KATHY DROTAR: Where is she?

JAMES FUTCH: Debbie is still in Austria working for IAEA.

KATHY DROTAR: Oh, okay.

CAROL BONANNO: Austria?

KATHY DROTAR: Yeah, the last I talked to her she was getting her certificate.

JAMES FUTCH: Grad - made good. But anyway, there are some of these that involve, what sounds to me like, lack of management control. Not always. I mean, not necessarily some of these. But some of these recent ones. I think one facility actually just got bought out or is in the process of getting bought out by another facility, so Giles got to see the old facility management response to these multiple events and got to see the new facility's response to it and that guy was, like, white as a sheet.

GILES TOOLE: Right.

JAMES FUTCH: That's a good thing, right? that's a wonderful thing. But I don't know. Just toss that out.

RANDY SCHENKMAN, CHAIRPERSON: Is everybody ready for lunch? Okay.

BRENDA ANDREWS: Carrabba's can accommodate us.

RANDY SCHENKMAN, CHAIRPERSON: Okay. Carrabba's.

BRENDA ANDREWS: Yes.

RANDY SCHENKMAN, CHAIRPERSON: Everybody know where that is?

GAIL CURRY: Just follow the pack.

RANDY SCHENKMAN, CHAIRPERSON: We'll be back here at 1:15. Is that okay? An hour.

JAMES FUTCH: It's in the airport. We'll do our best to get back in time for the next start.

(Proceedings recessed at 12:30 p.m.)

(Proceedings resumed at 1:40 p.m.)

RANDY SCHENKMAN, CHAIRPERSON: Okay. Can we get started? Would everybody like to have their seat? We have a great presentation coming up.

JAMES FUTCH: So this afternoon, we have Richie Spangler from the Sandia National Lab in Albuquerque, and he's going to talk about the global threat reduction initiative and I'll let you explain all of that.

But without further adieu -- do you want me to do the video first or do you want to talk a little bit?

RICHIE SPANGLER: Well, let me give a minute or

two introduction so you understand. We'll set the context for what we're going to be talking about for about 30 minutes or so hopefully, depending on how many questions you have.

But let me introduce myself. My name is Richie Spangler. I'm what we call a team lead. And we're in the process, just like any other governmental thing, we are in the process of changing our name. We've been Global Threat Reduction Initiative for about the last seven years. Now they've done a reorganization of DOE headquarters and we are -- they are heading down the path of calling us the Radiological Security Partnership. Because it is a partnership between ourselves and facilities that do use radiological material in the course of their business, research or whatever they might be doing with it.

Basically, our program was born out of post 9-11, and we'll talk a little bit about that. I'm going to basically show a video. But I'm one of the team leads that is actually -- I'm assigned to -- Florida is my state. There are six teams at Sandia that do this work. There are a number of teams that P&L that do work in the northern part of the country. And basically, what we do is we travel

around the country working with facilities that, like I said earlier, utilize radiological material in the course of their business and try to assist them and actually pay for enhancing their security culture and their security equipment and processes.

So there's a field component to it where we actually go out to the facilities; there's a training component to it, and it all includes a bunch of equipment that gets basically given to you at the end of what we're doing.

The other thing that is new is that last, well, last fall, for this fiscal year, Congress has appropriated as part, I believe it was the omnibus budget bill, an additional amount of money for our program to secure all -- with an expectation that we will secure, enhance security of all what we call Category 1 sites in the United States by the end of 2016. And so, it's got a lot of -- our program is very visible on the Hill. It's a partnership with a lot of facilities throughout the country. We also have an international component where we do this internationally as well, and it's been a very successful program.

So I think just as sort of a general overview, what I'd like to do is have James play this video

that sort of summarizes the program. It talks -- there's some discussion in there from some facilities that we've worked with. It talks about our origins and takes us through that. And then at the end of the video, what I'd like to do is maybe speak at the higher level about our process and then basically open it up; answer some questions that you may have.

It's going to be very -- we'll keep it at a fairly high level. If there's some facility-level discussions, obviously, those get a little sensitive because we're talking about security at your individual facilities. So if you could keep those kinds of questions sort of at a minimum, but if we could talk at the higher level, I'm happy to have those conversations with you.

So without any further adieu, let's -- and I will apologize ahead of time, it's the British pronunciation of americium, but other than that, I think it's okay.

(Video Played)

RICHIE SPANGLER: So the teams that they referred to that go out are experts. I guess that's us. We've worked with, I don't remember the count, but it's around 700 sites throughout the country to

do this program thus far. We've got quite a number here in Florida that we have worked with and are working with. And basically, I guess it was a tough thing, right, to turn out the lights right after lunch and watch that really exciting video.

But the thing that I want to point out is, if you can think of us as the anti-dirty bomb people. That's what we're really here. It's the whole ounce of prevention is a pound of cure. Our objective here is to make sure that the bad guys don't get their hands on the material to start with. And that's probably the best way. And the example that I like to use that's it's fairly fresh in everybody's memory is the Boston Marathon bombing. It's been in the news lately because of the trial. So it's really, really kind of, you know, relevant. Because I want you to imagine for just a moment if they would have laced those bombs and those trash cans or whatever, with a couple thousand curies of cesium 137.

I mean, it was a tragic loss of life. There was a lot of hysteria, there was a lot of concern about additional bombs, but now imagine if that whole sector of Boston had been radiologically contaminated. Now, hopefully by now, we would've

cleaned it up. But even after the clean up, how many people are going to want to psychologically move back in? Just let that sit for a minute. And that's what we're trying to prevent from happening.

How do you prove a negative? It's really, really difficult. But that's our mission is to prevent these things from happening by limiting that access.

Now, one of the things that the video talked about is that it's more than just us coming in and providing our expert advice and suggestions and designs. It's also us working and partnering with the site to pay for -- and we pay for all the installation of that. We also pay for a three-year warranty and maintenance on all of that material.

A key aspect of what we do is to make sure that any enhancements that we do are integrated into whatever system you already have in place. We don't want to develop a whole new system that you're going to have to manage after our three years of warranty and maintenance is over. So we want to integrate it into the system.

The other thing that we're very sensitive to, particularly in a hospital setting, is the fact that you have to actually operate, okay? You need to be

able to operate your facility. So operational considerations weigh very heavily in the processes that we use.

So we want to minimize our operational impact, we want to maximize our integration with existing systems in order to be able to make this a sustainable security change.

And then they mentioned this ARRT training and the PRND training. And that's something for the sort of boots and guns guys to be able to go get credit. It's actually law enforcement training that they get credit for to participate in. And it's actual, you know, you saw the guys with the rubber guns and all that. It's actually live exercises where our people play the bad guys and we actually use the facilities that are there in training to actually defend the sources. So it's a really, really great opportunity.

And that's usually what really gels the program is the participation. Because, you know, you've got all the folks that are -- let's use the medical, because I think most of the folks here are on the medical side of things. You've got all the folks on medical side and the health physics side, radiation safety side that all understand the concerns of

radiologic materials, and then you've got all the folks that are in the security police response force that would rather have someone shooting at them than waving a source in front of them. And we try to bridge that gap to be able to make everybody understand.

And so, during our live exercises, they've actually recently developed a radio frequency source that actually plays the part of the radiological material, and we've adapted our eradi (ph) monitors to actually read the radio frequency source so the responders get real time feedback on their eradis of what's going on with the source and when it's sort of out of the radiator. So it's a really, really -- feels a very real life kind of a thing, despite the fact you're carrying a rubber gun. But you know, other than that. So it really does bring those groups together that normally don't talk to each other, you know.

And I think James and I were having the conversation about how this is a group of professionals that would be resources for somebody who's out boots in the street if an incident was to take place. The Department of Health in particular, Bureau of Radiation Control, would be called upon to

assist in the case of some sort of a radiological threat. And so, this is exactly the kind of audience that we want to connect with the folks that are actually doing the response.

So with that said, holistically, I think I've given you an overview of what our program is. Hopefully you understand why we're concerned about what we're concerned about. They reference a lot, you saw some models, little green clouds floating over Manhattan and things like that. There's been a lot of analysis, a lot of modeling that's been done to try and support this. How do you winnow down all the isotopes of those major four or five that we're really concerned about. So there's a lot of aspects that go into that and those processes get sensitive in terms of how you arrive at that.

But suffice it to say, there's been a considerable amount of very high-level experts that have gone through this to try and come up with this program structure.

So with that, I'd like to kind of set it out to you guys questions or comments. I have a stack of cards for, if anybody's interested in the, you know, working with us in the future.

Right now, our primary focus over the next 18

months are these Congressionally-mandated Category 1 sites that we're trying to work on, but that doesn't mean that other sites that utilize radiological material aren't going to be worked with as we move through the -- it's all about a risk priority thing.

RANDY SCHENKMAN, CHAIRPERSON: What's Category 1?

RICHIE SPANGLER: We use the IAEA definition. It's based upon the type and quantity of radiological material that's available at a facility.

RANDY SCHENKMAN, CHAIRPERSON: Is that the highest or the lowest? The highest.

JAMES FUTCH: Highest.

RICHIE SPANGLER: It sets a benchmark by which if you have more than that amount, we consider it a Category 1 site. If it's got less than that amount, it's considered a Category 2 site. So there's sort of gradations in there depending on the isotope and the actual activity.

JAMES FUTCH: If you're a bad guy, you want to find the Category 1 sites.

RICHIE SPANGLER: Yeah. If you're going to expend the resources to break into some place and steal some radiological material, you know, odds are

that they're going to want to go to a site that has more stuff to steal than less.

MARK SEDDON: Do you include HDRs? I know in some of the video, they talk about 10 curies or more of iridium-192.

RICHIE SPANGLER: So we're concerned more about 10 curies or more of iridium-192.

MARK SEDDON: Right.

RICHIE SPANGLER: There's been some recent analysis that has sort of shifted those limits a little bit.

MARK SEDDON: Right.

RICHIE SPANGLER: Obviously, we can talk more about specific circumstances. But you know, HDRs have been part of the program in the past.

JAMES FUTCH: So Gary has sign-up sheets and forms. I think he's giving away door prizes.

RICHIE SPANGLER: Yeah, anybody that wants to sign up. It's really funny because you always say, we're here from the Government; we're here to help, and that's always met with a few chuckles, right? But in this particular program, it is, like I said, it's a voluntary program. We come in and we provide the assessments and expert opinions at no cost to the site. Any of the security enhancements, you

know, they talked about biometric readers and access controls and cameras and all that kind of stuff. We install all of that for free. And typically, when you're dealing with security equipment -- and those of you that have -- anybody here have a home security system on their house? Anybody?

(Show of Hands)

RICHIE SPANGLER: So it costs you, you know, X numbers of thousands of dollars to get it installed and then 30 bucks a month to have it monitored, right? And it's similar kinds of orders of magnitude when you're dealing with an industrial facility where the capital outlay to actually build all that infrastructure and do that is quite significant, whereas the monthly maintenance fees are usually very low in comparison. And so, that's sort of way I like to talk about it to folks is, that we provide all that capital outlay as part of the program and then hopefully -- and we pay for the three years of that monthly kind of service fee, if you will, and then beyond that, we hope you'll be able to just absorb it.

And in most cases because we integrate it into their existing systems, they already have a dispatcher sitting there watching cameras;

monitoring alarms. It's really an incremental, if that, increase in any costs.

RANDY SCHENKMAN, CHAIRPERSON: Who monitors it for the first three years?

RICHIE SPANGLER: Well, what we do is we try to use secondary monitoring wherever we can. So, typically, a hospital will have their own security monitoring group within the hospital. Sometimes they have armed guards; sometimes they don't. And then you have a secondary monitoring station that could either be a contracted monitoring station like you do when you call the number for your home or it could be a local fusion center like, for example, we have partnerships with law enforcement agencies, such that they will actually monitor it for free. And so, it's circumstantial. But we try to build those relationships because you've got the folks at the facility and then you have the folks that are off site.

Now, in some cases there aren't security at the facility, itself, right? We're talking about hospitals, universities, you do that. But if you're talking about, you know, some other facilities that you may not have that active response component local. So it's strictly with the, whatever the

local law enforcement, city police or sheriff's office or something like that.

RANDY SCHENKMAN, CHAIRPERSON: Typically, how long does it take to do all this training and installation?

RICHIE SPANGLER: So from the time that someone sort of drinks the Kool-Aid, if you will, and says we want to play, we will typically get them up and running, our objective is to do it in less than a year. Depending -- there's a lot of different things. Like, for example, in some states, whenever you're doing construction-like activities in a hospital setting, there's some additional things that have to be dealt with. I think Florida has some of that as well. California I know has that.

So we have to, depending on how many hoops we have to jump through to do it, but we go through. We actually will contract with a local vendor or the facility, itself, if they happen to have people that do this kind of work themselves. We engage in a contracting effort, which takes some time. And then it takes some time to actually get the system installed. And then we will come back out and do a validation to make sure the system is actually operating as designed and implemented as designed.

So a year. Hopefully less.

RANDY SCHENKMAN, CHAIRPERSON: Interesting.

JAMES FUTCH: I'm not sure which of you or your facilities may have interest. Richie's got the cards and he may even entertain -- I don't know if you have societies who may want to see something similar. I don't know if you do that or not.

RICHIE SPANGLER: Yeah. I mean, like I said, I'm responsible for Florida, so I end up here pretty regularly. I'll be back in two weeks. I'm visiting with a site this week and I'm visiting another site in a couple weeks. So I'm back, you know, I get the frequent flier miles back and forth to Florida here, so I'm around pretty regularly. So I'm always happy to speak with a group.

You know, one of the things that we realize, and it's an area that's always created some challenge, like I said, is that, you know, the security forces are much more comfortable with someone shooting at them than someone waving a source at them. A lot of times, they don't really recognize what they have to protect, right?

I mean, it's not like you're protecting, you know, money or jewelry or something like that. You're protecting radiologic material from a

terrorist access. So they don't -- it's not part of what their basic training is.

Just like for you guys that are, you know, in the radiology and things like that, you probably would be pretty uncomfortable carrying a gun while you were doing your treatments as a level of security, right? You don't want to be doing that.

So just think about that. As uncomfortable as you may carrying a gun, those of you that have concealed carry permits notwithstanding maybe, but those of you that would be feeling uncomfortable carrying a gun around, that's the way the people that do the security forces feel about having to deal with something that is radiologic in nature.

JAMES FUTCH: Well, thank you.

RANDY SCHENKMAN, CHAIRPERSON: Okay.

RICHIE SPANGLER: Thank you very much for the opportunity to come and visit with you folks and present a little more information about what we do.

RANDY SCHENKMAN, CHAIRPERSON: Are you going to leave your card?

RICHIE SPANGLER: Yeah. I'll leave a stack of cards and please, you know, I'll hang out here until you kick me out for the afternoon.

JAMES FUTCH: Yeah, you're welcome.

PAUL BURRESS: We use the offsite source recovery program and that was quite nice.

RICHIE SPANGLER: Okay.

PAUL BURRESS: Not just the sources that exceeded the threshold, but we had an old ANUDM that was just a little bit below and we would not have been able to dispose of that if it were not for that program with fairly limited budgets and professors saying, well, we want to keep it because some day we might use it.

RICHIE SPANGLER: We might use it some day.

PAUL BURRESS: Yeah, so --

RICHIE SPANGLER: Yeah, I didn't talk about OSRP. They kind of briefly mentioned it there. And so, we have three aspects. One is protect, one is convert and one is, you know, the Holy Grail of risk reduction is to eliminate the source altogether, right? And so, I'm firmly ensconced in the protect area, and if we're working with a site to protect the material they do need to have, we also will work with them to remove any unwanted material. And it's at no cost, which is a really good deal. I mean, that's really great because it's expensive to get rid of unwanted radiologic material. It's not like you take it down to the local household hazardous

waste dump or landfill. It's a very expensive proposition to package it, ship it, get it out and actually have it disposed of.

So the OSRP, Offsite Source Recovery Program, is available for partner sites to do that. That's a big thing for us as well.

And the last thing, the convert one has to do more with reactors where we help people convert their technology from having to use highly-enriched uranium, which is the stuff that we don't like because that's the stuff we use for radiologic dispersal devices. That's the stuff we use to build improvised nuclear devices, right? We don't want any of them around, either. So we go try to help them convert their processes to use low enriched uranium. That's the other part of what we do.

RANDY SCHENKMAN, CHAIRPERSON: Thank you so much.

RICHIE SPANGLER: Thank you very much for the opportunity to speak with you folks this afternoon.

RANDY SCHENKMAN, CHAIRPERSON: Okay. We're going to go on now to Black Pearl exercise.

TIM DUNN: I'm Tim Dunn, Bureau of Radiation Control. Last week, Thursday, we did a Black Pearl population monitoring exercise. So this has been

thrown together since then. I apologize if it is generic looking. Little fancy slides.

JAMES FUTCH: Tim has, after we very gently twisted his arm, you may remember we had the Key Lime exercise a year or two ago, I guess, that we talked about. This is the side of the emergency response shop where we go out and ask the volunteers to help us in a focusing style event and I'll let him take it from here.

TIM DUNN: We did this one on Thursday. It was down in St. Lucie. You see here the participating agencies we had.

This was actually designed and planned by the DEM. Most counties that are involved with power plants, have to have population monitoring in place and they do drills regularly to make sure they could do the population monitoring.

You see along the bottom there you have Palm Beach county, Okeechobee, Indian River. Those counties all practice it on a regular basis. If, for some reason, we have more people than they can handle, then the state may come in and set up another population monitoring area, and that's what this drill was designed.

We did have medical reserves, of course,

Florida Department of Health, BRC, and the civil support team come in. We have the 48th and 44th in the State of Florida and 48th came in to help with this one.

What is it? Under the National Response Framework, the CDC or center -- I have to apologize. I am an ex-Navy nuke, so if I start using a lot of acronyms and I don't have it spelled out, please let me know.

JAMES FUTCH: We'll just throw things at you.

TIM DUNN: The Center for Disease Control is responsible for assisting state and local and tribal governments in doing the population monitoring. They will not come in and do it, but they give a template to allow the cities and the states and the counties to build upon and actually make a plan. They need to monitor people for internally and external contamination and decontaminate those people and then more importantly, after that fact, is the registry.

As of right now, we're still tracking the people from Hiroshima and Nagasaki, which has been 70 years ago. Those people are still being tracked. Even their offspring are being tracked. That's how important that registry is. It will never go away

as far as I know.

Some examples of why we need population monitoring. Not too far back here. Chernobyl. Little background on that one. They were doing some reactor testing that they should not have been doing. They were trying to see just how high up they could ramp that reactor up. They redlined it, basically. Shut off every one of the safety features. Had the back-up safety features. They shut off the back-up safety features and, of course, this is the result: 134 cases of acute radiation sickness is what was reported. We'll never know the truth on that one. But you can see the numbers. 116,000 evacuated; 210,000 relocated.

Goyanna, Brazil, you might be familiar with this one. There was a radio therapy clinic that had shut down. The physician that had left that clinic was having a fight with the landlord because he had his equipment left inside. So for quite a while, they had armed guards standing outside of his building to make sure nobody went in and messed with the equipment that was inside.

One day, one of the guards decided to go to the matinee to see Herbie Goes Bananas was more important than guarding the facility, so people

broke into the facility; stole the machine just for the scrap metal. While tearing it apart, they found the cesium chloride in the middle of the unit. It busted open. It's blue. It's pretty. They took it home. They started playing with it. Painted themselves with it. Colored their hair with it. A little girl spread it across her table that she's eating on. She had a little kid's table.

Unfortunately, out of it, we did have four people that died, the little girl was one of them; 249 people contaminated. But if you look at the biggest number there, 112,000 people monitored.

Typically, the first thing people are going to do is go to a hospital if they run into any kind of condition like this. There's not a city that I know of that can handle 112,000 people. And those are the ones that came in because of the event. You don't carry about the worried well. You're going to have people that are going to be on the phone with somebody and say, hey, I was on the phone with them. I got contaminated. I got to check that. Those numbers you can't handle locally. You have to set up population monitoring areas or the reception centers away from the hospitals. They have more important things to deal with.

More recently, Fukushima. It was a 9.0 earthquake. Tsunami 40-foot high. The reactor plants, two of them already shut down; two of them operating. They did shut down as they should have during the earthquake. Everything was fine and well until the 40-foot tsunami came in, flooded the diesel generators which were below ground. So without the diesel generators, they had no power to put the coolant on the core. So the two that were operating were in like a hot stand-by, shut down condition. They heated up; hydrogen heated up and blew up the tops. That's what you saw in all the pictures.

The numbers on this, 170,000 evacuated. They had 450,000 people in 2600 evacuation centers. Those people are all having to be monitored. As you can see, they had pets, which is a major, major thorn in my side right now I'll say, but it's a real concern. We've got a lot people that don't want their pets to be taken from them. They don't want their pets to be left behind. So we're going to have to deal with that one, but it's an issue right now.

But the numbers just are amazing. And then you look at, during an event like that, where do the

people go? Are they going to go to the first place they come to? No, they're going to spread. From Katrina, they ended up in Washington State up in Seattle. I mean, every one of those dots is where the people have repopulated from Katrina. So that's why when I'm giving training in a place that has no nuclear reactor plant near it at all, I still tell them, you may have people showing up. You may have more than your hospital can handle. They may have to set up a reception center in these counties in the middle of nowhere.

Some of the other exercises we've done. In 2011, we did one in Orlando. That one was sponsored by the CDC. We had the MRC volunteers come in. We had about 100 volunteers to act as actors that came through. As James said earlier, Key Lime, 2014, down in Key Largo. It was an alternate site. So they wanted to test it out and see if they would actually use that one as a reception center. It worked pretty good except for the parking. We had to park miles and miles away and take buses to come in because there was no parking at all.

JAMES FUTCH: Key Largo.

TIM DUNN: It's an island. Space is limited. It's real little.

The community reception center will be set up shortly after an incident happens. We're hoping that we can get one set up after any incident, whether it's a weapon or the unlikely event of, I guess I should say unlikely event of a nuclear power plant accident or more likely event of an IMND or nuke. About six to twelve hours, they're hoping to have one set up. Have medical treatment to test people for contamination, decontaminate them. Give a dose assessment if they do have internal contamination or if they've had some external for a while and then check them for the long-term health effects. Again, that's the CDCs guide for population monitoring.

What we do as for BRC, we train medical reserve corp. because in the event that something happens, we will not be available. I've got 80 people in my roster for any emergency and we all have jobs that we'll be having to do. So we have to rely on somebody else to set up and actually do this monitoring for us because we won't be there.

We use the MRC. We have the radiation response volunteer corp. that we train. As you see, their mission is to get a team of local volunteers, medical and public health officials and non-medical

health also, and use them throughout the year and also in the time of need.

This basically, to sum it up, says we don't want any SUVs, spontaneous untrained volunteers. People that just want to join in and help and try their best. But we want them trained. We want to know who they are. We want to have a registry of who knows what they are doing before they show up.

That's what the MRC is. To date, I think we're about 2,000 people trained right now in the State of Florida.

This is the group we actually had for Black Pearl. We had between 50 and 60 volunteers. These people are all volunteers. We do the training usually on Saturdays because they can get away from their jobs and come and do it. And when they showed up at this, nobody got paid. They got lunch from the Salvation Army, but that was all they got, and a T-shirt. We did get a grant through the CRCPD to pay them for their mileage. So if anybody lived more 50 miles away, they got paid for mileage and lodging. But otherwise, they were on their own. Just volunteering.

This is Kim Sharkey. She's the one that actually designed and planned this and named it. A

lot of people asked where the name Black Pearl came from. She likes pirates, so that's where that came from.

And then the BRC staff. For this one, what we acted is, was subject matter experts. We were at each station to help guide the MRC to make sure they're doing it correctly. We actually ran the people through twice so the people that worked the instrumentation the first time, and the other ones were the actors. Then we switched and they became the actors and the other ones worked instrumentation.

We had live animals. We had brought stuffed animals for the original plan and this group of volunteers here said, we've got some live animals. They are service animals. They are not guide dogs, but they are service animals that are used to being around people for different things they do. And we said, what the heck. So we used them. And it was great to have them there because we did learn quite a bit.

As I said, animal decon is an issue. They have done testing, they've done all kinds of research, trying to see how the best way and best method to decon animals. And we're not there yet. At this

point, shaving would probably be the best. I'm not going to shave anybody's cat, so we got to find some other methods.

(Laughter)

TIM DUNN: We'll see. We'll see what happens with that. so it's a big issue. We're working on it.

If you look at your typical community reception center, you're going have your seven stations, your initial sorting, first aid, contamination screening, and your wash. Those are all going to be considered the hot zone or the potentially contaminated zone.

Then you cross over into registration. Your dose assessment, if they have possible internal dose, and then discharge.

This is the model plan. It can be adjusted to fit whatever size you deem necessary or to fit your facility. In the best situation, like you would have three bathrooms for washing, a male, a female and a family. You may even, if you have four, throw in a disabled one. So you have disabled, male, female. Some, like the one we just did at Black Pearl, all the decon was done outside. So it was a tent from the CSTs. So the support team from the National Guard. And so we adjusted it quite a bit.

Basically, people are going to come in from wherever they are at, go through the community reception center and then either go home to a shelter or a hospital. Depends if they need any extra care or not.

Initial sorting, what you'll do on this, this is the registration table. You'll actually have one of the volunteers with a radiation detection monitor on them. And silent. Walking up and down that line and if they see somebody that needs additional help, whether they are disabled or just because of the whole event, they may be psychologically having trouble. You'll pull those people out.

If your detector goes off and vibrates, not to alarm, you might grab somebody and say, there's no need for them to be here. They're dirty. Let's take them in and get them washed up before they contaminate everybody else.

The first aid, this one is very important. You would never want to put off first aid to an individual because of contamination. Nobody has died from contamination. People have died from the wounds they've got. So you never put that off. You can worry about the contamination later. Take care of the medical first. And this one here we had a

very minimal medical staff, but we did, right behind the Red Cross we had some cots and things like that back there for medical if we needed to.

And the contamination screening, we actually had four porta-monitors set up where they can walk through. This is one of the people, being an actor. He has his little badge on. That tells him who he is, how old he is, where he was at, all that information.

Another thing, I don't know if you can really see it on his right arm, he's got an armband on. For this exercise, we used the EM tracker. EM tracker, it's actually just a bar scanner. So when the people came in and registered, we scanned them and every station they went to from there, we could scan and we can track where they had gone through the reception center. And it's got the peel off that if they have a bag of clothing with them that we need to take or that they're going to carry, we put that same sticker, bar sticker on there, bar code. It's actually something the fire department has been using for a while. We're trying to adopt it. Mike Dyer from Palm Beach County is really pushing that one.

And the pets. Because we had the pets, we

actually devoted one monitor just to the pets. This case here, we had that little dog which stood about two inches tall and our detectors start at about six inches tall. So we thought about this and said, hmm, how are we going to come about this? What she did is, she went through first, went back, picked up the pet, and then went back through again. But that is something that will come about.

You know, the pet decon, the State of Kansas stopped -- tried to do one. They built this entire wash station out of plexiglass. It had a ramp going up. It was a plexiglass box that had the gloves coming in to wash the pets and it comes down a ramp on the other side. Dogs don't like to go up metal ramps because their nails hitting. They don't like arms coming at them when they're in a box with water spraying on them. So even though they were well-trained, well-behaved dogs, they freaked out. So it's something that everybody's dealing with right now. And don't know a possible solution just yet.

If somebody is contaminated, they go to the wash. Typically, if you have a regular restroom-type area, wash, they go into the shower, themselves. They bathe. We give them directions on

how to do it or the MRC volunteers give them directions. Then they come out. You don't go in there. You don't wash them. You don't scrub them. As I said, this is the National Guard's. Theirs is set up a little different. Some of the volunteers questioned the clear glass windows that go out to outside that, had they actually been contaminated, the first thing you do is, of course, strip down and then go into this clear glass, you know, building here. So --

GAIL CURRY: That might be a little --

TIM DUNN: There's some things like that. Again, the National Guard doesn't care about those sort of things, so --

Typically, you'll put somebody through the shower twice. If they still come out contaminated, then you have to start looking for internal contamination or maybe see about where they were, how they were, you know, if it's some other -- something else other than contamination. Like if they had a stress test lately or something.

PAUL BURRESS: Do they get special instructions like blowing their nose, or what to wash first, like eyes, mouth?

TIM DUNN: Yes. There is charts that the CDC

has that tells them to lean back, don't let the water rush into your face. Of course, if you have a wound, wash away from the wound, not into it. Do not scrub. The old wire brushes from the China Syndrome movie, that just opens up the skin and drives it in deeper, so there's never a need for that. Never.

Most decon, 80 to 90% will come off of you. If you're standing in the middle of the fall out cloud and you took off your normal clothing like what I'm wearing today, 80 or 90% of the contamination will come off of you right then. So you have very little you have to worry about.

Our biggest concern is the nose, mouth, face area because that would be going internal, which would be a whole lot more of a mess.

PAUL BURRESS: Is there an alternate decon instead of just a shower, like wet packs?

TIM DUNN: There is.

PAUL BURRESS: They got all that covered?

TIM DUNN: That was brought up during this one because the first group that went through, as soon as they found out they were contaminated, they went into the tent. So that's when we said, okay. If it's only on their arm, just decon their arm and

then, you know, if they're clean, send them on their way. So we did do though during this. As I said, we had the National Guard, which their method is, whoosh, get out the hoses, you know.

RANDY SCHENKMAN, CHAIRPERSON: Well, they wouldn't bring clothes, so what do they change into after?

TIM DUNN: We have tie back suits that we give the people as they come out.

WILLIAM ATHERTON: And the waste water is not a concern?

TIM DUNN: No. This one here had a basin they collected. At the end, if it actually is used, they dispose of the whole thing.

WILLIAM ATHERTON: What about using a public shower?

TIM DUNN: If you're at a public shower, you do not worry about contaminating the water. By the time it goes into the sewage system, it's going to be so diluted. It's a concern, but not as big a concern as getting the contamination off of the people and keep from spreading it.

If you can contain it into a lake, into a run off, if you're out in a parking lot or something, that would be fine, that would be great. You do

what you can on that one.

Go on to the registration. At that point, go ahead and document again, their name, where they're going, where they were at; all that. So that will be the stuff that we'll be tracking them for the rest of their life and then some.

And then discharge. Find out whether they need counseling, because this would've been something that psychologically would affect a lot of people. Even if, like I said, they were no where near it, we're going to have the worried well. We still have to deal with those. See if they need to get reunited with their loved ones because they may have been split up. So the Red Cross has a set up to do that. Then see if they have to go it a shelter or anything like that.

If you're interested in the community reception center idea, the CDC does have a virtual one on this website here. And you can actually go through and each, at each one of those steps that I just went through, has questions and answers. It shows a video of people actually going through it and then it has the list of what you will need to set up each station if you're interested in that.

And James, as you mentioned real quick, some

upcoming things we have: Southern Exposure 2015. The week of July 20th in South Carolina, we're going to play with the IDEWI, with FEMA, NRC, in a large-scale nuclear power plant drill. We did one of these a few years back. Southern Crossing, I think it was, 2006.

JAMES FUTCH: In Dothan.

TIM DUNN: In Dothan, Alabama. And basically, what this does, it brings all the state and federal people together.

In the unlikely event that we have a nuclear power plant accident, the state can handle it and locals can handle it for about three days. At that point, my manpower is going to be exhausted. Our resources may be exhausted. We're going to bring in the federal government. DOE will be coming in, DNDOE will be coming in with their equipment and then FRMAC, which is Federal Radiological Assessment and Monitoring System.

And they would come in also with planeloads of equipment and personnel. They've got them on the ground ready to go. All they do is fire it up and come on over.

As you see here, these are the people that will be joining us with all that. They didn't put

Florida on this because they didn't know we're coming yet when they made this one.

And that same day -- that same week, rather, we're going to be doing Wings, which is going to be the aerial monitoring. Florida will be participating in that. We will have -- we have an RSI unit. I think we're going to talk about later James, some of it.

We have a mobile unit which right now contains three gamma detectors and one neutron detector that we can put in the back of a vehicle, on an airplane, on a helicopter. We did two exercises in Tallahassee back in December and January with the FWC, FHP, the Army, DOD. You name them.

JAMES FUTCH: Alphabet soup.

TIM DUNN: Yeah. We were all doing ground and air. We would actually have the air units trying to detect us in the woods. As we're running, the ground units would have to intercept us. FHP does have mobile units. They've got five of them right now on the road that the entire back of a Yukon is nothing but an instrumentation for radiation. And they would find us and then they would chase us and it was quite a bit of fun. Had the Black Hawk helicopter chasing us going through the woods.

That's it right there.

JAMES FUTCH: The Black Hawk is the -- Wings, this particular part of is the first time they ever allowed the states to participate in an emergency response exercise like Southern, excuse me, Southern Exposure. Usually it's the AMS folks from the Department of Energy, with their large detectors.

But this time around, it's one aircraft from Florida. I saw one from, I think it's Philadelphia, actually I saw Ed Valdini's (ph) name on it. I think it's his group and another from the Suffolk County, New York folks. There's at least three states involved.

We're not doing any preventive work. This is all response. So they are mapping contamination on the ground and using real, real contaminated sites. They've got seven or so actual contaminated -- some of those are actually contaminated places; some of those will be simulated. And so we've got a week's vacation in South Carolina in July.

TIM DUNN: Middle of July. No breeze at all.

Any questions over that? I went through it quick. I was told to speed it up.

PAUL BURRESS: What about the vehicles that transport them? Does somebody go out in the parking

lot and monitor things?

TIM DUNN: We will. Typically, if the person inside is contaminated, we automatically assume the vehicle is. So those vehicles will stay put. They're not going anywhere.

And the clean-up effort depends on who and what. If it is due to a nuclear power plant, they actually have insurance, A&I, which will help pay for the clean up everything and EPA will help make sure it gets completed. If it's because of a terrorist attack, the FBI takes over. All that becomes evidence. At that point, nothing goes anywhere because they want it all for evidence.

Any other questions?

JAMES FUTCH: Thank you, sir. Appreciate it. Thank you very much. Nice pictures.

TIM DUNN: You like that?

RANDY SCHENKMAN, CHAIRPERSON: Okay. So now we're going to go, Brenda is going to talk about boards and councils, new appointments, procedures and process.

BRENDA ANDREWS: Okay. Some of you already are aware that we have a new policy in place, but I'll give you a little bit about the background.

Historically, when a member's term comes to an

end - their three-year term - and I'm talking particularly about our council because different councils in statutes have different terms. For our council, it's three years. And when a member's term comes to the end, normally, we submit a packet for reappointment, automatically, if they are interested in continuing.

The Surgeon General has instituted a new policy -- while it's still in draft format -- but we are caught in the middle of his new policy for our appointments and reappointments. And Kathy- I mean, was it Carol and Bill -- let's see who else, Carol, Paul, Alberto and Bill, you remember back in November, you received letters that your terms were going to be extended for six months instead of the three-year reappointment. That's because when we submitted that packet, it got caught in the middle of them revamping the system. So rather than not continue you, they did it for six months.

Well, what happened, that caused eight members' terms to end at the same time for us, which I don't think has ever happened with the council before. So we have about four or five members whose terms will be ending July 1st and the rest of them will be June 30th. So that means we're in the process of

submitting appointments -- not reappointment packages to the affiliated societies for them to submit nominees for those positions.

The letters that I sent out recently for those of you whose terms are ending, gives you the opportunity to reapply or apply if you're still interested in being a member on the board, and most of you have decided to do that. We do have a few members who have decided to retire. Right now there are three. Mr. Richardson is one of them, who won't -- decided not to continue on the board right now.

So the next step for us is to submit letters to the societies, they will provide nominees. We will also submit the names of all the members who wish to continue to the society as well. But he wants to open up the opportunity for other people to have a chance at being members if they qualify for those positions.

Also, the SSG wants to limit terms to eight years. And I think they got the eight-year term in there because in Statute 20.052, which talks about four-year terms. So they are allowing two-year terms, but they didn't completely consider the fact that not everyone's terms fit in

those categories.

So technically, what that will means for us is that after two terms, we will have to go through the vetting process because we have three-year terms.

So right now, I'm preparing letters to go out to the Societies that nominated each of you that are -- whose terms are ending. Once we get information, names back from those societies, they're going to go through [James mainly] a vetting process. He has his work cut out for him. He has to review all the applications. Those persons will be sent new, updated questionnaires. And most of you know about the questionnaires, but they have changed somewhat. So anyone, who filled out one the last time, you'll have to do it again because these are new.

Once we get all that information back in and the and any backup information from the interested people, James will have to go through the process of determining who will be put forth as the recommended person.

Additionally, a new piece they've added is we have to interview all of the nominees. Physically interview everybody.

JAMES FUTCH: This all sounds workable, doesn't it?

BRENDA ANDREWS: That's an added piece they've also put in there. And also, this all has to be done for this session of terms ending by May 30th. That's just --

CHANTEL CORBETT: The end of this month?

BRENDA ANDREWS: -- even more delightful. Technically, we're supposed to submit the appointment package to the Surgeon General for those terms ending July 1st and June 30th, by May 30th, because he wants them 30 days prior to the term ending.

So that's why when I sent out the e-mails to everyone, I said -- I gave you the 8th to respond back to me -- which I thank you all for being so cooperative and helping me with that. I know that was like, really? But it was because of the timeframes that we're working under right now are very strict, as you can see.

So I think -- in your packet, I've put in new questionnaires so you can see what the questions are, you know, upfront.

I do have -- most of you have e-mailed me who wish to return to the council. If you have not

responded to me, I would need that in an e-mail format so that I can put your written response back to me with the packet to send it through.

So any questions about any --

WILLIAM ATHERTON: The new questionnaire we're supposed to fill out and send it back to you?

BRENDA ANDREWS: Not this. Not at this time. Right now I just need verification in writing that you want to continue. Or if you've decided that you want to resign the position, I need to have those things in writing.

JAMES FUTCH: That's just for the people who are expiring.

BRENDA ANDREWS: Just for the people who are expiring.

JAMES FUTCH: We have two dates now.

BRENDA ANDREWS: And in your letters I sent out, I did give you the dates because some were July 1st and some were June 30th. So if you fall into that category, you've gotten a letter from me, just make sure you get back with me. It doesn't have to be an elaborate, long letter. A paragraph, just letting me know what your decision is and I can send that through.

I have to prepare the letters this week for the

societies to get those out to them so they can do their part and get names back to us. It's a lot of work to be done in a very short time frame for us.

Any questions about that, though?

JAMES FUTCH: Let me add that we very much appreciate all of you for taking the time over these many years, and hopefully continuing to do so in the future, to help us with this council. I don't have the purview from on high and Brenda's been to a bunch of meetings. She's a little bit closer.

My feeling that I've come to is that there are, there's a -- perhaps there were some maybe councils that weren't doing things as we have always done them, and getting new members through societies and giving people opportunities. This may be a reflection of that. Again, as Brenda said, it's something of a moving target. It's something that hasn't been implemented. It may end up in a different place.

So we would very much -- for me personally, I won't speak for the organization -- but for me personally, I would very much, if you would like to continue to serve, please do so. We would very much appreciate that. And we've always gotten excellent support from all of you. So that's enough

from me.

BRENDA ANDREWS: Any questions about it?

(No Response)

BRENDA ANDREWS: So what will happen is, when we get the names, of course, like I said, your name of those who want to go forth, will receive a letter from us indicating that you've been nominated. The packets will go out to you and we'll go through the same type of process that we went through the first time you were probably appointed. And then the packet, that will go through. And then once the recommended person is put through, then the Surgeon General is going to vet everyone.

So it doesn't exactly end with the person we recommend. The Surgeon General has that final decision to either choose another person within the package of nominees or accept our recommendation. So it's somewhat out of our hands a little bit.

JAMES FUTCH: Just like he's always had.

BRENDA ANDREWS: Yeah, he's always had that, but it was more automated before.

RANDY SCHENKMAN, CHAIRPERSON: Okay. Any questions on that?

James, it's --

JAMES FUTCH: Let me --

RANDY SCHENKMAN, CHAIRPERSON: -- your turn.

JAMES FUTCH: We're a little behind the ball here, let me, before I launch into this thing, with your permission.

RANDY SCHENKMAN, CHAIRPERSON: Sure.

JAMES FUTCH: Ask if there's any old business or anybody has any new particular issues they want to discuss.

Brenda, do we have a suggested next date we want to --

BRENDA ANDREWS: I do have calendars in your packets for you to look at for us to discuss when you want to meet next time. It's just, it's before A, so it's right after the agenda. You know, normally we meet what? September?

JAMES FUTCH: October.

BRENDA ANDREWS: October?

JAMES FUTCH: If we stick to Tuesdays, 6 October. Anything standing out as particularly bad or particularly good? If not, let's put it down for October 6. Then we can all get back with Brenda if that turns out to be a sticking point somewhere.

BRENDA ANDREWS: Okay. October 6 is our tentative date now.

PATRICIA DYCUS: Here? Tampa?

BRENDA ANDREWS: Are we going to come back to Tampa or do you want to go back to Orlando? Anybody have a preference?

JAMES FUTCH: I've got a coin.

RANDY SCHENKMAN, CHAIRPERSON: It's hard for us from Miami to get here. I will say that.

JAMES FUTCH: Yeah, we lost one person because of that.

RANDY SCHENKMAN, CHAIRPERSON: There's no morning flights for us.

JAMES FUTCH: Any objections to Orlando?

(No Response)

JAMES FUTCH: Let's go back to Orlando.

BRENDA ANDREWS: Okay.

JAMES FUTCH: So last thing. Let me run through this real quick. If you thought Tim talked fast, watch this.

GAIL CURRY: I've never known James to be fast, let's see how this works.

TIM DUNN: That's why he wanted me to go first. I went fast. He has more time.

JAMES FUTCH: Exactly.

So Tim actually did some of the groundwork for this issue. When he was talking about the Wings exercise, it's amazing to me after doing this for so

many decades now, we used to be mostly involved with emergency response. 9-11 happened and we got involved on the preventive side of things trying to keep that from happening. So the two have kind of come back together in that Wings exercise, really, for the first time for us.

On the preventive side, we've been building the capability with law enforcement and other folks to use detectors in the ground units, on the officers, themselves, and also in the air. So this is an exercise the Domestic Nuclear Detection Office tried to do in Camp Blanding with some federal resources and some state resources. They picked Florida because Florida, frankly, has it together and has a really good reputation around the country when it comes to preventive work.

And the idea behind this pilot was to come up with optimal con-ups for how you combine aerial detection with ground detection in a lot of different scenarios. So that's the whole thing.

The short story is, Blanding, they've got basically some problems. They've got -- had to move from Blanding. They looked for an alternative site and there's nothing that's really like Blanding with entire concrete cities built out in the middle of

the woods where nobody -- neighbors don't really worry about what you do.

So they came up with Tallahassee, because it turns out Tallahassee, the airport is located right next to this beautiful national forest and it's in the Panhandle, so it's not, you know, densely populated like south Florida. So that's how it ended up in Tallahassee. And I'll go from here.

So that's a little bit about what I just said. Here's the people involved. Look, I provided a list of acronyms. Yes.

GAIL CURRY: You may want to take notes.

TIM DUNN: Yes.

JAMES FUTCH: You won't have time to look at them, so it doesn't matter.

This is what are we doing, you heard this many times. Certain types of things, dirty bombs, Richie talked about improvised nuclear devices, the exposure devices like the nuclear med tech who put the gadolinium line source in the supervisor's chair in Naples in 2006 on the day he was fired. All sorts of reasons for --

TIM DUNN: I met him.

JAMES FUTCH: I like to tell that story.

All right. Here's the standard picture.

Here's how we interrupt the process. I'll get through all this because it's not the fun part.

Here's the domestic nuclear detection architecture we've been working around the country. Nested levels of detection and et cetera, et cetera. Lots of water access.

PRND equipment, this is our -- Tim mentioned RSI system. On the left-hand side, the silver thing is the neutron detector. On the right side, the black thing is the gamma radiation detector. In the middle with the wires, that's the computer brains of the whole operation. And the thing on the bottom, the green thing is a very expensive 12-volt battery that is very light and lasts a long time. So this can go in a car or this can go in airplane, you can augment the capabilities by adding more and more detectors. The bigger detector, greater chance of catching a gamma ray. That's always good.

I won't go through all the individuals -- these are the individual components. Okay. I just described each of them. That's the neutron.

We can, in the sky, through the miracles of the cellular network and modern internet communications, we can on the ground, physicists be in constant data uplink with the plane; watch what they are watching,

help the pilots flying the plane. In some of the cases here, we actually fly in the helicopters.

The agency -- that's kind of weird. One agency with the smaller plane, has to have two pilots. There's no room for any physicists. The other agency has nice big helicopters. We like helicopters. We fly as the operator in the helicopters.

This is our RAD assist program, which is the -- this is what, either the cops or we are looking at. Spectral waterfall on the left-hand side. You see the naturally occurring isotopes forming those patterns. The big fat one in the middle is the 1460 line for Potassium 40. So anyway, that's the interface.

Mapping view, how do you teach pilots to do this? And, you know, in systems like the Haughey that sucks, like, 90 gallons an hour of fuel and it costs like multiple thousands of dollars to keep it up in the air, how do you teach pilots to use radiation detectors? You put them in cars on the ground and you show them how to drive around sources and do it that way.

So the different colors. The red is a hit. There's some sort of a source over here in the

trees. And look green, green, green. As you get closer, oh, higher readings, bing, bing, bing, bing, bing, you know, audible or visual feedback to the pilots.

Agencies involved. The first thing we did was we had to train them. Some of the agencies were relatively newer to this; some have been doing it for a while. These are the ones that were involved. We got Department of Energy who have been doing for a while to come down and teach the class. December. We're trying to get them to use these.

Here's the classroom representation. Ron Smith from the RAP III in Savannah up front.

If you're going to do mapping for response purposes, like Wings, then you try and find contamination, you have to get pilots to fly in nice even patterns so you don't miss something on the ground. Pilots, any pilots in the room? Okay. Good. Wait a minute. Tim, there's one. Sorry. No offense intended.

So you ask any pilot, can you fly straight from here to there? They will say, sure, I can fly straight from here to there. Well, that's true, because what they care about is basically getting from here to there, you know, in a relatively

straight line. They don't worry about minor perturbations in height, little perturbations of tens of feet to the left or to the right, but when you're going to do this, you have to be exactly parallel, you're going to miss something. So we have to generate flight plans to put in their navigational computers so that they have a three-dimensional ability when you get to the end of one of those rows and turn around and come back, that you're actually parallel to where you were just before. You don't have anything in space next to you to look at for the pilots that like to look at visual references. A lot of flight planning was done.

Briefly, we generated maps. Here's some of the helicopters. There's the big Haughey in the background and a Bell Long Ranger in the front. That's a typical corporate helicopter that has an extra door in the middle where basically, you would open it and put like a stretcher, for example. But paint and thrift WCs purposes.

This is the system in the Long Ranger. One of the RAP folks there from Savannah River.

This is, in the Haughey, it's big enough that they actually have an externally mounted pod. It

goes on a skid, et cetera, et cetera.

This is FHPs edition. They've got a Cessna. And that's a couple folks, one of the pilots there on the left, DJ Torres from Miami in the tan jumper.

This is the three detector configuration in the back seat of the Cessna. They take out the back seat; they put this on the floor. And we actually now, because of some additional purchases, we have five detectors we can put into a plane. That's what we're going to carry up to South Carolina this summer.

FHP grounds units. That's the Yukon/Suburban, filled with detectors in the back.

In the forest, here's one of the exercises. Four vehicles running across the forest road. One of them has got the source in it. It's their job from the air to figure out which truck has the source in it. So that was an exercise we did.

Here's what it looks like from a mapping configuration, that exact exercise. Lots of circling of the road where you can see the trucks. Blowing up this area here, you can see there is a little bit of a hotter signature on the left side of the road versus the right side of the road. And most of the time, you guessed right. At least it's

probably a vehicle on that side of the road. On the left. So pretty good distinction from the air.

RAD-assist view of what a hit looks like. You can see the perturbations here in the natural flow of the gamma from the naturally occurring isotopes. And you can see a big peak over here. It's not that hard to figure it out. And actually, most of the time you can figure out not only that there's something there, but what isotope it is from the air.

Sources along a road. Another variation. You've got one kind of material here, you got another one here and you've got something in the middle that's weaker. You can go back and forth, figure out what it is. Can you see the thing in the middle? No, you can't see the thing in the middle. That's unfortunate, because that was that the highly enriched U-235 that you might want to use for an atomic bomb.

This is a map from some of the flight plans in the woods. This is initial contact. This is lots of chasing through the forest until you finally nail them up here on Highway 20.

So that was a lot of practice. The actual exercise where they're going to figure out the

con-ops, that happened in January. The same agencies involved except we threw in -- I always forget which one is which here, Tim. The one would be, Wings is probably the aerial guys.

TIM DUNN: 244th.

JAMES FUTCH: The Army has the helicopters flown by one part of the Army and the specialist guys with the degrees in physics, who come along to run the radiation system, come from a different part of the Army.

Thirty-six scenarios, four missions a day were attempted. Ground only. So you do the thing first on the ground, then you do it in the air. Then you combine the two and then you repeat that over and over again. Of the 36, they completed 29. They're still assessing the data.

Here's some of the exercise locations, more places in the forest. Again, pictures of ground units. Airplanes in the air. There's some of our guys next to the helicopters where we're the operators.

I've got to tell you, there's many things I've done in 27 years, but very few match this for personal satisfaction. Not that that's why we do it, but it makes a lot of difference.

Here's the Black Hawk. The big white things are full of some of those crystals that you saw before in our system. I forget the exact number. I probably shouldn't say it anyway. Lots and lots of crystals. Black Hawks are fun to watch, fun to listen to and very effective ways to get around.

Here's a ground unit from the Army. Not very visually impressive, but very effective on the ground. The back of it.

Here's a source. We have some shoot houses and some places in Tallahassee and they will put a source in a building. We'll try and detect it from the air and see if we can detect it from the ground.

Here's some sources from Oakridge in a classroom building. We had one of the police academy locations. Again, trying to see it from the air, through the roof and all the rest of it.

And here's Tim on the left actually, getting ready for some moving sources and some folks from Oakridge. And we actually employed both -- many of the typical sources that Richie talked about before for the real-world flavor.

Here's all the exercises in great gory detail. Mostly you can see there's just lots. And here's what it looks like on a daily calendar. Lots of

flights per day. Very successful. Helicopters over, you know, police academy buildings, shot out the window of the Black Hawk. Like the little logo they got on side of the -- but that building right there in the background was the one you'll see in some of the pictures coming up.

Inside the Black Hawk. Some operators running systems. Here's that classroom building. The air has detected something in that classroom that you saw before with all the yellow cans open. It's up here. So this is the FHP ground unit, you know, being directed by the air. Going around. Because the air can't tell exactly where. Somewhere in that building we think or maybe it's near by.

So after the ground unit comes in, here's the folks with the handheld instruments trying to find it and look at the guy on the right, he finally figured out it wasn't the classroom on first floor, it's the one on the second floor.

This is the view from the air. Source vehicle is on the left. And source and helicopter on the right. Mapping view, red spots are detections. And it went like this for a while.

So that got all this data and then they wanted a real-world implementation of it, so FHP is always

involved with a lot of the races. Twelve Hours of Sebring was coming up in March, so they came down and flew some of the -- tested a little bit of the con-ops at Sebring. And this is an example of what that looks like.

This is an FHP Cessna patrolling basically the roads, the track that was over here, if you've never been to Sebring. So these are the main roads.

And all this is, by the way, is just natural variation in the naturally occurring background.

And so this is kind of common sense -- 67 different sources were detected first by air assets. That's good. Forty-eight percent were identified first by air assets. That's not always -- people don't always realize it's not that difficult to pick up, for example, Cobalt 60. It's got a very nice signature that you can tell from, you know, Potassium 40, for example. And then, you know, working together, 65% were localized best by combined air and ground teams.

TIM DUNN: I wouldn't say quickly. I was moving pretty fast down that road. It took them a while to catch me.

JAMES FUTCH: There was a hefty dose of that.

TIM DUNN: Well, there were the, BRC was

allowed to run with our sources open, whereas they weren't allowed to.

JAMES FUTCH: Yeah, there's different regulatory considerations in different places.

Pros and cons. Aircraft definitely adds range. Wider field of view, 500, 1000 feet, that will do that. You can get to areas the ground can't get to. I can't drive in a swamp very easily.

Let's see what else? I'll pick out a few of these.

Airplanes, this is interesting. Airplanes are great for getting there if it's something farther away. If it's close by, the ground is always going to get there first because getting these birds into the air and operational, there's a little bit of lag time. Whereas FHP ground units, they pop in and they drive there very quickly. If you get something very much farther away from where you start, then the airplane has an advantage, especially the Cessna.

And of course, cons, weather restrictions, you can fly or you can't fly.

This is -- how much time have we got? Are we done?

Basically, this is Jacksonville. We did

another aerial exercise. This is one of those shoot-them-up that we're demonstrating a port authority type thing. The guy in the middle is a source boat with some of our guys and some sources, and the assembled law enforcement on sea and in the air tried to find them. That's the source. You can see they really don't want to lose that over the side. That would kind of mess up Jacksonville's port probably from a navigation perspective.

These are some of our folks on the left there. Lots of maneuvers. Helicopters chasing people. Our guy operating a helicopter.

This is what it looks like from the ground or from the air, rather. You can see detection right here of the source boat. And the helicopter has been looping around until it finds the source boat. Again, detection looks like the same on the screen.

Law enforcement folks chasing -- now they've got the boat, they're going to bring it over to the side. Pointing the guns. They're doing a lot of those. They've captured some people, including our fellow, he's right here.

And, you know, you'll like this one. Plastic cuffs. I like this one. This is a one of the pieces of radiation detection gear. Basically, you

have the health physicist even at the end, under cuffs as the bad guy still explaining to the law enforcement officer how to use the radiation detection.

And Tim talked about Wings. I won't bother. Those are the places where we're going to be flying.

This is an actual nuclear power plant. And the rest of these, one of these is Barnwell. I can't see where it is.

CHANTEL CORBETT: Southern, West.

JAMES FUTCH: Acronyms again. So that's it. That wasn't that bad.

TIM DUNN: That's as fast as James has talked.

GAIL CURRY: I'm telling you. Somebody better write that down.

CHANTEL CORBETT: She's got it.

GAIL CURRY: Yeah, she's got it. It is documented.

JAMES FUTCH: Randy, anything else?

RANDY SCHENKMAN, CHAIRPERSON: Brenda asked if anybody wants to see any of this in detail.

BRENDA ANDREWS: E-mail me and I can get copies.

RANDY SCHENKMAN, CHAIRPERSON: She can get handouts for you.

TIM RICHARDSON: Madame Chairman, this is my last meeting and I just wanted to say it's been a pleasure serving with you all. It's just time for me to go out to pasture. I haven't been to the clinic except for my own personal CT. And so, it's really time to -- I teach a course and that's about it. It's been great serving with you all.

RANDY SCHENKMAN, CHAIRPERSON: Well, we appreciated your being here.

JAMES FUTCH: Don't forget it's a public meeting. You can still come back if you want to hang around and watch a meeting or two.

TIM RICHARDSON: Okay.

JAMES FUTCH: Drive down yet again to Tampa or Orlando.

RANDY SCHENKMAN, CHAIRPERSON: Put in a little input.

JAMES FUTCH: Thank you, Tim. We're appreciate it.

ALBERTO TINEO: Are we going to put the NMTCB stuff, their request for the next agenda or how we going to do that? What is the next step I guess.

JAMES FUTCH: I think we kind of go back and think about this. The part for me was, one of the big questions that I had would be solved by ASRT

using the same scope of practice. I've still got, you know, some questions about the 500 and using the -- I kind of, you know, me personally kind of, it would've been nice if we could've used a combination of ours maybe and a certain number of minimum procedures.

CHANTEL CORBETT: And I think they could if we could put some type of clause in there to allow the people who are specifically doing those exams to be able to do the exams in Florida. That's still your caveat there. I think that they, the NMTCB would be more than open to any suggestions like that if we could figure out a way on our end to allow that.

JAMES FUTCH: Thoughts? What's the desire?

ALBERTO TINEO: Well, eventually, we're going to have to deal with it one way or other and I think we need to just decide how we're going to proceed so that they have a way to say, yes, it's going to come, it's going to satisfy. So I think we need to -- I don't know.

JAMES FUTCH: We'll talk about it again, I'm sure, next time.

KATHY DROTAR: And going back to the society and to ACR, that they haven't been recognized by ACR as technologists that can perform. Traditionally

anything that we do as technologists first gets approved through ACR and goes down.

BRENDA ANDREWS: So we're going to put this on the agenda as a follow-up item for the next meeting --

JAMES FUTCH: That's fine with me.

BRENDA ANDREWS: -- for sure?

RANDY SCHENKMAN, CHAIRPERSON: I think they need to give us our -- or find out when they think the ACR will be addressing this and --

KATHY DROTAR: ASRT.

CHANTEL CORBETT: You say ASRT is looking at the x-ray portion as well?

KATHY DROTAR: I think that's coming up for the review in the next two years, somewhere in there.

CHANTEL CORBETT: I presume that's all at the same time. If they're going to add CT to the x-ray side.

RANDY SCHENKMAN, CHAIRPERSON: So if anybody can find out when that's going to come up, because those -- it should be addressed by those before we make a final decision one way or another, I think.

YVETTE FORREST: Wait until they make -- before we address it again.

RANDY SCHENKMAN, CHAIRPERSON: Exactly.

JAMES FUTCH: I'm sure Cybil will take some feedback and John will take some feedback just from the discussion. They can actually request a copy of the minutes, too, and go look at the questions, take notes, I'm sure, of this.

You know, kind of personally for me, it's like, okay, the way I hear what you're saying so far is, there are a few issues that we probably ought to address like the ones you just mentioned, and although they're going to be offering more of these, you know, it's not large numbers of people who are, you know, it's five per basically, you know, every time they go through, there's about five more that come to Florida. And there is another alternative at the moment. It's not like they can't go somewhere else. And it's a pathway that a lot of people have taken so far. So I don't think there's a pressing need to make a decision right away and it would be good to wait for the response from these particular ASRT and ACR. That's me.

RANDY SCHENKMAN, CHAIRPERSON: I agree. Anybody else have any comments?

MARK SEDDON: I think that the climate is moving towards more training and education requirements for CT operators in general from the HR

perspective. So that's also some consideration that hospitals are moving towards requiring CT certified technologists. Most of mine do. So if we're looking at this being an equivalency to the SRT, or ARRT CT certification, we have to make sure it's meeting the same intent as far as the training. Didactic training and also the --

CAROL BONANNO: Another thing to look at is down the road, Medicare is going to require to reimburse a CT scan, it's going to have to be done by a certified CT tech.

MARK SEDDON: Right.

CHANTEL CORBETT: The joint commission is looking at 2018 potentially having a requirement for the CT certification.

CAROL BONANNO: People want to get reimbursed. They want to get --

CHANTEL CORBETT: But cancer centers won't want to hire two or three techs to run one machine. That's where they are at right now.

MARK SEDDON: I think, going back to her point is, there's no pathway for them to get their hours of training right now in Florida.

CHANTEL CORBETT: They may get hours, they just can't get the exams.

MARK SEDDON: Well, yeah, they can't get the exams because they exams would be just doing the PET CT portion, which is not really the intent.

PATRICIA DYCUS: I don't get the button pushing portion part of it.

CHANTEL CORBETT: That's just the regs.

PATRICIA DYCUS: Right, but it's not the button pushing that we want to train them to do.

CHANTEL CORBETT: I know. That's what I'm saying. They can get the didactic --

RANDY SCHENKMAN, CHAIRPERSON: They don't have any responsibility, really, for the CT part if they are not --

PATRICIA DYCUS: I know, but as part of it, they can do everything except that. They should be doing it under the supervision of someone who can push it.

RANDY SCHENKMAN, CHAIRPERSON: Exactly.

CHANTEL CORBETT: Well, the contrast administration, that type of thing is already under the nuclear medicine scope of practice, so that's not an additional --

PATRICIA DYCUS: Right, so what I'm saying, whoever they are training with, their supervising technologist or physician, can push that button once

they've done everything, and they can count it as their exam, correct?

CHANTEL CORBETT: Not according to the ARRT wording.

KATHY DROTAR: I don't think according to state regulation that they can do that because it's more than observing. It's actually doing it and moving the patients.

JAMES FUTCH: The only thing that's a little easier is since -- and correct me if I'm wrong on this -- but since NMTCB has written the 500 and such that you can count your CT experience as nuclear medicine, from nuclear medicine PET CT procedures, that you are fully licensed to do in Florida. That's a little easier for them.

Now, whether or not that's relevant, and I don't know, I've never practiced CT, so, you know, I don't know. But whether or not that should be relevant toward giving somebody license to do CT on a full diagnostic machine, non-nuclear medicine purposes like in radiology, for example, I don't know.

CHANTEL CORBETT: So some of the nuclear medicine, like in a PET CT facility, sometimes one exam from the beginning to the end, is a diagnostic

PET and a diagnostic CT. If they set up that protocol and the nuclear medicine tech does not have to edit it, then they can do the whole procedure because it's part of the PET exam. Even though it's a diagnostic CT. So those few places that have it set up like that, they can get -- they are doing diagnostic CTs, it's just in combination with the PET at that point.

So that versus attenuation correction scan, obviously, your MA, those types of things are different at that point, but they would still be doing the same thing. It's just attenuation correction.

But like I said, I really don't -- I would say probably less than five percent, in my estimation, would be wanting to go do CT. You know, this is mostly in combination with PET CT. Because like on a PET CT mobile where they're not doing any strictly CT, they still have to hire two techs right now. So, you know, employers are pushing.

PATRICIA DYCUS: Oh, absolutely.

RANDY SCHENKMAN, CHAIRPERSON: But you still want people to be trained --

CHANTEL CORBETT: Correct.

RANDY SCHENKMAN, CHAIRPERSON: -- and

understand what they are doing.

PATRICIA DYCUS: Correct.

CHANTEL CORBETT: Absolutely.

JAMES FUTCH: If you're going to use the ASRT practice standard as your own, that's not limited to nuclear medicine procedures and PET CT machines. That's everything.

CHANTEL CORBETT: Right. Correct. So like you said, it will simplify it greatly if they will just adopt that standard of practice and meet that.

KATHY DROTAR: Also, when you're doing ARRT certification, you're being supervised by somebody who has that credential.

CHANTEL CORBETT: Well, they just have to be a general radiographer.

CAROL BONANNO: They just have to be a radiographer. They don't have to be CT.

KATHY DROTAR: No, they have to be certified on the CT to sign off on the competency so that they can --

CHANTEL CORBETT: No, they don't.

CAROL BONANNO: Not the way I read the certification.

KATHY DROTAR: They have to be certified in CT in order to sign off on it.

PATRICIA DYCUS: I know it is that way for mammography.

RANDY SCHENKMAN, CHAIRPERSON: All right. Well, we are over time, so this discussion will be continued, I'm quite sure. And so can we adjourn?

JAMES FUTCH: Motion to adjourn.

KATHY DROTAR: Motion to adjourn.

ALBERTO TINEO: Second.

RANDY SCHENKMAN, CHAIRPERSON: Okay. Thank you. All ayes?

ALL: Aye

RANDY SCHENKMAN, CHAIRPERSON: Any nays?

(No Response)

RANDY SCHENKMAN, CHAIRPERSON: Okay, we're good.

(Proceedings concluded at 3:25 p.m.)

CERTIFICATE OF REPORTER

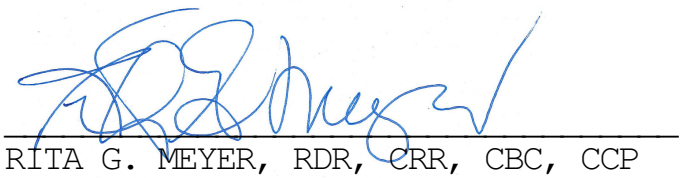
STATE OF FLORIDA:

COUNTY OF ORANGE:

I, RITA G. MEYER, RDR, CRR, CBC, CCP, do hereby certify that I was authorized to and did stenographically report the foregoing proceedings and that the foregoing transcript is a true and correct record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties, attorneys or counsel connected with the action, nor am I financially interested in the outcome of the action.

DATED on this 25th day of May, 2015.



RITA G. MEYER, RDR, CRR, CBC, CCP