MODERATOR: One of the comments made during the talks was about medical physicists wanting to be able to go home and sleep at night. And I hear that quite often when I am at these AAPM and yet I go out and I could swear nobody actually does sleep at night. We're going to take a few questions. We're going to start out from the audience. We have a microphone. We are recording this and we - I'll probably try and restate the question.
Q: It's a question for Dr. Cardarelli. You show side-by-side two plans. One for - with the HDR and the other one for the Axxent. How many dwell positions there were on each - were there just one dwell position in the center for both of them or -
A: - No those plans were - Is the mic on? Okay. The - those plans were optimized to the 1.0 cm around using - so there are multiple dwell positions for both plans.
Q: I see. For the HDR as well?
A: I think the HDR had two dwell positions.
Q: Hi. Two comments. One is we received the unit and I just - I was trying to verify positional accuracy and, just as a comment, if you just move the source by 2.0 mm, I forget the percent change, but you do definitely see a change in the Electrometer. The second request I have - question I have is, is it possible to receive some kind of an independent RPC confirmation of the dose? When we, for example, commission a new LINAC, we would do all of our calculations, but I'm also - I sleep better at night when I get my TLDs back from the RPC. Is it possible to require such a confirmation from the regulatory perspective?
MODERATOR: Did we get that? The question was, would it be possible to have an additional independent RPC TLD form validation of the calibration technique at any site?
A: Well, speaking for Geoff Ibbott, I'd say, "Sure, sure. Just ask and I'll do it." Actually, they would have problems unless there were NIH-funded clinical trials that use electronic brachytherapy that they could justify using their time to create what would be necessary to do such a validation. Speaking for the Wisconsin ADCL, I see Larry DeWerd sitting there, I can say, "Oh sure, just contact us. We'll do that. Why not?" But you can talk with the ADCL and maybe they have something that they could set up for that. It isn't so easy as just sending you some TLDs. The response would have to be characterized and you'd have to have a geometry, a fixed geometry setup that would make sense.
Q: Sure. I already did contact the RPC and, on their own, they weren't interested. They explained to me that it's not so simple to do this because they don't have the equipment for 50 kV and below.
A: Yeah. Right. There - it's actually quite a challenge and, with the recommendation that you can just do your own monitoring, it's actually quite a challenge to do it well and I'm not sure that most physicists in the field when they receive a device could do verification of the TG43 dosimetry parameters in house. It's really a research project to do such with any type of accuracy.
Q: Okay. Thank you.
Q: Bruce, is there a similar approach for iridium -
A: - No.
Q: - Calibration?
A: No.
Q: So it's just not, it's not something anyone's set up for?
A: No. Right.
A: Hello. I'm chairperson of the Conference of Radiation Control Program Directors, Debbie Gilley, and though I'm very pleased with the efforts that the AAPM has made for model regulations, I do want to caution you that these are simply suggestions that are brought to the states and that the final outcome of those regulations may look very

different than this. So I wouldn't put your - hang your hat on these regulations at this time.
A: I would say I was involved with our state regulators in crafting our new regulations when we became an agreement state just a couple of years ago and what our suggestions were going into the regulation process and what came out at the end were not very similar so I would second exactly what Debbie said. Don't trust that any of this, whether the language or even the concepts, are going to end up as your regulations in your state. Thank you for pointing that out by the way.
Q: I have two questions. One for [inaudible 5:36] -
MODERATOR: No, no, no. You're being recorded.
A: Yeah, we'd prefer.
Q: Two questions. One regarding the imaging to verify the positioning and the inflation of the balloon. You say that it's going to be a little bit challenging to use x-ray C-arm like or simulator. Is there any other technique that you can add to the balloon a little bit maybe like contrast, but not 15%? If you add like 1%?
A: No.
Q: No? Not at all? So you have to do a -
A: - No. It absolutely cannot have any contrast in it.
Q: Okay.
A: If they put contrast in it, it cannot be washed out.
A: Just remember here the physics behind this. If you add barium sulfate we're, you know, we're at 50 kV and all of the sudden barium's really good at stopping 50 kV.
Q: And that's the 60% that you have in the balloon that you take in account in the calculation. It's all there in the formula?
A: Yes. That's why it's there.
Q: Okay.
A: That's why it's there. That's why it's there. Because we know how much contrast is in - or is in that balloon.
Q: Okay. What about ultrasound?
A: I'm sorry. What about -
Q: Ultrasound.
A: What about ultrasound?
Q: Did anybody try it?
A: That is one of the options for - and it shows up very nicely and very accurately so the barium's not an issue.
A: I will say you can see it in the CT sim. I mean, in the CT sim, no problem. In a conventional simulator, you can see the balloon. It's faint. On large patients, I think you'll have a difficulty. I think most of us see more large patients than non-large patients sometimes. So, you know, I think it, you know, you'll want to CT, more often, someone just for speed reasons. You don't want to be sitting there 30 minutes hunting for the balloon, even though you know it's right there. You know, you're going to put this patient on the CT. You're going to get the job done very, very quickly. You'll only need to scan the area around the balloon and, of course, you'll know where that is because there's a lumen poking out so -
A: I would like to caution everybody against doing ten CTs for localization because the exposure to the contralateral breast is getting right to exactly the area that you don't want the dose to be.
A: I'd like to throw in my experience on this, which at one of the other clinical sites that has a C-arm; it's a dedicated C-arm in their brachytherapy suite. Under automatic brightness control, as it turned out, the balloon was dialed in very nicely. The edges of the balloon were very obvious. A slight tangential approach was able to verify even

better once the balloon was brought out of the imaging plane of the ribs, the imaging axis with the ribs, so even easier to see that. One of the things to keep in mind, and we kind of forget because, you know, we're thinking in megavoltage ranges most of the time, is that if you bring the kV down under 70 kV, that barium shows up very nicely. You get much better contrast differential between the barium and the tissue. Also, if you've coned down so that if you are under ABC mode and you haven't got a lot of saturation or flash from off the tangential view, then I think that will improve it as well.
Q: I didn't look at the dose fall off, but somebody mentioned that the fall off is faster than the iridium. So if you take a standard balloon with 4.0 cm diameter, what's the surface dose and what is the limitation regard the distance to the skin or the lung? Thanks.
Q: Do you remember your max doses by any chance?
A: I don't off the top of my head.
A: Well the question was what the maximum dose was. And there is a little bit more - less dose homogeneity than we would see with iridium, but I think it's important to point out, if you remember Gene's slide of the comparison of the exact same patient side by side, I don't know if many of you really noticed how far, how much further out the dose lines ran into, the same dose lines, ran into the patient's lung and crossing over the heart. So I think the balance, the trade off between lower cardiac and lower lung and contralateral breast dose as well, may well be a satisfactory trade off against the slightly higher dose rate at the surface.
Q: Do your clinicians have any answers to that?
A: No I - not really.
MODERATOR: Anymore? Here's one back here.
Q: Why the geometric function is different if you use Nucletron versus BrachyVision?
A: What -
Q: The geometric function, meaning that you use in the model.
A: What about the geometry function's different?
Q: - Why is different between Nucletron and BrachyVision? You mentioned you had different tables. I think this should be related to the source not to the software that you use. This is my understanding.
A: If you look at the curve, it's the same.
A: Let me, let me restate the question. The question was why are there two different anisotropy tables. I believe this is what you're asking.
A: Oh, geometry functions.
Q: I think what the geometry function if I remember correctly -
A: I think that the only difference that I saw in the tables were that the one table had half-centimeter intervals where the other one had full.
Q: Yeah.
A: And if you looked at the values for the integer values they look the same to me because I was looking at that too, thinking they should be the same. And, indeed, where they were - they had the same distances. They were the same.
Q: He mentioned about the first value missing, but for that [11:59] I didn't even look if they are different or not, but I also surprised to see different tables for different software.
A: It's just format.
Q: Oh, okay.
A: Yeah. It's pretty much just format. And both BrachyVision and Plato will handle the line source.
A: And at that close distance it's - you're not going to be treating at that distance anyway. It's to give you a smooth isodose distribution throughout your entire treatment area.
MODERATOR: Yeah. Tom.

A: I'm Tom Rusch from Xoft. I think the main difference is that in Plato, they require equal increments in radius as you're putting in the radial dose function, where BrachyVision allows you to have different radial distances. And so in BrachyVision, we ended up having additional increments of radius to get better definition of the radial dose function. And then farther out you could have less steps in radius. And Bruce was right. At any given radius, the numbers are exactly the same in the two systems; it's just the radial position that was chosen.
Q: Just a couple of quick questions. If I have two different sites that are wanting to do - excuse me - to use as technology spaced, you know, ten miles apart, what's the possibility of making it a mobile unit?
A: Well I think we need to talk to Scott Tremberth and Tom Rusch about the potential of actually buying two of them. It is, it is mostly mobile -
Q: I didn't see any reason why it wouldn't be, but okay. And then what about future treatment sites? Right now it's the breast. What about a vaginal cylinder or something to that effect?
A: That's pretty clear. Do you want to take that one Tom or -
A: We're currently working on a vaginal cylinder. Randy has been working with us on the dose distributions for selected set of sizes and so that development exercise is in progress. Future sites after that will depend upon feedback from the clinicians because there are a number of perspective opportunities and choosing will depend upon the interest in a particular treatment site.
A: I would just add that in addition to the -
Q: Who are you?
A: I'm the President of Xoft.
Q: Thank you.
A: That we, Mike Klein, in addition to the vaginal cylinder, which is something we're looking for at the end of the year, we're only as smart as our potential customers allow us to be; that we really are open to input as we start thinking about a third indication, so come by and give us your ideas because the third indication will come from what our customers tell us they believe would be the best third indication. And we really are all ears at this point because we want to come up with an indication that we believe would be one that would have the optimal use in a setting that you feel would be appropriate. So whether it's by email, stopping by and seeing us, whatever, we want to come up with an indication that we feel that you feel meets a future or current clinical need. So we don't want to just come up with something in our own heads in our own headquarters. It's got to come from you folks here. So please let us know. Come by our booth. Let us know.
MODERATOR: With that I think that's probably a pretty good time for us to wrap up. Thank you very much for joining us. We'll see you back upstairs.