JAN BUCKNER: Well, good afternoon. Glad to see people here. This is one in a series of presentations on really getting acquainted, the division acquainted-- Division of Medical Oncology acquainted with the Cancer Center.

We're in many ways where we are truly joined inextricably from each other as the research and practice can't be separated from each other. And at the same time, we have different organizational structures. And so some of the communications back and forth aren't always as facile as we might think.

So Jolene has picked up on this idea and said, let's have a cancer center series. And she's worked with Nicole Ferrara and cancer communications and, oh, let's say, let's do this once a month. So this is the second--

SPEAKER: First.

JAN BUCKNER: --first, first in the series, OK. I thought maybe [INAUDIBLE] had been here once while I was away-- at any rate. But it's appropriate then to have Bob Diasio kick it off.

Bob is the director of the Mayo Clinic Cancer Center. And I'm going to say this partly because I know some-- some of the fellows are brand new and really just starting the fellowship within the last week, but Bob is as well known in the field of oncology. And he was into pharmacogenomics before there even was the word pharmacogenomics and has great experience in metabolism of 5FU, which of all of the drugs that we use in GI cancer still accounts for the major benefits in terms of what we see and particularly looking at DPD deficiency, inherited DPD deficiencies, and has evolved that over time into more of a pharmacogenomic interest.

He also has been a great friend to the Division of Medical Oncology, very supportive of career development for junior investigators, for bringing in additional investigators from the outside, and providing joint support from the cancer center and the department so that we can truly have a strong cadre of academic clinicians and researchers going forward to partner with the cancer center. So with that, I'll turn it over to you, Bob. And thanks for coming.

ROBERT DIASIO: Hey, Jan. Well, it's a pleasure to be here. And I think-- I guess we can say historically both the center and the department share a heritage in that Chuck Moertel a very famous GI medical oncologist founded both. So it's-- we share a heritage in terms of the center in the department. But I think it's important, as Jan said, and again with the fellows here, but I think also for a lot of the faculty to really be able to understand the cancer center a little bit better.

I know I have a few introductory slides here just in terms of what should be obvious that there aren't any relevant financial relationships or off-label usage for my talk. For learning objectives, I think the major points that I'm going to try to talk about today. And again, they're not really learning objectives in a seminar fashion, but they do represent the outline of my talk and that is to really talk about where the cancer center has been.

And our generational time or our lifecycle is a five year period defined by the competitive renewal. So we're getting ready for our next renewal in 2013, and many of you are involved in that. But I'm going to just try to talk about what the progress has been in the past five years, what we're doing in terms of preparation for the cancer center renewal, and then vision for the future. And I think it's a shared vision with oncology.

Well, since the 2008 competitive renewal, I think it's worthwhile putting in perspective and again for the fellows new staff, it's helpful to understand the history of the cancer center. We're currently in are 39th of NCI CCSG funding. We're one of the-- we weren't the first of the centers created. We're probably about number 12 of the 66 current centers that are funded.

We've been funded since 1973 as listed here. And we are a matrix type cancer center. We're not a standalone cancer center like MD Anderson and Memorial Sloan Kettering.

We are embedded within a hospital and within the clinical services of a medical center. We have participation from a number of different departments and divisions. Over 55 are represented currently in the center. And I'm going to get back to talking about membership, because one of the important aspects of speaking to you today-- I'm going to end up talking about how we envision for the future changing beyond what have been the NCI definitions of membership criteria. And I'll explain that a bit later in terms of what those criteria are.

Currently we have 322 members here in Rochester, 51 in Arizona, and 39 in Florida. And in addition to being recognized as an NCI designated cancer center, we're also what's known as a comprehensive cancer center. And comprehensive-- there are only 41 of the 66 at present.

To be a comprehensive cancer center means that you're not only doing clinical work and basic science research, but also that you conduct population related studies, studying cancer in the population as a whole from an epidemiology cancer control perspective. And together with these three major divisions, it's also an expectation that a comprehensive cancer center will have an emphasis on education at all levels, from nursing student all the way up through house officers, fellows, and fully trained staff for CME.

This illustrates our research funding. And it's something that I think we can be incredibly proud of as an institution, since there is-- we've been in such a hostile funding climate in recent years with all the cutbacks. Shown here are different types of funding that we get. The one that is particularly important to the cancer center support grant, part of NCI, is funding that is part of the NCI. And the orange bar actually represents that.

And as I'll get to in a second, we've been very successful in terms of the amount of funding we've been able to obtain from the National Cancer Institute. But in addition to that is just other funding that's considered peer reviewed funding, American Cancer Society, Department of Defense-- like for breast and prostate cancer-- a National Science Foundation, et cetera. And then less important to our being accredited by NCI, but nevertheless important to our clinical trials mechanisms and somewhat to the laboratory for certain projects, are our non-peer reviewed funded projects don't get quite the respect that the other two categories get.

You can see that that's gone up 2010. We had a big bump in 2010 because of something Congress did called ARRA funding. We, like many institutions, were recipients of ARRA funding that went up in 2009 and 2010, but then disappeared in 2011. So we have had a little bit of a decrease in our funding as we've gotten into 2011. But again, if you compare this to where we were in 2008, we're still moving in the right direction in terms of the overall improvement.

This list a breakdown actually as to where the different funding comes from and listed both in terms of number of projects or total number of projects in the second column, as well as total direct costs, which is in the third column. I think one of the things that's important to emphasize is we are actually-- we actually receive a tremendous amount of NCI funding compared to other cancer centers. And if you list all institutions across the country that get NCI funding-- and there are about 400 some institutions-- some are actually outside of the US-- some of them are private foundations-- but of all of these 400 different institutions, some colleges, some medical centers-- we rank about number seven or number eight out of most recent data that NCI provided in 2011.

So it's really quite remarkable to have that amount of funding. We're a little bit further down in terms of the NCI cancer center support. We're probably closer to around number 12 in terms of the number of the 66 cancer centers. We're not getting maybe our fair share of what I would like to think we would deserve based on this funding.

In the past, the cancer center support grant was actually based on a ratio. And it was supposed to be a ratio of the amount of money you brought in from NCI determine the amount of support you would get for the center grant. We're actually doing much better, but unfortunately the financial situation being what it is, NCI doesn't have more funding to give centers like ours that are actually above the bar and doing very well.

The other aspect and probably one of the things that helps define the success of the cancer center in terms of funding is our success with regard to SPORE grants, many of which are actually based with investigators, both principal investigators, as well as project investigators within the Department of Oncology. But we've been very successful thus far in terms of securing SPORE support. At the present time, we have seven SPOREs. The most recent one funded was the ovarian SPORE 2010.

Several of these SPOREs have been refunded competitively in again a very hostile climate in terms of the difficulty of getting NCI grants refunded at the present time. Two of these, the brain SPORE and the breast SPORE, which were reviewed in successive rounds during the three times a year that NCI has these grants up for review, interestingly the breast SPORE rated number one in terms of its round of about 25 different spores being submitted, different disease types at the time. And the brain SPORE did the same in one of the other rounds in 2011. Both of them were refunded in 2011 and represent competitive renewals.

Many of the breast centers we were just talking this morning that there used to be 11 or 12 breast cancer SPOREs that were funded, at the present time, there are only five breast SPOREs funded. Fund Of the lymphoma SPORE, which again our hematologic colleagues have been very much involved in, this was reviewed in 2012 and actually did very well in the February review. We know it, but based on the score that it should be funded as a very competitive score and will be refunded-- I believe that's for the third cycle of five years. Isn't it, Chuck?

The prostate SPORE unfortunately is probably the one SPORE that we have not had so much luck with. The prostate spore has gone in now two times. That's not been refunded based on the score that you see. It's something we plan to go back and do, but we probably need to bring in some new scientists, which we're hoping to do within the next few years.

Myeloma SPORE is an application that we've shared with the Dana-Farber, unfortunately Dana-Farber made the decision-- though they were very dependent on us in getting this funded initially based on myeloma strength at Mayo-- they elected not to include us in the renewal. And we'll probably go in with our own SPORE application representing our all three sites actually, Jacksonville, Arizona, and Rochester. And last, but not least, our pancreatic SPORE is going in for its first competitive renewal in September.

But as listed on the bottom, there are only four institutions that have five or more SPOREs at present. And again, you can pretty much guess which those institutions would be, but Mayo shares that with MD Anderson, Johns Hopkins, and Dana-Farber. The other funding-- and I would mention that these two largest grants that I think contribute to that overall NIH peer reviewed funding, Pharmacogenomics Grant-- the PGRN grant as it's known that's headed up by Dick Weinshilboum-- the phase two and the phase one-- which had been headed up by Chuck Ehrlichman-- Community Clinical Oncology program-- that's been headed up by Charles Loprinzi. And again, all of these have undergoing renewal, which is really quite impressive again in 2011 having received competitive renewals, some of these, not just for one or two cycles, but for several cycles.

And again, we've had a number of training grants. And here too, I think the department and division need to be emphasized in that we've been successful in having a K12 grant within oncology. That's benefited a number of young faculty in the department. We have a few new grants. Interestingly, we have a similar CCOP that we have had for the North Central that Charles has had, that Jeff Sloan from HSR here-- Health Science Research-- secured, and a basic science training grant in angiogenesis that Dev Mukhopadhyay heads up.

The other aspect that I think again is very, very relevant to the Division and to the Department of Oncology is the fact that we have by recent NCI data that it actually hasn't been published, but that's been shared as we go through this co-operative group review. The most recent review of co-operative groups done in 2010 suggested that Mayo Clinic was right at the top of the list in terms of putting patients on protocols that were co-operative group trials. Now this included particularly North Central, which has been a mainstay of the cancer activities, clinical cancer activities at Mayo, but also ACOSOG for which we've had a long-- I wouldn't say long representation, but we've had active representation, including Heidi Nelson who's been PI on that grant, from the Department of Surgery ECOG, where most of our hematologic malignancies are studied, RTOG, and GOG. All of those together, again, we are far above many of our competitor institutions.

And many of you have heard we have just recently gone through a review of the co-operative group structure in this country. There have been 10 adult groups, one trial group, the Children's Oncology group. Although, they used to be two there as well, but the NCI and its wisdom made the decision to reduce from 10 groups to basically going down to four groups. And that's led to a merger of several of the groups.

And as many of you know, we lost our independence as a cancer center having its very own co-operative group with NCCTG. But we have gone on to merge NCCTG with ACOSOG and also joining CALGB We are considering or continuing our involvement of hematologic malignancies within ECOG, which is interesting to note actually dates back to 1972. So that even before North Central came about, we actually were involved in ECOG going back even further.

The decision was made in terms of how we would respond to the NCI action to basically merge three groups. And North Central, as I mentioned, joined CALGB-- which is a much larger entity-- together with ACOSOG-- which is somewhat smaller. And these three entities together form a new co-operative group that's now referred to as the Alliance.

And the Alliance is based with the principal investigator Monica Bertagnolli being in the Dana Partner's cancer center. She heads up the organization, but I'm happy to say that one of the things that's very important for Mayo, giving up its North Central status is that much of the workings of The Alliance continues to remain at Mayo. So the statistics and data center, which had actually-- North Central's had been run by Dan Sargent here for a long time.

More recently, Dan has ACOSOG and then approximately two years ago he took over CALGB. So it was a natural that with the combination of these three groups that he would be out of this large statistical and data center. And that entity is moving completely to Mayo. CALGB, which ran a much larger statistical base, was based out of Duke. And that is now moving slowly to Rochester, where everything will be run out of here.

In addition, informatics support is basically coming out of the Alliance. And a number of other functions have been including a consideration for membership and regulatory support. Some protocol development, particularly with regard to cancer control trials and auditing functions are currently planned for being based out of Rochester. I guess there's still some concern about several of these issues.

One other aspect that's very important, again, in our giving up our leadership in North Central, there is a-- and really the evolution now of having the longstanding North Central CCOP that Charles ran and the more recent CCOP that Jeff Sloan has had-- a whole new structure is being planned for a much larger CCOP type entity. And RFA will be coming out in the next few years, but Jan is the individual who has been picked to run this particular entity. It will have many other subparts, and those will include many of the other personnels and again, several who are from this division and department. So Charles will continue to be very involved in symptom management, cancer in the elderly by Aminah Jatoi, health disparities by Judith Kauer, and then other Mayo people like Jeff Sloan and Paul Limburg are expected to participate as well.

One other entity besides the Alliance, which is an NCI-based co-operative group, is basically the creation of a new structure that would represent non-NCI cooperative group activities. And this entity is called ACCRU. And as many of you know that acronym as-- oncologists all of acronyms-- ACCRU standing for Academic and Community Cancer Researchers United.

And this is going to be mainly an organization that-- it's just getting off the ground now led by Axel Grothey. And most of the disease or division leads will be within-- will be occupied by Mayo personnel. So for example, breast cancer, GYN cancer, GI cancer, all of these are expected to have leaders that come from within Mayo

The publications I think are-- again is an area that we can be quite proud of in terms of publication in high impact journals. During the past five years, we've had quantitatively, of course, a large number of publications. We've tried to break these down further though in terms of judging them on the basis of high impact.

And high impact being defined here as greater than an impact factor of 10 and looking at journals, clinical journals of high impact like the New England Journal, JAMA, JCO, and basic science journals like cell science or the nature of journals. And again, we've done I think remarkably well in terms of our publication record in a number of these high quality journals and not just clinical journals, which I think Mayo has always been expected to excel in, but I think in basic science areas as well.

Well, what about preparation for the renewal? We're now at t minus 10 months and counting till when we submit the next 2,000 page application. And we'll be site visited probably in September or early October of 2013.

One of the things we've done is we've looked to really changing our cancer center structure. I report to Bob Rizza, who is the head of the research field within Mayo. And turn to John Noseworthy. Although, I would note, one of the nice aspects is actually having monthly meetings with John Noseworthy who has been extremely supportive of cancer center and in cancer activities as I'll talk about.

We have a number of deputy directors. Shown in orange are some of the new appointments. We have Ruben Mesa, who how many of you know, a hematologist who was formerly here in Rochester, has gone down to Arizona. And in addition to running HemOnc down there, he's also a deputy director working very closely with me in terms of cancer center activities.

Another new person that's joined is Edith Perez, who previously was in a large position, but we-- I'm sorry, was previously in a Florida position, but has gone on to take the at large position across the three Mayo sites. And Bob Smallridge has been a longstanding Florida endocrinologist who deals in thyroid cancer has taken over again as the director in Florida. Chuck Ehrlichman remains as deputy director for cancer affairs. And Brian Nelson is our deputy director in charge of a rather large complex administrative group that helps really keep the center running.

We've added a couple of other new positions as well, and these include Steve Russell, who took over as associate director for translational research-- Dev Mukhopadhyay, who has been involved in international interactions for the cancer center. We've now started interactions with several different institutions, including two in China, one in India at present, the Karolinska in Stockholm, Paracelsus University in Salzburg, Austria. And we have plans for considering other entities as well.

I've asked Jan to take on a position representing co-operative group activities, because it's so important to NCI. And he is now heading up basically representing as associate director for co-operative group interactions. And Ken Saling is actually assisting him in terms of helping to manage some of those interactions. Much of this has also meant really a financial commitment by Mayo to help smooth over some of the change, but we've made a real commitment to co-operative group activities because of our long standing involvement in the co-operative group program.

Now we've had as of this year 11 programs. We used to have 12 with an imaging program. These include four basic science programs, three of which are very therapeutically oriented shown on the bottom three, developmental therapeutics, immunology, immunotherapy, and gene and viral therapy, again heavy involvement by Department of Oncology staff.

Eva Galanis is running the gene and viral therapy program. Developmental Therapeutics is a shared operation by Scott Kaufmann and one of the basic sciences, scientist in oncology research, Zhenkun Lou. Cell biology is really our basic program, again including mainly members of biochemistry and molecular biology and cancer biology department based down in Jacksonville.

At the present time, we have five clinical programs, hematologic malignancies with a major effort in lymphoma and myeloma, women's cancer with a major involvement in both breast cancer and gynecologic malignancies, GI cancer with involvement virtually throughout the whole GI tract from upper GI through hepatobiliary, pancreatic, and lower GI, and then neuro-oncology, and prostate cancer, and within population sciences cancer prevention and control. And Charles Loprinzi has been a longstanding director. And I hope he'll continue in that position. I have to always twist his arm a little, but he's again a lot of the symptom management activity base there, and genetic epidemiology and risk assessment being one of the other programs. Again, within the five clinical areas, we have a lot of involvement from members of the oncology department.

Now in addition to losing imaging, we are probably going to make the decision to, at least, temporarily inactivate the prostate cancer program. And this is largely because of loss of major amount of funding within the prostate program due to a loss of the prostate support. It does not mean that we are going to abandon this program. We're just going to take it off from prime-time consideration, and we'll plan to basically try to rebuild the program through further recruitment, major recruitment being at the basic science level, but also further clinical recruitment.

As those of you that know that work in the GU area, we certainly have had a need for coverage there. One of the other aspects in terms of bringing back this program will be potentially to bring it back as a genitourinary program rather than a prostate program alone. I'm not going to go through all of these program leaders. I've already alluded to several of them who are actually members of our Department of Oncology. They're listed all here on this particular slide.

Shown here in red is a new appointment, Scott Leischow, who is a PhD behavioral psychologist very much involved in smoking cessation who will be taking over from Richard Hurt before the competitive renewal. I wanted to mention a little bit about membership, because this is something that we really have tried to come back and deal with at the same time being very sensitive to requirements that NCI has with regard to membership.

NCI says that to be a member of an NCI cancer center, you have to be either a funded scientist or a physician, or you have to be a clinician who is a lead on a protocol, on a national protocol study. And this becomes very, very limiting, particularly to our clinicians who are, of course, extremely important in terms of patient accrual and participation in a major part of the cancer center activities. Associate membership is usually for junior faculty members who come in. And we also have a few adjunct memberships where people are actually outside the institution but have a adjunct membership.

A good example is we are very much involved with people from the Translational Genomics Group or TGen based in Arizona. They have adjunct membership. Although, they're not Mayo employees themselves.

But one of the things that I think increasingly we've been concerned about and I particularly, I think, this has been something that's really bothered me is that we need a new category for representing clinicians that haven't really been represented within our cancer care network. And John Noseworthy has-- soon after he took the job-- expressed his desire to really have a Mayo model of cancer care with an idea that really the way we practice oncology would be the same across the three sites dealing with some concerns or complaints that who've gotten back to him that maybe patients were treated differently in Jacksonville and in Arizona from Rochester.

So one idea was to try to make the practice sort of fit into the research design of what the cancer center has been. And we're doing this in a couple of different ways, but one of the ways is really to be able to incorporate the members of our oncology and not oncology, but involved in greater than 20% cancer care activities, for example, radiologists who are very much involved, pathologists very much involved in cancer-related activities. We would like to account them in our cancer center staff. In fact, many of our competitors Cleveland Clinic, MD Anderson, Memorial Sloan Kettering all do this. And yet, we basically have not taken credit for what we have.

Here in Rochester, we have 100 major medical oncologist and hematologist with about 38, I think, now currently in Arizona and about 15 in Florida. And not to be able to take care of the full quantitative capability of that group seems rather foolish. So when I said we have 422 members of the cancer center, we would like to really expand this to be a better representation of what really Mayo offers. So this is one aspect that we're going to change. And we're in the process of doing that now to come up with a new category and again, across the three sites.

The other aspect I think most of us are aware of, we have 18 different groups that are involved in terms of establishing prioritization for protocol studies. These are called DOGs. I just got back from another cancer center external advisory board, where they use the expression DOCs Disease Oriented Committees. And I said maybe that's a better name than DOGs, but I guess for the time being we'll stick with DOGs. But maybe we should go to DOCs.

But as you can see here, this represents most of the major-- the major disease areas, including phase one. We're talking about whether to add another one that would involve population science-related activities, but that's still under discussion. We have a number of shared resources in the cancer center, which benefit the basic scientist, but also the population scientists, such as the survey management and biostatistics and the clinicians, most important of which is the clinical research office and again entities, such as biospecimens accessioning and an another facility called TACMA, which has been our tissue handling facility, which we're going to change the name now to research pathology core in the new-- in the new grant replacing tissue in cell molecular analysis.

I would say that we have a very good involvement with a number of the other centers on campus and have benefited from this in a number of different ways. It always amazes me, again, having just recently been to two other centers that have CTSAs how little involvement there is between the CTSAs and the cancer center. That's not the case at our institution.

We've worked very closely together, and I think we've benefited from both. Many of the activities I think from our clinical research office have benefited the CTSA. And we've benefited from some of the activities they've had, including some obvious entities, such as the inpatient and outpatient research facilities, particularly for gene and viral therapy research. They've also had a very interesting program for master's level people in clinical research education that's been quite valuable.

Center for Innovation-- we have had an interesting activity with the Center for Innovation in terms of our Alaska Native American Activities. Steve Alberts has been involved in some of the initial discussions with this. Sandhya Pruthi, who actually is involved in doing mammography has carried on a small practice of seeing-- I think in the last year consulting on 65 women, who basically were having this from a clinical service perspective, where they had consultation without having someone really to talk with that could explain the aspects of mammography, as well as what the findings were, whether what the follow-up would be needed. I always get a kick out of the fact that one of the things she said in one of her early patients actually asked if she could become-- Sandy could become her physician, even though four time zones away and a couple of thousand miles, but nevertheless I think it turned out to be a very nice activity and one that we hoped to use in terms of research and as a representation of our health disparity activities.

Center for Aging-- we've been working on a senescence component of the cell biology program. And Jolene, as I know, have shown a lot of interest in terms of geriatric oncology. And we've been talking with the head of-- Jim Kirkland, who's the head of the Center for Aging about how we can clinically respond better to both oncology and aging in the area of geriatric oncology.

Center for Individualized Medicine is one that's been of particular interest to us. One reason is because the Center for Individualized medicine co-develops and co-operates many of our shared resources, including the gene analysis facilities with microarray sequencing, biobanking, the BAP or biospecimen accession, and the research pathology facility. But in addition, really, they have taken a major stand in terms of going forward with genomic-based research based in cancer.

And many of you know that gets us very much involved in leading a protocol here called BEAUTY. And I always forget what those letters stand for, but it's not a typical oncological acronym in that someone took-- I think Jim Ingle took the middle letters for the E and A out of breast in creating the BEA of beauty and the U-- I forgot where the U comes from, but it's genomic-based research. But this represents a new type protocol activity.

And as many of you know, tissue is obtained and again, a very much a team approach. Judy Boughey is a surgical oncologist seeing most good share of the breast cancer patients here, sees patients up front together with her colleagues. Samples are collected.

In addition to the usual staging work-up, patients have specimens that go or are basically sent off for genomic research, total genome sequencing, both DNA and RNA, as well as placing the tumor into an animal avatar, in this case, using mirroring species that can take human tumors with the hope that the human tumors can be examined for the effect of different drugs in that tumor model. This is really the first time we've used a genomics approach here at Mayo. And it involves, again, a as I mentioned, a team approach not only with medical oncology with Matt Goetz, Judy Boughey in surgical oncology, Dan Visscher in pathology, but also involving pharmacogenomics team with Dick Weinshilboum, Leeway Wang, and the mouse avatar work being done by Zhenkun Lou.

Chuck Ehrlichman has been very much involved also in terms of helping to negotiate with a number of pharmaceutical companies where drugs will be tested in the tumor. This is a neoadjuvant type protocol. So patients will be treated up front with a chemotherapy regimen and depending on their HER2/neu status with Herceptin and then afterwards get surgery. They will get three tissue examinations during the course of their therapy, but the hope is that we can actually use the genomic-based approach to begin to identify driver genes that are important in tumor development and also experiment with different types of new drugs that potentially may have an effect in that individual cancer specimen.

Cancer for regenerative-- Center for Regenerative Medicine-- we're very much involved in considering developing cancer stem cell biology, BMT biology. And this is with Andre Turzic, in regenerative medicine. In Science of Health Care Delivery, we've been very much involved in terms of considering other options, such as expanding population science into Florida and Arizona and also getting into the area of cancer economics which-- in comparative effectiveness research.

A good example again is with the advent of the proton beam therapy as that comes online. There's still a lot of questions that have not been answered at all therapeutically within this country or other countries in terms of really evaluating the benefit of proton beam demonstrating whether it really is truly a more positive as an effective therapy with less toxicity. And there are certainly opportunities to do their research with the Science of Health Care Delivery group.

Health disparities remain a major effort of ours. We are very challenge in Rochester, because we don't have diverse populations in the Rochester Olmsted area. The populations we have of Somali's, of course, are relatively young and not afflicted with cancer. We have had to seek out other entities particularly in Florida and in Arizona trying to work in those areas, as well as in Alaska with Native Americans, but it remains very important to us. And we've actually spent a fair amount of resources and effort to try to build our health disparity activity.

And again, as I mentioned, it's sort of obvious the location. Florida, particularly, we are attempting to include African-Americans. We've included them on some of the MCA studies. And hematology with multiple myeloma clear that myeloma patients that are African-Americans do worse. So we've had some studies that actually have been scientifically-based down there and again, different questions that are being asked in the Native American population and Hispanic population in Arizona.

Getting ready for the renewal, we have a time table of activities that probably don't concern most people in this room. Although, several of us are very concerned about it, but it will bring us up to the submission of the grant in May of next year and then onto the site visit in October. I just wanted to end up by talking about our vision for the future. And I guess one of the main areas I want to just allude to is this Mayo model of cancer care and the idea of really representing within the cancer center, not just research per se, but also representing the practice and education.

So we want to add those other two shields and just had a meeting yesterday morning that the Board of Governors gave their full approval to go forward with basically the three shield representation being under the cancer center structure. So we plan to add a deputy director for the practice and a deputy director for education. That will-- deputy director for education will go above the level of our current associate director of education, Aminah Jatoi, that is involved with many of the activities that are inherent to education within the cancer center. But this new deputy director for education will address questions such as fellowship training, residency training, that are important just from the clinical education perspective.

And as I mentioned already, we plan to change this whole aspect of membership to make sure that we include all clinicians participating in the clinical practice. Cancer genomics remains a major interest of ours. We're starting out with BEAUTY, which is not an inexpensive study. It's going to cost several million dollars to undertake this study by the time we're done, but it's very, very important to us. And it's our first overall genomic effort into genomic approach in oncology.

Many of you know-- and I did mention it when I mentioned CIM, but we're also working with CIM to develop individualized medicine genomic-based clinics and genomic-based tumor boards, where patients can be seen. And increasingly, we're getting more and more patients that come to Mayo asking-- and particularly those that are well-healed and well-informed-- can I get my genome checked? And an increasingly number of patients have requested this.

In Arizona, with the involvement of TGen nearby, this has actually come to pass. And we now have a protocol on the books down there, but available to patients from Rochester and Florida as well to basically include patients that are looking for genomic studies where no other potential therapy is available. We plan to go on and do other studies very likely. Our next tumor type that we'll go into will be prostate cancer, but we have interest in other tumors.

I know Keith has been working with Bob Smallridge on thyroid cancer with the TGen people. The group in Arizona has also been looking at myeloma in terms of genomic approaches. But we hope that-- the real limiting factor here is funds, because it's extremely expensive. And even though to basically get an individual's genome sequenced cost now much less than it did a few years ago, down below $10,000, it's the analysis of all that data that is really the challenge.

I mentioned BEAUTY. And I'm just going to end up with this slide. And I know I probably went a little bit over time, but if anybody has any questions I am happy to address them.

JAN BUCKNER: So one of the questions that fellows sometimes ask is how do I get involved. And part of the reason for this series is to demonstrate where the opportunities for involvement are. And this was-- I mean, you can see this is comprehensive. I mean, there is-- there are huge, huge research opportunities available. So I'll ask you that, Bob, in terms of as a fellow to get involved with some of the cancer research going on, how do you advise fellows [INAUDIBLE].

ROBERT DIASIO: I think we have some very good examples. [INAUDIBLE] in the back has very involved in her training here in terms of seeking out an individual labratory, in this case, Scott Kaufmann. But I think we've had several other examples of people in oncology who have expressed an interest in research. And I think research I would again emphasize it isn't only lab bench research, not only genomic-based research, but it's really seeking out the investigators.

And one of the things that we hope to do with this series is to inform you. And the idea is to basically have a number the program leaders speak to you about the type of research. So some of its population science research that looks at questions in a large-based population. Some is clinical research, such as research that's Steve's been involved in, or phase one, phase two training like Chuck has involved with, or symptom management like Charles Loprinzi.

So I think there are a lot of opportunities. And I think most of the faculty would be very, very interested to hear your inquiries. It's not for everybody, but it's worth-- it's an important aspect. And it's where we're going.

I think the most amazing thing for those of us that are old enough is to see how oncology has changed so much during the course of our lives in terms of the treatment. And it's going to continue to change. So being in touch with research provides I think a means of staying up-to-date.

JAN BUCKNER: OK. I would just add that everyone on the staff can connect you. And sometimes it's just a matter of sitting down and talking with somebody and saying, well, you know, do I get involved and go to lunch or have some sort of interaction that can be a guide. Mayo's a huge place to avoid getting lost in a complex world, having a guide is a good thing. And the staff are very much willing to do that.