FOOD AND DRUG ADMINISTRATION

Science Board

Meeting

April 21, 2000

8:30 a.m.

U.S. FDA Building

CDER Conference Room

Room 1066

5630 Fishers Lane

Rockville, Maryland

Members of the Science Board to the FDA

Robert S. Langer, ScD. (Chair)
Massachusetts Institute of Technology

Charles A. Sanders, M.D.
Glaxo, Inc. (Retired)

Rita Colwell, Ph.D., D.Sc. (Hon.)
Director, National Science Foundation

Marion Nestle, Ph.D., M.P.H.
New York University, Professor and Chair
Department of Nutrition and Food Studies

Owen Fennema, Ph.D. Professor Emeritus
Department of Food Science, University of Wisconsin

Martin Rosenberg, Ph.D.
Senior Vice President and Director
SmithKline Beecham Pharmaceutical
Research and Development

Edward M. Scolnick, M.D., President
Merck Research Laboratories

Robert M. Nerem, Ph.D., Professor and Director,
Institute of Bioengineering and Bioscience
Georgia Institute of Technology

Harold Davis, D.V.M., Ph.D.
Amgen

Marion W. Anders, D.V.M., Ph.D.
Professor and Chair
Department of Pharmacology
University of Rochester

Michael P. Doyle, Ph.D.,
Professor and Department Head
Department of Food Science and Technology
Center for Food Safety and Quality Enhancement
University of Georgia

Presenters and Meeting Participants

Bernard A. Schwetz, Ph.D., Acting Deputy Commissioner, FDA, and Senior Advisor for Science

Robert Buchanan, Senior Science Advisor and Director, Office of Science, CFSAN

Steve Sundlof, Ph.D., Director of the Center for Veterinary Medicine, FDA

Dan Casciano, Ph.D., Acting Director of NCTR

David Feigel, Ph.D., Director of the Center for Devices and Radiological Health

Dennis Baker, Ph.D., Associate Commissioner for Regulatory Affairs

David Lau, Ph.D., microbiologist

Joseph Levitt, Director, CFSAN

Margaret Miller, Ph.D., OWH

Suzanne Fitzpatrick, Ph.D., FDA

Linda A. Suydam, Senior Associate Commissioner, FDA

Mary Babcock, Director, OHRM, FDA

Alan M. Rulis, Ph.D., Director, Office of Premarket Approval, CFSAN

Dennis Keefe, Ph.D., Assistant to the Director of Premarket Approval, CFSAN

Agenda

P R O C E E D I N G S

DR. SCHWETZ: Good morning to all of you. In a moment of quietness, I'll take the opportunity to get everybody's attention.

Good morning and welcome to the meeting of the Science Board. For those of you who are beyond the podium, I won't be able to see you and you won't be able to see some of us up in the front here; and if you want to move now to get a better view, that's probably why those seats are open right there.

Let me open by extending a heartfelt and sincere apology. I just got a phone call from Dr. Henney's office just a few minutes ago saying that she was sick, and it was the kind of thing that's been going around in our office for the last few days, and people are out for a day or two at that time.

Let me assure you, that as we had prepared for this meeting, Dr. Henney was very thoroughly involved in the preparation for this meeting because this was her first meeting with the Science Board. I can only tell you that

she must be pretty sick to not be here this morning.

She is going to call in later. If she feels good enough to be here, she'll be here; if not, you're stuck with me for the day.

I want to introduce the Board Members and other people around the table, but there are some other things that we need to do first. My first introduction is Sue Bond, the Exec Sec for the Science Board, and Sue has some items of business that we need to talk about before we get in to the rest of the meeting.

Sue?

MS. BOND: I just have some housekeeping items for you, just to let you know that we have some telephones in the suite next door, if anybody needs to make telephone calls; and there's also a public telephone out by the guard's desk. And the restrooms are right outside of this room. There is also a break area there with soda machines and snacks, and we also have snacks and coffee over here.

We have one scheduled break, in the

morning, at 10:30, but we don't have a scheduled break in the afternoon. We do have some energy-lifter type refreshments coming in the afternoon to help you, and we have lunch from 12 to 1. But we're going to ask that everybody -- during the lunch, we're going to have a luncheon for the Science Board members. So if the public can vacate the room, we have a cafeteria next door and we have a break room next door for lunch.

I think that's it for housekeeping. If anybody needs anything, just let me know.

DR. SCHWETZ: Thank you, Sue.

Let me introduce the members of the Board, and then the people around the table beyond the Science Board members.

Let me first introduce our chair, Dr. Robert Langer. Bob is Professor of Chemical and Biomedical Engineering at Massachusetts Institute of Technology, with expertise in the area of biomaterials. He is a member of the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine.

While he has been on the Science Board since 1995, this is the first time that Bob is serving as the chair; he served as alternate chair for Dr. Kipnis a couple of times, but at this time this is the first meeting since Bob has assumed responsibility as the chair of the Science Board. So Bob, we're very pleased to have you serve that function for us.

Then going from my left around the table, Dr. Drag Anders is Professor and Chair of the Department of Pharmacology in the Department of Anesthesiology at the University of Rochester. Expertise in pharmacology, metabolism and toxicology. And while this is the first year that Drag is on the FDA Science Board, he's been on the Science Advisory Board for NCTR for a number of years, and for the recent years has been serving as the chair of the NCTR Science Advisory Board. So Drag comes with that expertise and experience as having been the chair of one of the boards for one of our centers.

Dr. Owen Fennema is Professor Emeritus

of the Department of Food Science at the University of Wisconsin, with expertise in food science and biochemistry. Served as a member of the FDA Food Advisory Committee through 1999 and served as chair of the subcommittee for the peer review of CFSAN's research. This is his first year on the Science Board of the FDA.

Marion Nestle, Professor and Chair of the Department of Nutrition and Food Studies at New York University. Expertise in food and nutrition policy, bacteriology, molecular biology; has been a consumer representative to our FDA Science Board since 1998. Prior to that, Dr. Nestle served on the FDA Food Advisory Council and several department advisory boards; and she was a member of the CFSAN peer review team.

Dr. Harold Davis, Senior Director of Toxicology at Amgen, with experience in toxicology and pathology. And while this is, it's Harold's first year on the FDA Science Board, he has served on the NCTR Science Advisory Board for a number of years; and is

currently helping with the FDA search committee for the Director of NCTR.

Dr. Ed Scolnick, President of Merck Research Laboratories with expertise in biochemical sciences; member of the Institute of Medicine; has held numerous academic appointments and brings a strong industry background to our Board. This is the first year that Ed is on the Science Board.

Dr. Rita Colwell hasn't shown up this morning yet; I'm hoping that she will still come. Director of the National Science Foundation with expertise in marine biology. Served as member of our Science Board since 1997.

Dr. Robert Nerem, Professor and Distinguished Chair of Medicine at the George Woodruff School of Mechanical Engineering, Georgia Institute of Technology. Member of the Institute of Medicine. Expertise in bioengineering and bioscience, and this is his first year on the Science Board of the FDA.

Dr. Martin Rosenberg, Senior Vice

President and Director of Smithkline Beecham Pharmaceutical Research and Development. Expertise in anti-infectives and microbiology. This is his first year on our Science Board, but he also currently serves on the Science Advisory Board for NCTR.

And Mike Doyle isn't here. Mike Doyle is a professor -- and I'm hoping that both of these people will still be with us today. Dr. Doyle is Professor and head of the Department of Food Science and Technology and Director of the Center for Food Safety and Quality Enhancement at the University of Georgia. Expertise in microbiology and food science. This is Mike's first year on the Board. He also served as a member of the CFSAN Peer Review Panel, the report of which you'll be hearing later on this morning.

So those are all the Board Members. Let me introduce the rest of the people around the people briefly.

Joe Levitt, Director of the Center for Food Safety and Applied Nutrition, and Bob

Buchanan, Joe's right hand scientist. You are the right hand scientist.

(Laughter)

Dr. Steve Sundlof, Director of the Center for Veterinary Medicine.

Dan Casciano, the Acting Director of NCTR.

Dennis Baker, the Associate Commissioner for Regulatory Affairs.

And a special introduction; David Lau is a microbiologist, sitting next to Dennis Baker, from our San Francisco lab. David is shadowing me for the week as part of a development training program. So it's an opportunity for him to learn how I execute "Plan B."

(Laughter)

The agenda shows at this point Dr. Henney gives her opening comments.

Introductory Remarks of Dr. Jane Henney, Commissioner of Food and Drugs

DR. SCHWETZ: Fortunately, I have a copy of what she was going to say, but I would

also tell you that they are just bullets, so the intervening comments are mine. This is not a prepared text. Let me assure you that Dr. Henney would have extended heartfelt welcome and thanks to all of you for being here at this Science Board meeting, and particularly those who are new to the Board for your willingness to serve on the Board. She was instrumental in helping to repopulate the Board.

The goal for the Science Board; in the selection of new candidates we had a fair amount of turnover; we brought seven new people onto the Board, and the direction that we're taking the Board is slightly different than what we've had in the past when the members were selected based on their expertise and their background, their positions in the community, in the scientific community. But it wasn't specifically selected on the basis of representing the activities of the Centers of the agency.

At this point Board Members are being selected because you have expertise that is

specific to part of the agency, and that we have board representation that covers the range of the agency; and as a result, the repopulation of the Science Board has tried to accomplish that.

One of the goals that we have in the future is that the Science Board would play an even stronger role in peer review of the science of the agency. So we want Board Members to represent the range of science of the agency.

The intent is that we would have a Science Advisory Board within each of the Centers, and the Office of Regulatory Affairs; and that the person who would be on the Science Board would in some way be affiliated with the Science Advisory Board within one of the centers. You might be a member of it, you might be the chair of it; because we don't have science advisory boards in all the centers right now, that is not how we're going to operate this year. But eventually we'd like to move into that position, so that every center

has a review board and that the Science Board consists of the representatives from those Center and ORA boards.

What we are looking for is that the science board would be advisory to the highest level of FDA management on broad scientific issues of the agency, and consistent with Dr. Henney's efforts to strengthen and rebuild the science base of the agency, that you would have advice on how that process continues to move forward as we try to enhance that science base.

There are some changes that have taken place since the last Science Board meeting, which was before Dr. Henney came in as Commissioner. One of them is that Dr. Elkan Blout, who was a prominent part of all of our Science Board activities in the past, is no longer an expert adviser within the FDA. Elkan has continued to go on his path and is no longer an advisor to the agency, and to the Commissioner.

Instead, I have taken over as that senior science adviser to the Commissioner and

to the agency, and Dr. Henney also asked if I would serve as the Acting Deputy Commissioner while the search goes on for a new Deputy Commissioner. So I've got two hats, as I often have in the past; and one of them will come off when we bring in a new deputy commissioner. So I will continue to serve as the Senior Adviser for Science in our Office of Science.

Dr. Henney has asked, as expected, that when the new commissioner comes in, the new commissioner will be someone with a strong science background, and between myself as the chief scientist and the deputy commissioner with a strong science background, the two of us will represent the science front in the Office of the Commissioner for the agency. And she intentionally wanted that so that it gives a strong message of science next to the commissioner, in her office.

Dr. Henney's priorities continue to be, as I've mentioned, to strengthen the science base; and that has a lot of dimensions to it that we've been working on; everything

from training of our people and retraining of people so that we have the expertise that we need to do the work that's in front of us; but stronger efforts towards recruitment when we have the opportunity to hire people to be sure that we're getting the best people that we can; and efforts to retain the good people that we do have, the people who are doing the job that we need to have done. We tend to have turnover, as every organization does, and it often is people whom we would like to retain.

So we're trying to develop better programs to retain our scientists. So beyond retraining and training and recruitment and retention, there are always issues of facilities and equipment and systems that it takes to do the work; those are all parts of the priorities that the Commissioner has for strengthening the science base of the agency.

As we have built the budgets in the last year and next year, and as we look into these next few years, there are a number of things that are prominent in the agency that

clearly are scientific issues that become part of our budget building process. Those kinds of things are what we consider the -- we give attention to the highest priority risks that we consider are related to the areas that we regulate; and examples I would give you are in the area of medical errors, drugs over the Internet and dietary supplements, what we're doing with clinical studies and IRBs, the interaction that we have there with the products that we regulate.

Blood safety -- these are all things that have been high priorities of the Commissioner since she came in a year and a half ago; they continue to be priorities, but as things like the medical errors and the Internet sales of drugs, new things come up, the emphasis changes, but there aren't any of the priorities that Dr. Henney promised when she was approved in Congress; there aren't any of those that are not a priority anymore.

One of the things that we continue to put more emphasis on within the agency is

leveraging, and more efforts to collaborate with people who can help us. In efforts not only to expand our capacity to do work by leveraging and collaborating through the physical capabilities that colleagues represent in the academic setting or industry, or in other government agencies; but also the opportunity that it represents for us to reach out and get intellectual capacity that we don't have in the agency; and the technology is changing faster now than it has at any time that I remember; and the ability of a federal agency to respond quickly to changing technology is slow when you do it by the process of hiring and training.

So to the extent that we can leverage our resources and reach out where the expertise is already available, and through one way or another bring that expertise to us to benefit the decisions that we need to make, it's a quicker way for us to respond to the changing technology than through a hiring process. But we can't do it all through leveraging, either;

we have to hire people, and you'll be hearing some more about that later on this afternoon.

We have some examples that we consider to be quite successful leveraging activities, and developing the interface between us and the regulated community and the academic community. One of those is a Product Quality Research Institute that's been formed that has to do with the pharmaceutical pooling resources to work on questions that relate to product quality and GMPs. This is work that needs to be done to provide guidance on inspections and GMP activities.

These are studies that can be done through the money that's provided in this foundation from industry; the FDA is involved in it from the standpoint of setting priorities of the work that would be done, and then when the results are generated, this information will be used by industry and by the agency to decide questions that relate to product quality; for example changes in manufacturing that might change the quality of a product.

What kind of data do you need to assure that this change in the manufacturing process doesn't change the product? It's that kind of an effort. So the PQRI is one example where we've been leveraging to get work done that otherwise wouldn't have gotten done, that we would have been conservative and said "Well, you need this and you need that and you need that," when in fact doing a little research defines what you need.

Another one is the Moffett Center in Chicago, an effort that CFSAN has been involved in for a number of years, and it is a place where the food processing industry can come in and work hand-in-hand with FDA researchers dealing with some of the issues that, for example -- and Joe, you can expand on this if you want to -- but pasteurization techniques, and other things that have to do with problems that we're having with foods today; research can be going on there with industry and the FDA to try to understand how to improve the safety of food. So it's another leveraging activity

in a place where we can work side-by-side with industry and academic colleagues to get work done that otherwise wouldn't have gotten done.

One of the things that the Commissioner was going to mention is a survey that was recently released in a draft form. It isn't out yet in a final form, from the University of California-San Diego, it's a group that has been doing a survey on the performance of the FDA every two years for the last six years.

There is interesting information in that survey, because they've gone out to hundreds of companies that we regulate to get information -- this is primarily the pharmaceutical and the device industry -- and ask them just simply how the FDA is doing in terms of its performance in interacting with the industry that we regulate.

Because this has now gone on for several different survey periods at two year intervals we're beginning to be able to see trends. And it becomes even more valuable to

us than it was just the first time or two; and some of the kinds of things that have come out of this suggest that there is an improvement in the communication between the FDA reviewers and the sponsors in terms of the value of presubmission meetings, the ability to get ahold of a reviewer, the length of time it takes to get back, the quality of the guidance that is provided to the industry when more studies are asked for; is it clear what's asked for? Is there a clear definition of what it would take to resolve the question that might have been under discussion.

So there have been a number of improvements, but there are also a couple of problems that were identified that are not new to us; and they are ones that we're working on; and one of the things that we'll talk about this afternoon is, we talk about personnel matters. But for example, one of the difficulties is personnel turnover.

You have a reviewer who's been working on a submission for a period of months, and

that person gets either moved to another project, or what has happened quite a few times is the person gets hired by industry. So that's a double-edged sword. It slows down the process when a submission goes to another reviewer; but part of the cause of that is the people who are doing the reviews are being hired by the companies for whom the reviews are being done.

So we have this problem of turnover of people, and that's something that we're going to be working on to see if that can be made more smooth than it has been before.

There still is room for progress on presubmission meetings between the FDA and the companies, and that's something that we will continue to work on.

So the survey has given us that kind of guidance, and it helps us to confirm what our priorities should be as we work on trying to improve our performance.

Well, how can the Science Board be of specific help to us? The broad statement would

be that you can help us to assure the high quality of science at the agency; that would be a general expectation that we would have. There are more specific things, of course. One of them is that we would like the Board to be more actively engaged in the peer review process of the science of the agency.

We have undergone a review under the direction of the science board of the Center for Biologics, and more recently the Center for Food Safety and Applied Nutrition. We're going to continue to move through the other centers in doing these peer reviews, but we want the Board to be more actively engaged in peer review than it had been before we started this center-by-center review.

So that's one of the things that we want to get from the Board; is advice on how peer reviews should be done, from your experience. But probably more importantly, as we learn more from these peer reviews, how to improve the science of the centers on the basis of what we learn from the peer reviews.

We would like to have your advice as we go forward on retention of employees and recruitment of employees, the scientists of the agency, and to get your input on how we can best do that from -- you represent a range of experience, and we would like to learn. We will be telling you this afternoon, in the case of Alan Rulis, of an example where we have an opportunity to hire about 50 people, and it's uncommon in this agency today that you get to hire very much people except for the areas that are supported by user fees where we have hired up; but it isn't very often that we get an opportunity to hire a block of 50 scientists at that time.

I've asked Alan Rulis to bring his plan to you, at an early stage, to lay out how they're going to make that entire activity, make it work. What I'd like to do then is bring it back to the Board in six months or a year, whatever, to look at the progress that is being made when we are hiring this significant block of people, and get your advice on how it

could have been done better or just in general whether we got the right scientists, if we got the best ones that we could; so that's another area that we would like your help on.

I've already mentioned the need for us to retain the flexibility that it takes to respond to new issues and new technology. And again you coming from organizations where flexibility is important, we would benefit from your advice and comments on how to build flexibility into our workforce so that we're able to respond and anticipate what kinds of science backgrounds we need in the agency to be able to deal with the issues.

In addition, one of the things that we would hope that Science Board members would also do is to serve as ambassadors for the FDA; that as you learn more about the agency and what our issues are, that as you have the opportunity to clarify in public or in your organizations -- Mike, join us at the table, please. This is Mike Doyle. Mike, glad you could be here.

That you would serve as someone who can clarify what the agency is about, and that you are involved in the science and we would just ask that you would speak up as you see fit for the agency.

So those are some of the things that -- and I haven't followed Dr. Henney's bullets point-by-point exactly, but that's the general -- Mike, I explained that Dr. Henney is sick today, and we just learned that a little bit this morning, a little bit ago. So I am just giving opening comments on her behalf.

With that, I would open it up for any discussion or questions or -- before we move on to the rest of the program.

Let me explain also, one of the functions of "the shadow" is that any questions today that I can't answer automatically go to David.

(Laughter)

I didn't tell you that earlier, David. But please stay for the meeting.

Any comments or questions before we

start?

Then Bob, I'll turn it over to you.

DR. LANGER: The first presentation will be by Dr. Fennema, which will discuss the Science Board report on the Center for Food Safety and Applied Nutrition. So I'll just turn it over to you.

Science Board Report on the Review of Research at Center for Food Safety and Applied Nutrition

[Dual screen displays]

DR. FENNEMA: I thank you, Mr. Chairman, and it is a pleasure to present to you the results of this review, which was in fact itself a pleasure to do, because of the cooperation of all parties. So I have a few transparencies to take you through here, which will kind of give you the essence of what happened and what some of our recommendations were.

[Interruption; fixing audio]

[Overhead]

DR. FENNEMA: This first slide that you see here is simply kind of the nuts and

bolts of how the committee was put together and when it took place. It was done of course under the authority of this Board here, and it took place in April of last year in the Cohen Building in Downtown Washington, D.C.

The emphasis of the review was on the research activities of CFSAN, and the objectives were to improve the operating procedures and management practices of CFSAN so that it can continually and easily update its priorities in accordance with needs, and accomplish its mission-related tasks more rapidly, efficiently and effectively.

So the committee consists of 22 members; all of you at least on the Science Board have the full copy, and in the Appendix One are listed the 22 members that took part in this review.

The nominations for service on this review committee came from the Science Board and from CFSAN itself; and I contributed to it myself, and these were discussed and a committee was ultimately picked in that manner.

The procedure went as follows: CFSAN provided the review committee with relevant documents in advance of the meeting, and this was quite a large stack of material, as you might imagine, this committee had to review.

Then during the course of the review, there were basically six presentations made by CFSAN personnel, and each of these presentations was followed by rather extensive discussion.

And throughout the course of the several days, there was discussion between the CFSAN senior management and the review committee, covering issues which were best dealt with in that particular fashion; and then at the conclusion of the review, the committee met in isolation, had a whole battery of computers at their disposal, and there were six subcommittee chairs, and these subcommittees got together and drafted the rough drafts of their recommendations. These then were all given to me, and I went back and put those together as best I could, and consulted with

the sub chairs, and the report was finally put together.

So the next phase.

[Overhead]

So these are some general aspects of the results of the review; and this now refers to CFSAN, the research quality is considered generally good and no doubt, no surprise, that there is some variation in the quality of research among groups. All the research groups are doing appropriate kinds of things. The types of activities and level of support in the committee judged barely adequate to accomplish CFSAN's mission. That again came as no surprise to anyone.

There is a recommendation that CFSAN must maintain mission-related research programs of world-class quality, and of a size commensurate with its mission. That, in the committee judgment, is a very, very important principle that should be kept in mind constantly; and all those who are involved with budgets should be aware of that.

For balance, the programs in toxicology and applied nutrition need to be strengthened; in the response that will come right after this, you'll see some efforts being made in that particular regard. And in personnel, make greater use of postdoctoral and student personnel; increase the number of support personnel for scientists. That is a deficiency which occurs in many, many organizations; industrial organizations, universities as well as government. There's a lot of chiefs and not enough Indians, and that's certainly true within FDA that that prevails.

Improve the performance review procedures. It was our impression, on the review committee, that these procedures being used to review the performance of FDA personnel needed to be upgraded and improved, and I think that can be fairly easily done.

Strengthen professional development programs. And the next, please?

[Overhead]

In terms of management, a strategic plan should be developed soon. That is in the process of being done; I believe you'll hear something about that in the response.

All personnel should be fully cognizant of the goals of their programs, and each project should be reviewed annually. Thirdly, CFSAN should budget on the basis of programs rather than FTEs, full-time equivalents; which is easy to say and may be difficult to do, but it would be a good approach to be taken.

The Science Board and CFSAN management should consider this review the first of three steps. Step 2 should occur six to nine months after Step 1 and should consist of a review of progress toward developing a sound management strategic plan; Step 3 should occur 12 to 18 months after Step 1 and should consist of an evaluation of how well CFSAN research activities correspond to the strategic plan.

None of that is happening as far as I know, but that was something that the review

committee considered desirable.

[Overhead]

Some other matters: Research activities at FDA field laboratories should be carefully assessed as to appropriateness. We had a little uneasiness about this, and whether this money being spent on research activities at field laboratories was the best way to expend research funds. We recognized that some of this is indeed appropriate, but we weren't convinced that all of it was.

Emergency response procedures appear to be effective, but care should be taken to assure that these procedures do not disrupt unduly the work of ongoing programs. This is a difficult task to do. When an emergency comes upon the agency, they take personnel from wherever it is needed to respond to the emergency, and this does have the effect of interrupting the progress of other programs within the agency; and this is something that needs to be looked at carefully, in the committee's judgment.

Purchases of instruments should be carefully prioritized; you'll hear something about that in the response as well. Certification of laboratories should be accomplished in all instances where this is critical to accomplishment of the CFSAN mission, particularly in regulatory issues this is a point of critical importance.

Research on cosmetics should be closely coordinated with other dermatology, transdermal research being conducted by FDA. And participation of CFSAN personnel in CODEX and other similar international programs should continue.

This is an important point, in the committee's judgment, that FDA personnel be kind of involved in a matrix, and the interaction with industry and other governmental agencies across the world in all of these kinds of activities.

The FDA should in fact be a leader in these kinds of activities, and this is, I think and the committee thinks imperative. One of

the features that is imperative to maintaining a comfortable, rewarding atmosphere for personnel within FDA. It's not that they get stuck in their little hole in Washington, D.C., but they're allowed to get out and interact with their peers in other groups and agencies. This is a stimulating sort of experience, and very, very important in the committee's judgment.

CFSAN should assure that information on relevant new technologies is transferred effectively to the food industry. Again, you'll hear some response to that in a moment.

Next, please.

[Overhead]

There are six individual programs that FDA is organized in in terms of CFSAN activities, research activities; and just a few comments about each one of those. The antimicrobial resistance and tolerance, research in this area is important, it should be carefully integrated with work in other centers of FDA and with other governmental

agencies.

Hazard assessment, chemical risk, this is an important area and work should be coordinated with other centers in FDA. This is one of the best ways to make best use of personnel, is this cooperative procedure which the committee has alluded to here.

Microbial risk, FDA should be a world leader in this area and continue partnership with CDCP; results should be used to improve asept protocols, and in cooperation with other agencies develop a public health-oriented approach to establishing regulatory priorities encompassing the full food chain.

All right. Then the Methods Development Group, FDA should develop in cooperation with other relevant government agencies a plan for methods development that encompasses all aspects of food safety. Duplication of activities in academia and industry should be avoided. Again, this should be done in cooperation rather than competitively with these other groups.

Next, please.

[Overhead]

The prevention and intervention program, CFSAN should continue to determine, in cooperation with other groups, safe practices for new or modified food processes. Secondly, CFSAN should be a world leader in establishing standards and procedures for assuring the safety of food crossing international boundaries.

Like it or not, FDA is in a role where that is absolutely essential that that be done.

Regulatory testing analysis and color certification, the regulatory testing, the current practice of operating all laboratories under a good laboratory practices quality assurance program and maintaining certification of those laboratories conducting analyses for regulatory purposes is strongly endorsed. This, in the committee's view, is absolutely essential.

Color certification, new methods and instruments should be continue to be evaluated

and put into use to enhance service to clients and to maintain appropriate skills with CFSAN.

And applied nutrition, foods and food labeling, a strategic plan is needed; program collaboration with appropriate groups in and outside government should be pursued, and areas of special importance include dietary supplements, natural products, nutri-suitables and allergens.

Next, please.

[Overhead]

This is something that struck me rather strongly, and I think many members of the committee as well, that there were some shortcomings in the review. This has nothing to do with lack of cooperation, because the cooperation with all members of CFSAN was indeed excellent; they did everything in the way of cooperation that anyone could expect them to do. But there are some ways the review procedure can be improved.

So there don't appear to be any standard procedures for the conduct of FDA

reviews. This to me is a serious shortcoming, and the committee feels that way; that this is something that we should have a document of some kind -- it doesn't have to be very long; several pages will do -- describing to the units which are to be reviewed what is expected of them in advance.

And CFSAN's intentions were indeed sincere, as I mentioned; but a lack of instructions well in advance of the review lessened the value of the review. And particularly important was that the process of self-evaluation which, in my judgment and in the opinions of many on the committee, is absolutely crucial to a good review, was not conducted.

Review committees like to hear what the group being reviewed feels are weaknesses, strengths, where areas can be improved; and we heard very little of that. Some of that we eventually were able to gain from the leaders in CFSAN through private consultations, but this is something that should take a fair

amount of time within the group being reviewed to conduct this self-evaluation and to write a document which deals with self-evaluation.

The results of the review would be immensely better if this were done; and that's one of the aspects, in the committee's judgment, should be built into these guidelines for reviews.

So the recommendation here is -- and this doesn't deal with CFSAN; this deals with this Board right here, that the FDA Science Board should prepare guidelines on how to prepare a review. And further FDA review should not be conducted until these guidelines are in place. And I think that would greatly enhance the value of them.

So thank you. If there are any questions at this point, I would be happy to try to answer them.

DR. LANGER: Any questions at this point? Or would people like to go on to hear the response, and then ask questions.

DR. DAVIS: Just one question, as a

new member. How long did the review take?

DR. FENNEMA: Three days, I believe it was. Is that right, Mike? Yes.

DR. LANGER: Other questions?

[No response.]

Then maybe we'll go on to the response, and then maybe we'll have more questions.

FDA Response

MR. LEVITT: Thank you. Dr. Buchanan is going to give our detailed response. I want to just give a few minutes to kind of set the stage for him.

First of all, I want to thank Dr. Fennema and other members of the review panel, several of which are sitting here in front of us today; Dr. Nestle, Dr. Doyle. We found this process very, very helpful to us. I really want to thank you both for the time, the commitment and the level of expertise and energy that was brought to the process. And Dr. Buchanan will lay out a number of things, what they're trying to do is helping us with

our planning, with our budgeting, and across the board.

And I, too, am sorry Dr. Henney is not here today. But I can assure you, I have worked at FDA for over 20 years, and there is no commissioner I've worked with that has highlighted more the importance of science undergirding all these activities than Dr. Henney is. So I'm sure she must be pretty sick, to keep her away from this meeting today.

For those of you who don't know me, I'm not a scientist; I'm a lawyer, and when I took this job a couple years ago, it was very clear to me that I needed to be sure if I was operating effectively in the job. I needed to surround myself with strong scientists.

So one of my first appointments was Dr. Bob Buchanan, who is a microbiologist, has a background in a number of areas; worked at U.S.D.A. as well as at FDA, and he headed up our review team. He did not do it by himself; there are others, and I'll mention those in a minute.

I also want to introduce to the group Dr. Susan Alpert, who has recently joined us.

Susan, if you'll stand up in the back -- who is our Director of Food Safety. Susan is a pediatrician with a background in infectious disease as well as a microbiologist who worked most recently in the Center for Devices and Radiological Health; their loss is our gain. And already, in just a few months, she's having a major positive impact on our program.

We also have, in addition, about a half a dozen scientists that have met the criteria for SBRS, the Senior Biomedical Research Service. And a number of them are here. Sam Page, who is our scientific director of JIFSAN -- if you could stand up, Sam. Sam has worked in the center for many years, has expertise in chemistry and a lot of other areas; and a wealth of knowledge and information, and is one of the key people that helped put together our review team.

I also see Tom Sabulla, expert in

molecular biology, and again is one of our -- when somebody was talking about world-class scientists, Tom Sabulla is one of the people they were talking about in the antimicrobial resistance area.

In terms of new hires, I see Bob Bracket here, who has recently joined us, from a place that Michael Doyle knows well, in microbiology; and again, just a very short time. We're delighted that this is the kind of people that we are able to attract into our program.

Not with us here today, but Bob will mention that we have recently elevated Dr. Beth Yetli (ph) to the role of what we call lead scientist in nutrition, as a way to help bolster and provide more leadership in that area. We also had two recruits over the last couple of years; Arthur Miller and Richard Weiding (ph) that Bob Buchanan both helped recruit from U.S.D.A. Art Miller is serving as our lead scientist on the Food Safety Initiative, Richard Weiding on Risk Assessment

-- and would be here, but he is locked in a closet working on our Listeria risk assessment -- in terms of trying to bring that to closure.

We also have worked hard and will continue to continue our collaborations with other parts of FDA, especially with Steve Sundlof, his group at CVM; Dan Casciano at NCTR, and Dennis Baker in ORA.

I like to joke that -- I feel I can because I've worked in all parts of FDA -- that FDA kind of has the medical half and the edible half; and we're kind of representing the edible half of the FDA.

But I think especially through the Food Safety Initiative we fund a lot of additional collaborations. In particular, Dennis Baker and I have embarked on a pretty substantial effort. The field has about 50 percent of its resources devoted to the foods program. We are actually the only part of FDA that has a larger component in the field than we have at headquarters.

So we have embarked on a major, if you

will, team building and collaboration effort across all of our major program areas, and one of the areas is laboratory management. And some of the comments that Dr. Fennema mentioned will be undertaken within that auspices. We have the good fortune of having some new laboratories in Arkansas and in New York; so as we start to redesign the laboratories, we can build in some of today's needs that we have.

And finally, we're working on strengthening our efforts with other federal agencies and state agencies as well; particularly CDC, U.S.D.A., EPA, increasing work with NIH and the area of dietary supplements that I'll speak to a little later on.

As well as really across the country in the state departments of health and departments of agriculture also. So we feel that this is a program that is trying to build very strongly on a foundation of science; we have benefited over the last couple of years the increased resources. Those resources on

one hand have been earmarked. On the other hand they have been earmarked in some important areas; and that has helped us kind of turn the corner.

We had about 20 years of pretty close downward trend; we've had a 20 percent reduction over 20 years in the personnel in our program, the only program in FDA that has had downward as opposed to an upward trend over that period. And the Food Safety Initiative has given us a real booster shot to turn that around.

And we recently also received the resources for our food additive review process. We'll be able to strengthen expertise in toxicology and chemistry and other areas. So we feel we're on the upturn. I think that this report came at the perfect time for us to use and build in that building process.

And with that short introduction -- I hope it was short -- I'll ask Bob Buchanan to give a more detailed review.

DR. BUCHANAN: Thank you, Joe.

[Overhead]

First I'd like to start off by thanking Owen and Marion and Mike and the rest of the team. There was a question that came up, how many days did this review take place, and by the calendar, it was three. By number of hours per day, it was about eight.

They were very long days; they started very early in the morning and they lasted very late at night. And when they weren't actively seeking information, they were holed up with their dozen computers, and everyone seemed to be very computer literate, certainly on the team. I walked in at one point and they were all typing away.

We want to thank our team; they did a marvelous job. I'd also like to focus a little bit on our responses.

As you can see from the dates on the report, there has been, because of the Science Board's -- a substantial lapse; so I'd like to focus not so much on the report and commenting specifically on the specifics of it in terms of

"yes or no we don't agree," to "almost everything that's in the report, we agree."

What we'd like to take the time to do is to take and tell you what we've done in the intervening year to actually deal with some of the issues, and also talk about some of our plans to deal with additional issues that we haven't had time to get to yet.

[Overhead]

I'd like to just briefly talk on the three points here on the overall evaluation, and then I'll come back to some more specifics that were raised on what we've done.

As the review team quickly found out, that we had almost two systems of research when they reviewed us, or research management. One associated with the Food Safety Initiative that had very strict accountability requirements with the funds that came in with it, as opposed to the sort of less accountable nature of the research activities that had taken place before.

This has been changing during the past

year as a result of two things, and I'll get to more details also later in my commentary. One is that during the past year, there is a broadening of the Food Safety Initiative to include a much wider range of activities.

So, for example, there is now an inclusion of pesticides, natural toxins, et cetera, items that hadn't previously been under the mandate. So we see the Food Safety Initiative embracing those areas and also we have the capability of devoting some of the funds that came in with the Food Safety Initiative to those areas.

We've also used the Food Safety Initiative to experiment on how we can better manage our scientific resources. And the lessons that we've learned during the past two years with this approach, we're taking those lessons and now broadening them to our entire research activities, center-wide.

We have done some very specific things in trying to help this coordination and increase both our planning process and our

accountability.

Joe already mentioned that I was appointed the Senior Science Advisor and head of the CFSAN Office of Science, whose function is to focus and coordinate our planning activities, our active use of our resources, and also help provide a review function.

We've also, to help in this process, formed the CFSAN Science Council, which is a multidisciplinary council of our senior scientists that meet approximately monthly to discuss issues that have come up of a scientific nature. I was also very pleased to hear Bern mentioning that we can now rely on the Science Board and get you involved in our activity through our Senior Science Council; so I'm certainly looking forward to involving Owen and Marion and Mike in some of our activities, as much as I know your busy schedules will allow it.

[Overhead]

Let's talk about a couple of specifics. Two areas in terms of broad program

that were identified as needing strengthening or certainly recommendations that we strengthen were in the areas of toxicology and also in the areas of nutrition.

I want to link these together, because they actively are linked together in our program. Talk about a couple of things that have taken place during the past year. One is in the area of recruitments; we have been given permission and have started the recruitment process for two senior level scientists that we think will be key to the area of recruitment. One of them will be an SBRS level toxicologist that we are going to be starting a national recruitment on shortly.

The second has to do with one of our facilities; and we have just completed a yearlong review of our activities at our primary site for doing toxicological research within JIFSAN; this is our facility that is known as Mod 1.

Now we've taken a complete look at Mod 1, how we conduct business out there or what

kind of research is taking place, and it's helped focus our activities in terms of our toxicological capabilities, both in terms of the personnel, the services that they provide, the research that they do, and the infrastructure and the organizational needs that are associated with that.

The draft report has been just submitted, and one of the recommendations of that draft report which will be finalized shortly is the establishment of a program office at Mod 1. Which would include again the recruitment of an SBRS director that will be responsible for both the program and the administrative aspects of that facility.

We feel that that will have a tremendous impact on having a champion to help focus our toxicological work.

I'd like to also mention collaborations. We've spent a great deal of time during the past year trying to establish increased collaboration and leveraging both within FDA and also with some of our both

formal consortia and with the scientific community.

I'd like to first highlight the fact that we continue to work closely with JIFSAN, our Joint Institute for Food Safety and Applied Nutrition here in conjunction with the University of Maryland; and we've seen a substantial increase in the collaborative projects with this organization.

We've also built bridges to Arkansas, and we continue to try and enhance that; in fact, we just had a team that came back -- I guess they were down last Friday.

Looking into the next area, and if I can have the next slide.

[Overhead]

Is the identified area that we need to target some of our research activities, is it strength our nutrition program? And we've had several different activities associated with this; and this includes a rather in-depth review of what kinds of research that we're doing in the area of nutrition; and why we will

maintain active research activities and a variety of subjects in nutrition.

I want to indicate that we are going to be doing a high degree of focus in the area of dietary supplements. We'll be hearing more about our dietary supplement strategic plan from Joe in a few minutes. But this is, in terms of the agency's need, the most particular need, the most important need in terms of nutrition research now.

So there will be a focusing of our nutrition research -- not totally, but certainly in this area -- and this is intimately tied in with our toxicological program. Since one of the primary areas we're interested in is going to be in developing methods for the evaluation of the safety of these products.

Now in conjunction with this, there has been a realignment within the Center in terms of nutrition; there has been a merging of our office of Food Labeling, and our office of Special Nutritionals into a single

organizational entity.

In this process, we have also elevated Dr. Beth Yetli, one of our SBRS-level scientists; she has been named as lead scientist for nutrition. She is now part of the Office of Science staff, and one of her key roles is developing the research agenda in the area of nutrition, particularly in the area of dietary supplements.

[Sound signal failure; 20 seconds lost.

DR. BUCHANAN: Again I want to point out that the reevaluation and the total review of the toxicology program is one that has helped also focus our work in dietary supplements.

[Sound signal failure; 5 seconds lost.]

I'd like to believe it's my electrifying personality.

(Laughter)

MR. LEVITT: I thought it was [signal loss] a response.

(Laughter)

DR. BUCHANAN: That, too.

We have also had a high degree of interest in - [signal loss] - focuses of FDA; and that's establishing doing things through leveraging.

One that I wanted to highlight here is, we had in-depth discussion on the development of a collaboration between the University of Mississippi's national center -- [microphone adjustment]

Okay, I'll just speak up a little louder and bounce it -- I'll ricochet it off of here and back to you.

One that I wanted to highlight is, we've had in-depth discussions in planning for new research activities in conjunction with the University of Mississippi's National Center for Natural Products Research.

And this will be in the area of a collaboration between [signal loss] CFSAN and the Center for Toxicological Research and the university. And we're very excited about being able to augment our research capability in dietary supplements through this and other

activities including our activities with JIFSAN.

Can I have the next slide, please.

[Overhead]

A couple of issues about Personnel Management, and just some activities that I wanted to highlight. Again taking the cue for things that appeared in the report in terms of recommendations and things that were actively -- [adjusting microphone]

I wanted to mention four, though there are only 3 on the slide; there's one I'll stick in in the middle of it. One is the recommendation for a postdoctoral program. We couldn't agree with you more; but actually in setting this up we have just initiated what we call a competitive intramural laboratory support program, where we will be asking our scientists with a certain degree of funds that we have available for this, to put in proposals for either postdocs, support scientists, student interns, a variety of potential supports to help us in our attempt to both keep

the science fresh and also provides a means of reducing the ration of principal investigators to support personnel.

Now this is always a dilemma for us because as we go through and I make please to make sure that we have an appropriate ratio; but we also, our scientists work in the review area, too. So there's always this balance; do we need a high level scientist to help with the review function or do we need to have additional support personnel.

So we're trying to find that delicate balance, and this is one of the tools that we think will help.

In terms of this process, we're also going to be relying very heavily on JIFSAN and NCFST, our National Center for Food Safety and Technology, in Summit, Illinois, to provide us with both training opportunities -- and both of them have an educational component and we're hoping to tap into that more actively. Probably the one that rises to the surface right now is getting our risk analysis program

at JIFSAN started, and this is certainly one of our high priorities at JIFSAN.

The third item, which does not appear on this, is that I'm very pleased to announce that we will be starting a CFSAN staff college shortly, and hope to have it up and running for the beginning of the new fiscal year. Joe just gave me permission last night to be able to announce the formation of this staff college.

The other area that I wanted to point out, again looking for ways to increase the productivity of our scientists, is we have just initiated a review task force that will be going back and looking how we conduct peer reviews of our individual scientists within CFSAN, to identify if there is anything in that process that is acting as a barrier to their advancement.

Again, we're looking to get the most from our scientists and make sure that their careers advance throughout their careers.

Next slide, please.

[Overhead]

One of the reasons that we're volunteered to be sort of high on the list of people that went through a program review is that we had an interest and we had an opportunity in time, and we had a perceived need to better manage our research resources.

We've used your report as the basis for some initiating a variety of activities. I'd like to just highlight a couple of them, and also talk a little bit about strategic planning.

As we took the recommendation for strategic planning and read it, we realized that while we were actively doing strategic planning in individual areas, and -- [sound signal loss]

We've taken to heart the recommendation on equipment purchases. We now have a center-wide priority setting process for the purchase of equipment, which has been conducted now for two years; first only with FSI, and this past year for all scientific equipment.

This has had the added benefit of, when we have a priority list and monies become available, we're able to jump in at the last minute and be able to purchase it. So we've done incredibly well in the acquisition of scientific equipment this past year; including funding major pieces of equipment including two new mass specs. So I am very pleased with the way this has worked.

We continue to support and, both in spirit and also in terms of finances, the establishment of the Joint Institute for Food Safety Research. This is the interagency committee for setting research priorities in food safety, that is working in conjunction with the President's Food Safety Council. I believe that they're just about to name the new director of this group, after completion of the interviews that took place a few weeks ago.

Other activities, we note the support in terms of lab accreditation, and in fact this is a cry that has taken place all the way up to the commissioner, and the FDA itself is busily

involved in accrediting all of these laboratories that do regulatory samples; and I'm sure that Bern can supply you more details about what's taking place across the entire agency; but certainly we have an active group that is planning first to accredit our color certification program and then the rest of our regulatory samples over the course of the next two years.

We note your concerns about our ability to transfer technology. We agree with those concerns, we've put a lot of work into working with our National Center for Food Safety and Technology, as an example of how we've done it successfully. We're also working with the rest of the agency to find out how we can do this better, faster and more effectively.

[Overhead]

Just to make sure that the Board doesn't think that we've ignored some of their individual recommendations in terms of program, I did want to put up two of these. One, we

thank you for the vote of competence in the area of antimicrobial resistance. Our researchers here are working very closely in conjunction with the other activities in antimicrobial resistance throughout the agency. We noted some of your concerns in the area of research and tolerances, the development of tolerances by organisms, and we had a review and refocusing of that to primarily support our regulatory needs in the development of standards such as the standards for pasteurization and other processing.

Methods development, we again note your concerns about the potential for redundancy. We've again gone back and we continue to look at that. I might note that we just got very good grades from a GAO report on how we use methods, and our methods development research; they were very supportive of our activities, and we continue to keep these focused in conjunction with our needs to develop official methods and to be able to evaluate them in terms of our needs for

different food matrices.

I do want to point out that we keep an active involvement in not only rapid methods but also more classical methods that are an integral part of our regulatory mission.

[Overhead]

And then I'd like to end this on a note with the recommendation that we get out and work with people that are out in industry. This is industry and academia, et cetera. This is one of the key notes of the Commissioner's remarks earlier -- or our fill-in for the Commissioner.

Leveraging is a way of life with CFSAN; it always has been, and we continue to try and emphasize that. Two that I just wanted to highlight that have been activities since the review: Risk assessment continues to take an increasing important role both as a scientific endeavor and as part of the way we do business in terms of our regulatory mission.

We have become the world-class organization in microbiological risk

assessment, joining that with our being in terms of food chemicals, the premiere agency in the world for that type of activity. We've made sure that these work in parallel. Some of the reflection on that is us being actively recruited by both WHO and FAO to help them take microbial risk assessment and apply it on an international level.

I do want to give, and correct one impression. Currently I believe there are 18 different CODEX committees, CODEX alimentarious committees. Of those 18, I believe that FDA has the lead in 14 of them. A typical committee not only has the delegate, but also has anywhere between 25 and 50 scientists that are working with them, both from industry, from the regulatory agencies, et cetera.

And while I can't talk about all of the committees, I am the delegate for the Food Hygiene Committee, and I know we've expanded and continue to expand and bring in not just our senior people, but our bench-level scientists to help us deal with the issues that

are brought before CODEX.

So in summing this up, we want to again thank the Board for their review; we thought that it was extremely useful to us and certainly reinforced our own thoughts on how to improve our research and laboratory programs, and look forward to having you come back and help us with some of the details as we go into more depth with individual research programs.

Thank you.

DR. LANGER: Do you have anything you want to add?

DR. FENNEMA: A couple of things. One, I think the response to the review is excellent. They considered virtually all the major points in their version of the response to review, so I think that is an element of this process.

Then I have one specific question; relating back to your written report, which is under the category of personnel management issues, on page 3, you speak here -- and this is in the area of professional development

about which the committee has great concern. We speak here about the development of a tactical program where you intend to bring in people from universities to spend time at FDA. What about the reverse of FDA personnel spending some time in industry or universities, short periods of time to upgrade their skills?

DR. BUCHANAN: I guess I -- in trying to respond to a whole range of [sound signal malfunction, 5 seconds] It's following me around.

I didn't have a chance to indicate that, where we're going on that. And I consider this part of our development of a staff college, an active sabbatical program, and getting the resources is something that we have earmarked for enhancing our science-based activities.

This has always been a problem of getting the resources, but we've earmarked the resources starting in 2001 to enhance this program. We'll be setting up a procedure by which our people can apply for the sabbatical.

It will of necessity start small but hopefully will build.

On the converse, we're actively interested in and have been approached by a number of people within the academic community about taking the opportunity when they do sabbaticals to come in and learn about the regulatory process and being involved in that type of activity; and we're very excited about this potential, and again, this has been earmarked as part of our 2001 activities. You know, we're always working two years ahead on the budget, but certainly both of those are things that we're interested in. And will probably be handled under the auspices of the staff college.

DR. LANGER: Why don't we open it up for general discussion. Go ahead.

DR. ANDERS: Could you elaborate on CFSAN science council, the composition of it? How are members selected, rotated, what its objectives are? And I don't know if you -- do you have an external scientific advisory board

now?

DR. BUCHANAN: No, and I believe our external science -- what I've been hearing from Bern is that we're going to be able to use you to augment our specific people to help us at one of the sounding boards.

MR. LEVITT: We are also in the process of restructuring our Foods Advisory Committee to benefit others; Mary Nestle has been on it, and expand that significantly with expertise in particular areas to help assert that function.

DR. ANDERS: So then how would your science council interact?

DR. BUCHANAN: Our science council right now is primarily an internal sounding board for issues related to the day-by-day operation of science within the center.

When we've been actively seeking advice on scientific issues outside the agency, we do have a very formal food advisory committee that is set up and structured and has, all official advisory committees within

the government, they are very detailed, they have very specific requirements about how we go out and select members. That is something that we are in the process of finalizing and restructuring, where we're going to take our core advisory committee and then supplement it such that we have a current time for subcommittees that will work in conjunction with the advisory committee.

Those subcommittees, and I'll see if I can get them right: One is biotechnology, one is food ingredients and additives, one is food contaminants and natural toxicants, and dietary supplements is the fourth. So that will be the supplementation and expansion of our advisory committee.

The senior science council is at this point, and I might note that after a year of operation we're going back and looking at our charter to make sure we have the right mix of people. But it includes key representatives from the different program offices, their scientific -- making sure we get representation

of the different program needs. It also includes virtually all of our SBS-level scientists, it includes some key people from different committees, science committees such as our cancer assessment committee; or Mike Bolger for our risk assessment group, chemical risk assessment.

Now the problem is we've also reached the point where it's a little too large, so we're going back to see if we can streamline a little bit.

Again, we have the capability of bringing additional people in and out. The equipment prioritization goes through them; we have certainly the review -- we just had, next month they're going to be dealing with a proposal for revision of how we approve scientific manuscripts for release; some of the nitty gritty things of how we function. They will be getting the first presentation of the report on restructuring the management of projects, so that they are our initial sounding boards on reality checks on how we do things.

DR. LANGER: [Pointing] One, two, three. Four.

MR. LEVITT: Can I elaborate that with this one point: One result -- I've been a center director now for about two years. One result when I came, which was more a function of time than with me, was that as I referenced before, for literally 20 years this center has had declining resources. And when there were increased resources, they were for very targeted areas.

As a result, what happens in the organization, and some of you may have felt the same experience, is when resources keep going less and less and less by attrition, you tend to hunker down and protect what little you have.

One thing we've done at a number of area science councils, one of them is to try and open that up and create more of a center-wide atmosphere, more of a collaboration across the different offices. And after the first science council meeting in the center, one of

the scientists came up to me and said "Joe, this is the first time we've had that kind of discussion center-wide that I can remember."

So a lot of it, it's both the tangibles but it's also the intangible of looking at the linkages between the different offices, looking to share equipment, sharing of expertise, and thinking of us as a center-wide program.

So I would say the intangible is an important aspect of that, too.

DR. SCHWETZ: Can we just clarify what SBRS is, because it's been mentioned several times and never explained.

The Senior Biomedical Research Service is a classification that we're using that is used throughout the Department, DHHS, for those scientists that we considered to be the cream of the crop. And we have an allocation of 70 of these SBRS slots within the FDA, and half are to be used for employees who already are on board, and the other half for recruitment.

It's not only a classification scheme

that identifies our best scientists in regulatory science, clinical science or research; but it also has a different salary cap. So it gives us a little more flexibility in the hiring scheme to be able to advertise the position as SBRS.

So it's an authority that we use that's a credential service; is has external peer review and internal peer review to be able to get into the queue to even be considered in SBRS. So it's a system separate from the GS, where you are classifying people up through GS-15 and then SES. So this is like the SES counterpart for the scientist.

DR. ROSENBERG: Once you're in it, are you in it -- can you also come out of it?

DR. SCHWETZ: You can come out of it, because it is reviewed every three years. And it would be possible to come out of it.

DR. LANGER: Bob, and then Ed, and then Harold. Glad to see we have some questions. Bob?

DR. NEREM: I'm a brand new member of

the Board, so I'm still trying to figure out how things knit together; and I'm interested in whether this is the part of FDA that GMOs fits into, for example, under food biotechnology. So was that part of the review? Obviously it's an emerging area of public concern, rightly or wrongly, and I'm just wondering -- I didn't see much mention of it in the report in genetically modified organisms.

DR. BUCHANAN: The timing of the review was such that--thank God in some ways--

(Laughter)

-- that issues related to GMOs really hit the fan about three months after this review was completed.

DR. NEREM: So after the review but before the strategic plan.

DR. BUCHANAN: Right. We have certainly had a refocusing of our research thinking in terms of increased interest in GMOs, and in particular how we would be able to assess the safety of them. We have interests not only here within CFSAN, but I would also

indicate that we have interests in the National Center for Toxicological Research, we have interests in the Center for Veterinary Medicine, and we are in the process of developing a three center strategic plan for how we are going to take what research do we have available in this area and make an active research program that will support our regulatory needs.

MR. LEVITT: We have also put together a joint proposal in our 2001 budget that is now before Congress. It's a small amount; it's $1.5 million, but it's at least a start of going this area.

DR. BUCHANAN: It just seems to me that this is not only something of relevance today, but also could be viewed as an example of the kind of thing that happens every three to four years, and you can use it as a way of structuring your thinking, how you're going to deal with the next converging issue.

MR. LEVITT: I agree; it's both an example of what happens when you have a lot of

attrition and it's hard to keep your critical masses; but it's also, when you have an opportunity to take that investment. As an example, about ten years ago when the Moffett Center in Chicago -- this has been referred to several times here, both by calling it the Moffett Center which is the informal name, and the formal name is the National Center for Food Safety and Technology.

In Chicago, when that was developed by now a little more than ten years ago, with the Illinois Institute of Technology and industry. I can remember when I was in the Commissioner's office at the time, it was viewed as if you will a nice thing, but it was food processing and who really cared much about food processing? It was described to me at the time as putting a lid on the jar. And ten years later, all of a sudden it's not putting the lid on the jar, it's keeping the bacteria out -- well, you put a lid on the jar and it's become really the centerpiece of our Food Safety Initiative research.

It also has expertise in the area of biotechnology, but it shows the importance of making good investments in scientific capabilities, so they're there when you need them; because if you need them all of a sudden you can't create them like that, as you all know, both for infrastructure reasons and for budgetary reasons.

What we're trying to do is to kind of program-by-program build that investment across the center, and that's an excellent example of that.

DR. LANGER: Ed?

DR. SCOLNICK: As I understood the purview of this Board, it was to help in some way oversee the scientific upgrade of the agency that seems to be going on in general in the areas we're hearing today.

The things that would help me in assessing that, because hearing processes are interesting, but there's not enough substance in that to be able to judge on improving the quality.

There are three areas that I thought about. One is, you talked about the recruitments that you're going to do and that you show the Board the results of those recruitments, or you would update us in some way. I really like to see -- I know what I would like to see is c.v.s of the people you've recruited and records of the process of letters of recommendation, and who these people were that you've recruited, and you're kept regularly updated on that as one way of assessing the quality.

The second thing is, I'd really like to see some regular record of what publications come out of the staff of your organization, because that's a coin of the realm if you're going to really upgrade the science of the place.

Third is, one of the things that I've found useful over the years is to try to boil down what your most important findings are -- and not a long report. But if you ask someone about someone, I generally ask them, what has

that person discovered? What have they actually done in two sentences in their life in science?

That would be very useful to hear about; what have you found in your research internally? Kind of the three or four most important things, every six months -- not the whole litany of projects and things, but what are the most important things you've actually discovered that you would put forward as your critical new findings or creative new findings, new technology findings, whatever.

Those are kind of the areas that, if I'm going to do my job on the Board, I'd like to hear about.

MR. LEVITT: I think we'd be happy to do that.

DR. LANGER: I think that's an excellent point. We might want to come back to that point again at the very end; you know, when we talk about future meetings. That's a very good suggestion.

Harold?

DR. DAVIS: Point of clarification. One, the toxicology part that you had addressed. Bern has now defined what the SBRS program is. I think if you clarify that, that person would fit the bill as an SBRS, perhaps.

Second, the SPS level was also mentioned, I think if I got the acronym right, SPS?

MR. LEVITT: SES, senior executive service.

DR. DAVIS: SES I know, but -- I'm sorry, SPS. Somebody said SPS. So you meant SES.

MR. LEVITT: The SBRS, four letters, is for the senior research scientists. SES, senior executive service --

DR. DAVIS: That one I know.

MR. LEVITT: -- I'm an SES.

DR. DAVIS: Okay, I thought you said SPS.

MR. LEVITT: No. I must have been talking too fast.

DR. LANGER: Yes?

DR. ROSENBERG: I'd like to just follow up on Ed Scolnick's comments. He mentioned three things that he'd like to see measured. I'd like to just talk about measurements in general; perhaps maybe from your own point of view, as to other measures that you may have thought of or are putting in place so that one can monitor the progress of again some of the recommendations that are coming out, in terms of actually being able to quantitate things. We talk about quantitations of c.v.s or publications; are there other things that are unique again to your agency, unique to your programs, that we should be monitoring that you feel need to be quantitated. I'd like to hear that as a Board member.

DR. BUCHANAN: Let me answer it in two steps, and explain a little bit about the focus of the process we went through in the review, and then talk a little bit about some of the things that we're looking at as a result of that.

The focus of the review, we refer it to it as the strategic review, because what we were asking were just some of those questions. We were looking for not at this point so much a detailed examination of each of our research programs so that was part of it, but we were looking at a Gestalt of the entire program in terms of what are the procedures that would help us optimize our resources. What are the measurements that would be most useful to measure our productivity?

Now certainly we do and will continue to rely on measurements such as publications. But we also need to look at activities such as the completion of risk assessments, the use of the scientific expertise within the center to solve problems and actually provide us with the information that we need to develop new standards to deal with issues that we're facing in terms of the review of submissions or petitions.

Each of those are activities that we're attempting to get an active objective

measure on. So for example we had the need to generate research related to a question that is facing us in the development of a new regulation or the safety of juice products.

This activity was completed, it was put forward to an advisory committee -- a different advisory committee -- and served as the basis for subsequent discussion that I know Mike Doyle was part of, because he's a member of that advisory committee.

Those are things that we're also trying to figure out how to capture and not limit it to just simply a ticking off of the manuscript as it is completed.

So again, we certainly think that that's important, and we can provide that to you on a --

DR. SCOLNICK: Yes, but I think the kind of thing that would be useful in that regard -- if you're doing research in an area to develop new standards for new understanding of food toxicology or food safety, what have you done, what has the outside world done in

terms of what progress has been made by any one in the world in that regard, and what have you done to contribute to that.

It would be very useful for fields that I don't know anything about. Because you have to put your own work into perspective in the whole science world, toxicology in order to know how effective you're really being.

MR. LEVITT: One nice aspect of the Chicago facility, by bringing together FDA, government, academia, industry is an opportunity to pool resources, especially where the private sector doesn't have the capability. I don't want to keep giving the example of sprouts, but it's a good example where an industry that does not have the R&D of a major pharmaceutical company by any extreme, doesn't have the R&D of a tiny pharmaceutical company by any extreme, really did not have the resources.

By pooling together and by coming into a joint facility, we were able to put together a task force and validate; this works, this

doesn't work, this works, this doesn't work -- sometimes the "this doesn't work" is as important as "this works" if that was a tool that industry was using to prove the safety of the product, and we put out guidelines like last fall that were the next increments, based on validation data.

So there are some important stories to tell. And I agree, both kinds of outcomes are important.

DR. LANGER: Just to circle back, so then at the next meeting, the type of suggestion that Ed's making, we could expect to see some report along those three things that he's talking about; the bullet points, the c.v.s and letters and publications.

So I think let's do that.

DR. SCOLNICK: As to content, I don't know the field that you are talking about, I'm not trained in food safety; I don't know anything about it. So I would look to other people on the Board to give you guidance on what the content actually is, the kind of

category.

DR. NESTLE: I don't know whether this will be helpful or not, but can I make a few remarks about --

DR. LANGER: Sure.

DR. NESTLE: -- the committee, since I was on it. It was a year ago and it's hard to remember the details, but I came away from it with several impressions that maybe would be helpful in this context.

One was the absolutely vast scope of CFSAN's mandated responsibilities. The range of research that the agency is required or has gotten involved in, and I'm not sure what the requirements are and what the self-selected involvements are; but when somebody says "add biotechnology on top of that" I'm just shocked at the idea that you would need to add another area of research on top of what is already enormous.

We sat there for three days and listened to people talk about research on every conceivable aspect that the agency regulates.

You can't think of anything that wasn't there, and then people would say, "Well, are you doing research on immunology? Are you doing allergy research? Are you doing biotechnology research?" They need to do all of it but they can't.

The initial starting point was, we weren't allowed to talk about resources. So we were proscribed from mentioning the word "resources" although it was impossible to sit there for three days and not think about it constantly, because it's perfectly evident that the agency doesn't have the resources that it needs to carry out its mandated mission, let alone what people think it ought to be doing if the science was going to be where it should be.

And that's why the issue of focus kept coming up during the review, and it came up over and over and over again. What's the agency's focus? What's the purpose? What are the priorities? Every single group that reported on its research was asked by somebody on the committee, "How do you know what your

priorities are? How do you set your priorities? How do you determine your priorities?" And nobody had any satisfactory answers to that.

Then very little was said about Congress perhaps because this was a very polite agency review, but Congress has had a great deal to say about FDA is doing, and just in the area of dietary supplements, because I'm a follower of what's happening in dietary supplements. I read the Federal Register. I can't imagine how many people you can have writing Federal Register notices just in response to DSHEA, FDAMA and Pearson vs Shalala.

I mean, it's just astounding to keep up with that, and so if Congress is going to insist that the FDA do these kinds of things, and the Science Board wants the science to be of a quality that it really should be. I think there's a real problem, and that the major issue has to be to determine the priorities and focus. Where is FDA able to do what no other

agency can do? What can't his agency do that nobody else can do? Everything else needs to be farmed out.

DR. SCOLNICK: I don't think -- comments I made are inconsistent with you.

DR. NESTLE: No, they're not at all.

DR. SCOLNICK: I think it's what you can do here, what you take from the rest of the world in a science field, concentrate on, and it seems to me that the Science Board can help in whatever argument it has to make with Congress, whatever. A significant outside view.

DR. NESTLE: Let me just make one other comment. The most shocking thing that I learned during the review was that extremely competent scientists are being transferred out of their area of competence to work in areas in which they are not competent, because of mandated requirements.

That to me was the most shocking finding from the report. Then there are little

things floating through the report that refer to that, but that's something that I think really needs to be looked at. You have people who are experts in areas that are important from a regulatory standpoint. If those people are being transferred to the Food Safety Initiative because the Food Safety Initiative is mandated, there's a problem and that needs to be dealt with, it seems to me in a very direct way. And it's possible that this Board could help prioritize and help the agency deal with those kinds of issues; and it seems to me that's the most useful thing that we can do.

DR. LANGER: Excellent points.

I want to take a minute, there was one other set of issues that came up, which is the peer review, not only for this group but for future groups, and I wanted to get, Bern, your comments on that.

DR. SCHWETZ: We continue to talk about what the sequel should be to having reviewed CBER and now CFSAN, and I want to say a few words about where that is relative to the

recommendation, the last recommendation in the report, that guidance would be provided.

We continue to think that there may not be just one model for doing peer reviews that would fit all the parts of the agency, and the review process for CBER was different than was used for CFSAN; and there are several parts of the agency that are talking about peer reviews now, at just the first thinking stage, and that would be for a review within the Center for Drugs, the Center for Devices and Radiological Health, and CVM in particular; ORA will take its turn as well, and so will NCTR, but those three are the ones that are actively discussing right now. What should they be doing in their centers as a follow-up to what's happened in CBER and CFSAN?

Let me come back to one of the things that Dr. Henney has stressed so many times when she talks about the science of the agency. There's a tendency often in the minds of a lot of people to think the science of the agency is what goes on in the laboratories. That's not

the science of the agency; it's a very small part of the science of the agency.

The majority of the science has to do with the regulatory decisions, the review science of the agency. Then you've got the investigation and the inspection part of the agency that's also science. Must be science based, but it depends on the technology that we have in the rest of the agency to carry out that part of it.

So you've got a review function, the laboratory research, non-laboratory research, the investigation part of the agency. Of the 9,000 roughly people we have at the agency, we estimate that about 6,000 are involved in science. So when we review the laboratory component, we're reviewing an awfully small part of the science of the agency.

We do that because we know how to do it, because there's a precedent for how to review laboratory work. It's been done in NIH, it's been done in a number of parts of the FDA on a regular basis; NCTR has had an ongoing

review -- because that whole center is research, there's been an ongoing science advisory board function for many years. Division by division, we've also done it under Drag's evaluation, under his help -- the whole center.

But if we only review the laboratory component of the FDA and we say that we have a peer review system, it's a bit ingenuous and misleading, because that's not a peer review of the science of the agency.

So one of the things that we're talking about when we are having these discussions within CDRH and CVM and the Center for Drugs is how do we do a review that takes hold more of the science of the center? And as a result, we will be coming up with a different approach as we look at these other ones that will be different from what we've used in CBER and in CFSAN, just because their centers are different, and we're trying to figure out how to get our hands around this larger part.

As we've talked about how to review

the review part of the centers, while at first thought it sounds like you ought to be able to do that, you ought to be able to look at the quality of the science that was behind the decisions that we made. But one of the difficulties is, who do you get to peer review them? Because the people who know most about it are the people whose products were being reviewed. And you can't bring them in to do the peer review of the decisions; that just wouldn't work.

If you bring others who know a lot about it, they're from another company and do you want them to do the peer review of decisions that were made on another company's product? Academicians are often consultants in this process.

So by the time you go through the list of who's available to do this, who isn't involved in some way, you end up with a short list of people who may not be the experts that you want to do the review of the review function. We're struggling with that yet, and

there must be a solution out there, but we're trying to figure out a way that would meet the characteristics of a good peer review that's not biased but is serious in its ability to review the science of the regulatory decisions.

So in terms of the reviews that we're looking at in addition to those three centers that I've mentioned, we have also talked about an in-depth peer review of all of the work that's being done under the Food Safety Initiative.

Again in that arena, the laboratory research and the cooperative agreements that have been part of that, and the other mechanisms to get research done, that's not all the Food Safety Initiative. There are outreach programs, there are educational programs, there are other parts of the Food Safety Initiative that we're trying to figure out, should we review the whole thing or should we review just the research and the research planning, and what's been done? But that's another peer review activity that we will bring to the Board