DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH

NATIONAL ADVISORY COUNCIL FOR COMPLEMENTARY AND INTEGRATIVE HEALTH
MINUTES OF THE SEVENTY-SECOND MEETING
September 20, 2019

NACCIH Members Present
Dr. Belinda Anderson, West Long Branch, NJ
Dr. Todd Braver, St. Louis, MO
Dr. Lynn DeBar, Seattle, WA
Dr. Anthony Delitto, Pittsburgh, PA
Dr. Roni Evans, Minneapolis, MN
Dr. Diana Fishbein,[1] University Park, PA
Dr. Joel Greenspan, Baltimore, MD
Dr. Richard Harris, Ann Arbor, MI
Dr. Kendi Hensel, Fort Worth, TX
Dr. Patricia Herman, Santa Monica, CA
Dr. Jean King,[1] Worcester, MA
Dr. John MacMillan, Santa Cruz, CA
Dr. Eric Schoomaker,[2] Bethesda, MD
Dr. Lynne Shinto, Portland, OR
Dr. Justin Sonnenburg, Stanford, CA
Dr. Barbara Timmermann, Lawrence, KS
Dr. Gloria Yeh, Boston, MD

[1]Telephone
[2]Ex-officio

NACCIH Members Not Present
Dr. Tammy Born Huizenga, Grand Rapids, MI
Dr. Wolf Mehling, San Francisco, CA

Non-NCCIH, Federal Staff Present
Dr. Barbara Sorkin, Office of Dietary Supplements, NIH

Members of the Public
Ms. Denene Crabbs

I. Closed Session

The first portion of the seventy-second meeting of the National Advisory Council for Complementary and Integrative Health (NACCIH) was closed to the public, in accordance with the provisions set forth in Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S.C., and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2).

A total of 130 applications were assigned to NCCIH. Applications that were noncompetitive, not discussed, or not recommended for further consideration by the scientific review groups were not considered by Council.

Council concurred with staff recommendations on 59 scored applications, which requested $20,066,574 in Year 1 total costs.

II. Call To Order

The open session convened at 10:00 a.m. Dr. Partap Khalsa, NACCIH Executive Secretary, called the meeting to order. The minutes of the June and August 2019 Council meetings were approved unanimously.

III. Director's Report

NCCIH Director Dr. Helene Langevin welcomed the new Council members, Drs. Todd Braver, Anthony Delitto, Wolf Mehling, and Lynne Shinto, and noted that Dr. Tammy Born Huizenga, who was welcomed in June as an ad hoc member, is also officially a Council member. Ms. Ginger Betson, who had been serving as NCCIH's Acting Executive Officer, has now been officially appointed to that role.

There have been three important retirements at the National Institutes of Health (NIH): Dr. Paul Sieving, Director of the National Eye Institute, Dr. Linda Birnbaum, Director of the National Institute of Environmental Health Sciences and National Toxicology Program, and Dr. Ann Cashion, Acting Director of the National Institute of Nursing Research. Dr. Debara Tucci has been sworn in as Director of the National Institute on Deafness and Other Communication Disorders. The NCCIH budget table has not changed since the last Council meeting. New numbers will be presented at the next meeting.

The preliminary FY 2019 tentative spending plan for the NIH HEAL (Helping to End Addiction Long-term^{SM}) Initiative shows slightly more funding for opioid use disorder research than pain research, but pain is well represented. NCCIH is participating in the Pragmatic and Implementation Studies for the Management of Pain to Reduce Opioid Prescribing (PRISM) and Behavioral Research to Improve Medication Assisted Treatment (BRIM) initiatives and therefore is involved in both aspects of the NIH HEAL Initiative portfolio.

Dr. Langevin has been invited to a hearing before the Subcommittee on Labor, Health and Human Services, Education, and Related Agencies of the House Committee on Appropriations on Wednesday, September 25. Other witnesses include NIH Director Dr. Francis Collins and four other NIH institute or center directors.

Highlights of recent NCCIH-funded research include:

- A pilot study of the Mindfulness-Oriented Recovery Enhancement (MORE) intervention as a nondrug complementary treatment for people with opioid use disorder and chronic pain who are in methadone maintenance therapy.
- A study demonstrating that nociceptive signals can be transmitted in human skin via fast myelinated A fibers, and that the effect is not dependent on PIEZO2. Researchers from the NCCIH intramural program were among the authors.
- A study in which noninvasive neuroimaging was used to enhance control of a robotic device.

Technical assistance webinars for two funding opportunities related to natural product and drug interactions will be held on October 3. These Requests for Applications (RFAs) represent a continuation of a successful program. Nine awards for research on the potential analgesic effects of minor cannabinoids and terpenes were released on September 19. The Sound Health initiative just awarded $20 million for research on music and health, including three awards funded by NCCIH.

An NCCIH-sponsored workshop on neurocircuitry of force-based manipulations, which brought together investigators from neuroscience and biomechanics, was held this week. The group gradually developed some common language and research questions about how mechanical forces affect the nervous system. NCCIH's 20th anniversary symposium, which includes the 2019 Straus Lecture, will be held on September 23. NCCIH is launching a new series of "hot topics" webinars; the first topic may be whole person health.

Dr. Langevin presented a proposal to change future Council meeting dates to the second Wednesdays of January, May, and September. This would eliminate the need for an August meeting. The intent of moving to Wednesdays was to facilitate travel. Council members agreed with the change in weeks, but several members objected to switching from Friday to Wednesday because Wednesday meetings would interfere with their teaching schedules. Members also expressed concern about conflicts with religious holidays. Dr. Khalsa explained that meetings would be scheduled a week earlier or later, when necessary, to avoid conflicts with holidays. A motion to change the Council meeting dates to the second Fridays of January, May, and September was made, seconded, and approved unanimously.

Discussion: Dr. Schoomaker explained that the initial proposed allocation of HEAL Initiative funds focused more heavily on opioids rather than pain and on drugs rather than other forms of therapy. Members of this Council and NCCIH staff objected, and their efforts helped to get some of the money redirected to research on nonpharmacologic approaches for pain. Dr. Langevin added that an unexpectedly large number of the HEAL Initiative grant applications were for research on nonpharmacologic approaches and applauded the investigators who submitted them. Dr. DeBar said that planning for the HEAL Initiative has included healthy discussion about addiction and pain being siloed and about the need to think about these problems differently. Dr. Schoomaker explained that pain is the underlying cause of much of the opioid crisis, and ending the crisis will require improved nonopioid treatment of pain. Dr. Langevin said that NCCIH's expertise with pragmatic trials, through the leadership roles of NCCIH staff members Dr. Wendy Weber and Dr. Catherine Meyers in the NIH Health Care Systems Research Collaboratory, helped ensure that this type of research would be part of the HEAL Inititative. Much work still needs to be done to convince people of the importance of pragmatic research, but progress is being made.

IV. What's Happening in the Doctor's Office: Analyses of the National Ambulatory Medical Care Survey (NAMCS)

NCCIH survey statistician Ms. Barbara Stussman presented results of new analyses of NAMCS data on physician recommendations for complementary approaches and use of these approaches in physicians' offices. The NAMCS is an annual nationally representative survey. Data are obtained from about 4,000 physicians per year through interviews and 40,000 physician visits per year through an abstraction form.

Questions on recommendations for nine complementary approaches were included in physician interviews in 2012. Fifty-three percent of physicians had recommended at least one complementary approach in the previous 12 months. The odds of recommending any complementary approach were greater for female physicians, those with D.O. degrees, general and family practitioners, and those in the West region. There were differences among specialties in the types of approaches most often recommended. For example, psychiatrists were more likely than other physicians to recommend mind-body approaches and yoga.

Data on office visits from 2005 to 2015 were analyzed. More than 400,000 visits were included. The proportion of visits during which complementary approaches were ordered or recommended increased over time, reaching more than 7 percent in 2015. Much of this could be attributed to natural products, with omega-3 fatty acids mentioned most often. Complementary health approaches were ordered or recommended particularly often at visits involving menopause.

Next steps will include analyzing the physician dataset to determine reasons for recommending or not recommending complementary approaches and to learn how often conversations about specific approaches arose during the office visit. Analyses of the visits dataset will focus on menopause and on factors that influence providing complementary approaches.

Discussion: Dr. Anderson asked if it was possible to determine whether the patient actually engages in recommended approaches. Ms. Stussman and NCCIH lead epidemiologist Dr. Richard Nahin said this isn't possible because no followup data are collected. Dr. Anderson said it would be valuable to know the extent to which physicians have established relationships with complementary health professionals; if current trends continue, a complementary provider shortage is possible.

Dr. Yeh asked whether physicians could be asked whether they recommend complementary approaches regularly. Dr. Nahin said this could be done in future years. In response to a question from Dr. Schoomaker, Dr. Nahin said that the survey included physicians employed by the Federal Government, but these analyses excluded them. Dr. Nahin explained that this survey did not collect data on insurance coverage of complementary approaches, but the National Health Interview Survey did, and it showed that about 50 percent of chiropractic care and a smaller proportion of acupuncture are covered. Dr. Schoomaker said the NHIS data confirm that some evidence-based approaches are not being paid for. He added that he finds it disturbing that few pediatricians recommend complementary approaches. Dr. Nahin said that the upcoming analyses on the reasons for recommending/not recommending may provide insight into pediatricians' views.

Dr. Weber, Chief of NCCIH's Clinical Research Branch, explained that an upcoming HEAL study involves a partnership with Medicare to evaluate acupuncture for older adults with back pain. The results of that study may inform Medicare coverage decisions. Dr. Schoomaker said that getting nonpharmacologic approaches approved by Medicare is complex. Dr. Hensel noted that osteopathic manipulative therapy is covered by most health insurance plans. Dr. DeBar said that payment is not the only barrier to use of complementary approaches. Dr. Delitto said that physician recall can be inaccurate and suggested putting information about use of nonpharmacologic approaches into electronic health records. Dr. Greenspan asked whether visit data could include multiple visits by the same patient, allowing patterns to be observed. Ms. Stussman said this would not be possible because no identifying information on patients was collected and data from a particular office were collected only for a week.

V. Concept Clearances—Introduction

NCCIH Deputy Director Dr. David Shurtleff explained that a new NIH policy requires all concepts that may result in funding opportunities to be presented to Council for clearance. In the past, clearance was only needed for concepts that would involve set-aside funding.

VI. Concept Proposal: An Open-Access Repository/Database for Anatomical and Physiological Ontology of Acupoints

Dr. Wen Chen, Chief of NCCIH's Basic and Mechanistic Research Branch, explained that speakers and participants at a February 2019 acupuncture workshop sponsored by NCCIH and the National Cancer Institute noted that there was a need for a database to deposit, share, and compare anatomical and physiological data associated with acupoints. In response, NCCIH issued a Request for Information (RFI), seeking input on the potential value of such a database and the key criteria and elements that would make it most useful. Responses were received from 136 individuals and organizations. Seventy-five percent said that the database would have a positive impact. Most respondents supported using Western anatomy references (alone or in combination with Eastern acupoint references) and both English and Chinese nomenclature. About one-third of respondents supported using objective outcome measures, one-third supported using patient-reported outcomes, and one-third supported both. Respondents suggested a variety of desired features, including searchability, open access, compatibility with other relevant databases, and annotation of safety issues. Further input is welcome and can be submitted to NCCIHacuptdatabase@nih.gov.

This concept proposes to support an NCCIH Resource Center to develop and maintain an open-access repository/database for anatomical and physiological correlates of acupoints, developed and maintained by experts from the acupuncture research community, other relevant leading professional organizations, and NIH. The database would include both Eastern and Western anatomical references and nomenclature systems, as well as both objective and subjective measures and outcomes, would be searchable, and would be compatible with other relevant NIH- or Government-supported databases.

Discussion: Dr. Anderson recommended collaborating with the acupuncture accreditation program to ensure that information on the new database is included in the required curriculum.

A motion to approve the concept was made, seconded, and passed unanimously.

VII. Concept Proposal: NCCIH High Program Priority Initiatives for Basic and Mechanistic Studies of Complementary and Integrative Health Approaches

On behalf of the Basic and Mechanistic Research Branch, Dr. Chen presented a concept for high program priority initiatives for basic and mechanistic studies, including fundamental science research, optimization research, tool development and methodology research, and type 1 translational research, to support key objectives in the NCCIH 2016 strategic plan. This proposal is for initiatives that would not have set-aside funds.

Discussion: In response to questions from Council members, Dr. Khalsa and Dr. Shurtleff explained that this is the type of concept without set-asides that must now be submitted to Council for review according to the new NIH policy. Specific funding opportunity announcements (FOAs) will explain where the review of applications will take place.

A motion to approve the concept was made, seconded, and passed unanimously.

VIII. Concept Proposal: NCCIH Clinical Trials Initiative for Intervention Development and Testing

On behalf of the Clinical Research Branch, Dr. Weber presented a concept similar in intent to the one just presented for basic and mechanistic research.

Research supported by this branch focuses on Objective 2 (Improve Care for Hard-to-Manage Symptoms) and Objective 3 (Foster Health Promotion and Disease Prevention) of the strategic plan. Priorities include conducting studies at the appropriate stage based on current evidence, testing hypotheses that will guide future research, proposing realistic timeframes and budgets, and ensuring that studies are statistically powered to assess clinically meaningful outcomes. FOAs are targeted for studies at different stages of the research continuum, including early-phase trials, intermediate trials, and full-scale multisite efficacy trials, and they use cooperative agreement mechanisms when programmatic involvement is appropriate.

A motion to approve the concept was made, seconded, and passed unanimously.

IX. NCCIH Recognition of Council Service

Dr. Langevin recognized and thanked the five outgoing Council members, Drs. Steven George, Bin He, Patricia Herman, Susmita Kashikar-Zuck, and Cynthia Price, for their service. She also announced that Dr. Tracy Gaudet, *ex officio* member for the Department of Veterans Affairs, has stepped down.

X. Symposium on the NCCIH Strategic Plan

Introduction

Dr. Langevin explained that NCCIH is launching a year-long process of developing the next NCCIH 5-year strategic plan. Council input is important throughout this process. The afternoon's symposium will consist of a portfolio analysis based on the current plan, a visioning presentation to suggest ideas for discussion, and an explanation of the timeline of the strategic planning process, followed by general discussion.

NCCIH's 2016 Strategic Plan: How Are We Doing?

Dr. Angela Arensdorf, health science policy analyst in the NCCIH Office of Policy, Planning, and Evaluation, presented the results of an evaluation of how the extramural portfolio maps to the priorities established by the 2016 strategic plan. The strategic plan is a congressionally mandated document that is updated every 5 years with input from NCCIH staff, stakeholders, and scientific advisors. It encompasses part but not all of NCCIH's mission.

Dr. Arensdorf presented data from fiscal years 2016-2018 on balance in the overall extramural research portfolio, as assessed by the number of projects. The largest portion of applications (48 percent) came in through parent announcements. Human studies/clinical trials account for 56 percent of the portfolio, and *in vitro* and animal studies accounted for 44 percent. Mind and body approaches represented 46 percent and natural products 42 percent. Mechanistic studies were the most common study type, and symptom management was the most common health area. In general, the portfolio is balanced overall but is light on disease prevention/health promotion research.

Dr. Arensdorf showed data for active funded projects within the extramural research portfolio at the end of FY 2018 and where they fit within the strategic plan's three scientific objectives and each specific strategy under those objectives. Fundamental science and symptom management are well represented, but real-world studies and disease prevention research are underrepresented (when assessed by number of projects).

By examining new projects initiated in FYs 2016-2018, Dr. Arensdorf assessed the effect of the 2016 strategic plan on the portfolio. Funding increased for all scientific objectives except Objective 1.1 on natural product mechanisms, which was already a high-priority area.

Discussion: In response to a question from Dr. Anderson, Dr. Arensdorf explained that her analyses did not look specifically at educational objectives. Dr. Yeh asked whether studies on disease prevention might be underrepresented because they need longer time frames than the standard 5 years. Dr. Khalsa explained that by regulation, the length of grants is no more than 5 years, but it is possible to get waivers to increase it slightly, and most grants are eligible for renewal. Some studies have continued for decades, but renewal is not guaranteed. Dr. Delitto said that duration of funding is not the only challenge in long-term followup studies. Mechanisms of surveillance are also an issue. Long-term followup is difficult in our health care system. Projects can probably be completed within 5 years once data collection begins, but the surveillance infrastructure needs to be in place first.

Dr. Weber explained that applications for prevention studies may be difficult to put together under standing funding opportunities. More targeted FOAs may be needed. Dr. Harris said that opportunities may exist in mining existing datasets that can associate specific outcomes with subsequent disease. Dr. Shurtleff recommended considering proximal measures that may predict distal outcomes.

In response to a question from Dr. Sonnenburg, Dr. Arensdorf said that studies on food and nutrition were included under natural products, rather than being analyzed separately. Dr. Sonnenburg said that NCCIH may be well positioned to study diet.

NCCIH 2020 Vision

Dr. Langevin presented some exploratory ideas for Council's consideration, beginning with the definition of complementary approaches (the second C in "NCCIH"). Over the years, some complementary approaches have diffused into the mainstream. For example, cognitive behavioral therapy, a type of psychotherapy, increasingly incorporates mindfulness-based treatments and relaxation techniques, and physical therapists incorporate elements of massage and spinal manipulation into their practices.

Dr. Langevin presented a slide showing six overlapping domains of health care (dietary, pharmaceutical drugs, psychological, physical, devices, and surgery) and explained that the modalities typically considered complementary fall into one or more of the dietary, psychological, and physical domains (with a unique overlap into the device domain for acupuncture). It may therefore be appropriate to consider complementary therapies and practices to be those that use dietary, physical, and psychological approaches and may have originated outside of conventional medicine.

Dr. Langevin suggested moving beyond the standard concept of "integrative" (the "I" in NCCIH), which focuses on bringing complementary and conventional approaches together in a coordinated way, and to consider integration at a larger level. NCCIH could support the integration of complementary and conventional care as well as research on whole person health. In all of science, she pointed out, there are opposing currents of analysis (breakdown of complex things into smaller parts) and synthesis/integration (building back up to understand the whole). Medicine has traditionally emphasized analysis, leading to predominantly analytical treatment strategies. More attention needs to be paid to integration to balance the portfolio of medicine in general. Complementary practices are inherently holistic, so synthetic research questions come naturally, but they could be promoted even more.

Health (the "H" in NCCIH) is also a holistic concept, and NCCIH's goals include addressing health promotion and restoration as well as disease prevention and symptom management. The transition between health and disease may be more reversible at earlier stages than later ones. People make behavioral choices that can affect how they develop and flourish or fail to do so. Dr. Langevin showed examples involving transitions from health to diseases related to obesity, degenerative joint/disc disease, and cognitive decline/depression. Behavioral approaches can prevent or reverse predisease states and restore health. In many instances, multiple health issues are present in the same people, and interventions that promote one aspect of health also promote others. Because of the need to look at the body as a whole, it's worthwhile to look at behavioral dysfunction and health in terms of the whole person. This is where health promotion, disease prevention, and health restoration intersect. The NCCIH research portfolio can be designed to maximize understanding of these connections.

Within NCCIH, discussions have focused on how these ideas fit with other concepts in this area, including well-being, wellness, and health promotion. Wellness practices and self-care can encourage a trajectory toward health. Environmental and social factors and behavioral interventions can also contribute to health restoration and promotion of physical and social well-being. Research on the mechanisms of health restoration and recovery is in its early stages. Basic science is beginning to provide tools with which to understand the return to health.

Dr. Langevin explained that the concepts she discussed are included in the current strategic plan. The proposed changes in definitions are small but would put more emphasis on whole person health.

Discussion: Dr. Hensel said that osteopathic philosophy is consistent with the whole person concept but with an overlaying spiderweb centering on the musculoskeletal system. Dr. Evans recommended adding the social part of the biopsychosocial model to the concepts Dr. Langevin described, and Dr. Langevin agreed. Dr. Shinto questioned how research on the whole person and whole health could be funded. Dr. Langevin explained that the groundwork is being laid for this with pragmatic trial designs. Dr. Delitto said some reengineering of study sections will be needed to accommodate integrative research, but he is convinced it will happen. Adding secondary prevention aims to trials is a step in the right direction. Dr. Langevin said that NCCIH needs to be a global leader in integration.

Dr. Harris said that objective gold-standard measures to quantify wellness and well-being are needed. Dr. Langevin explained that a trans-NIH initiative on developing measures of well-being is currently in progress and is developing common language and common outcome measures. Dr. DeBar said that some past research has addressed multidisciplinary dimensions of prevention well, including a National Institute of Diabetes and Digestive and Kidney Diseases study of diabetes prevention in at-risk adolescents, workplace wellness studies, and large obesity trials. Nevertheless, even if complementary health practices are reimbursed, as is the case in Oregon, integrating them into conventional health care is challenging. Factorial designs may be useful in well-being research.

NCCIH Strategic Planning Process

Ms. Mary Beth Kester, Director of NCCIH's Office of Policy, Planning, and Evaluation, explained that the 21st Century Cures Act mandated that all NIH institutes and centers must use a common template for their strategic plans, which includes an overview and introduction; scientific goals, objectives, or priorities; approach to stewardship; and a description of the strategic planning process. The plan must address women, minorities, and decreasing health disparities and may present accomplishments. It must also be informed by the NIH Strategic Plan Framework.

The strategic planning process begins with this Council meeting, followed by internal work at NCCIH, publication of a Request for Information for public input in April or May 2020, and a potential town hall at the International Congress on Integrative Medicine and Health meeting in May 2020 to obtain additional stakeholder input. An update on the strategic plan will be presented at the June 2020 Council meeting, followed by presentation of a first draft in September 2020. The final update to Council and presentation of the final draft are scheduled for January 2021, and the final plan will be published in February 2021.

General Discussion by Council

Dr. Evans recommended using the concept of intervention mapping to study the components of complex interventions. In response to a question by Dr. Anderson on implementation, NCCIH program director Dr. Dave Clark explained that he is working with a trans-NIH implementation science working group, which will hold a workshop on implementation science and

complementary and integrative health in December. The workshop will look at the state of the science, what's ready to move forward, and what needs more work. Dr. Anderson recommended addressing dissemination as well. Dr. Clark explained that making the distinction between implementation and dissemination is important. If an evidence-based practice isn't being used because people are not aware of it, that's a dissemination problem, but if people know about it and still aren't using it, that's an implementation science problem.

In response to a question from Dr. Anderson about the plan's education agenda, Dr. Langevin explained that education is already a cross-cutting goal for NCCIH. The other cross-cutting objective involves growing the complementary and integrative health research workforce. These objectives will be carried forward into the next strategic plan.

Dr. DeBar said that inclusion of diet in research is exciting but daunting. Dr. Sonnenburg said that it is difficult to get funding for studies that involve whole foods or diets rather than single molecules, but some progress is being made with studies that provide meals to participants. Dr. Shurtleff asked whether observational studies have produced enough data to allow hypotheses about diet to be tested at the population level. Dr. Sonnenburg said yes, but not many studies have been done. Dr. Shurtleff suggested considering whether priorities should include these types of paradigms. Dr. Sonnenburg said much remains to be done in the observational realm, and the work is challenging because of the complexity of diet and difficulty in assessing it. Dr. Shinto, who serves on the National Multiple Sclerosis Society's wellness advisory council, said that the Society defines wellness as diet, physical activity, and stress reduction because these three factors impact the disease and its symptoms. The Society has allocated 10 percent of its research budget to wellness and decided to tackle diet first because of patients' interest in it. Getting similar research funded at NIH may be tricky because study sections' views on the work vary.

Dr. Anderson suggested that the outcomes of group medical visits would be worthy of investigation, particularly with regard to clinical methodology. Dr. Herman raised the issue of genetic differences between individuals. Dr. Langevin commented that when these differences are taken into account, as in personalized medicine, it's usually done at a basic biochemical level. The whole person piece needs to be added to it. Dr. Delitto commented that in research on back pain, efforts to identify response phenotypes were more successful than efforts to identify mechanistic phenotypes. Dr. Langevin added that working backward from responses to mechanisms could provide insights into the mechanisms. Dr. Yeh added that the All of Us research program on precision medicine is collecting information on social, environmental, and dietary factors as well as genetics.

Dr. Sonnenburg raised the issue of hypothesis-driven versus discovery research, and Dr. Shurtleff explained that NIH does promote some discovery research. NCCIH could put out specific targeted funding opportunities to bring in that kind of research proposals. Dr. Sonnenburg said that discovery research can help to define health. Dr. MacMillan added that natural products research is very much a discovery-based field. Dr. Shurtleff said that experts in data mining tend to work in industry rather than academia. Dr. Sonnenburg agreed that academia has trouble competing for some kinds of talent. Dr. Braver said that in neuroscience, research may start out being discovery based, but once data are obtained, they provide a basis for hypothesis testing. Dr. Shurtleff said that NIH has rich resources for data development. Dr. Herman noted that for chronic low-back pain, the mechanisms that reduce pain may not involve

the same pathways as the mechanisms that created the pain. The most important priority is to determine what makes the person get better. Dr. Fishbein made a distinction between precision and personalized medicine but commented that it is difficult to get grant reviewers to understand the idea of subtyping characteristics that predict responses. Dr. Langevin noted that identification of subgroup responses is a category of research in itself, not a part of the translational spectrum. Dr. Fishbein added that back translation is necessary; it's important to determine who is not responding to treatment. Dr. Langevin and Dr. Harris agreed that sometimes the progression needs to be from bedside to bench, rather than the other way around.

Dr. Hensel commented that when looking at the portfolio as a whole, NCCIH could revisit the issue of doing some focused RFAs for more than 5 years to allow longer followup. Dr. Weber explained that initial applications often have short-term followup, but longer followup is possible with renewals. She also noted that NCCIH's open funding opportunity for multisite trials allows for 1 year of planning and 6 years of intervention with NCCIH's permission. Dr. Shurtleff added that there are ways to do longer-term followup within the constraints of NIH extramural funding, but it is challenging.

XI. Public Comment and Adjournment

Ms. Denene Crabbs, who stated that she is a certified health coach who is developing credentials in the complementary and integrative health arena, thanked NCCIH and the Council for their dedication and research and expressed the hope of being able to work alongside them to find the solutions everyone is looking for.

The meeting was adjourned at 3:20 p.m.

We hereby certify that, to the best of our knowledge, the foregoing minutes are accurate and complete.

Partap Khalsa, D.C., Ph.D., D.A.B.C.O.
Executive Secretary
National Advisory Council for
Complementary and Integrative
Health

Helene Langevin, M.D.
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