U.S. Department of Health & Human Services
National Institutes of Health

National Center for Complementary and Integrative Health

Stakeholder Meeting for Research on Whole Person Health

October 17–18, 2022
Meeting Summary

Welcome and Opening Address

Dr. Helene M. Langevin, director of NCCIH, welcomed participants to this inaugural NCCIH stakeholder meeting on whole person health and posed three questions for discussion: Why does complementary and integrative health need a unifying concept? What is whole person health? What are the goals of this meeting?

To begin to explain the need for a unifying concept, Dr. Langevin looked back to 1998, when the National Center for Complementary and Alternative Medicine (NCCAM) was created. At that time, complementary therapies were mostly outside of conventional medicine, and integrative medicine was a very restricted field. But by 2014, when NCCAM was renamed as NCCIH, these therapies were increasingly viewed as complements to rather than substitutes for conventional therapies, and integrative medicine was rapidly growing and gaining recognition. By then, the term “integrative health” was increasingly used to recognize the integration of complementary therapies not just with medicine but also with other professions, such as physical therapy and clinical psychology. However, funding for integrative health research was limited, as it still is today.

Some Institutes and Centers at the National Institutes of Health (NIH) have external coalitions that raise awareness of research needs; for example, the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) has an independent coalition focused on raising awareness of NIAMS research on the diseases the Institute studies. NCCIH, however, does not focus on a specific organ, system, or group of diseases, and complementary therapies are represented by a variety of organizations focused on specific professions. So until now, it has been challenging for organizations to come together to promote awareness of the need for integrative health research as a whole. Focusing on the central theme of whole person health research, as NCCIH does in its current strategic plan, may enable the field to unify and grow in a new way.

Today’s meeting will test the hypothesis that the large group of stakeholders brought together here can agree on whole person health as a unifying concept, relevant to all, and agree that advancing this cause would be of benefit to all.

Groups that have sent delegates to this meeting include professional organizations for acupuncture, yoga therapy, chiropractic, osteopathic medicine, physical therapy, somatic movement therapy, massage therapy, physicians’ assistants, nursing, naturopathic medicine, homeopathy, Ayurvedic medicine, energy psychology, and music therapy. Other participating groups include integrative health organizations, patient advocacy and research organizations, and government organizations. The individuals representing these organizations include researchers, clinicians, students, policymakers, administrators, businesspeople, and patients.

NCCIH defines whole person health as empowering individuals, families, communities, and populations to improve their health in multiple, interconnected domains: biological, behavioral, social, and environmental. Whole person health has two components: the whole person and health. In science, there are two countercurrents: analysis (breaking things down into smaller parts) and synthesis (bringing the parts back together). In medicine, analysis has been emphasized. The emphasis on molecular medicine has led to the major mode of treatment, pharmacology. However, it is also important to move in the

other direction—that of synthesis or integration. Integrative health means more than putting complementary and conventional therapies together. It also involves putting the whole person back together.

Dr. Langevin illustrated the health component of whole person health with images of three plants—one healthy, one clearly diseased, and one in between those states, not looking quite healthy but giving the impression that its health might improve with better care. The boundary between health and disease for a plant is reversible, but it becomes less so as the plant moves further toward disease. The same is true for people. There are stages between health and disease that are reversible, such as prediabetes. And even when one crosses the line from prediabetes to diabetes, there are opportunities to reverse the process before irreversible organ damage occurs.

The current medical approach focuses on detecting and treating diseases early and treating them aggressively with drugs to prevent complications. Unfortunately, the drugs themselves may introduce complications, especially when each disease is treated in isolation. The resulting polypharmacy is a real problem, especially in older people.

It is known that a group of common factors, including poor diet, sedentary lifestyle, chronic stress, and poor sleep, are at the root of multiple chronic diseases, including diabetes, hypertension, chronic liver and kidney disease, degenerative joint disease, and depression. Self-care and psychological, nutritional, and physical interventions, especially if used in combination, can turn things around and move an individual back toward health. To address the whole person, it is necessary to pay attention to all three types of interventions—psychological, nutritional, and physical—and that is where complementary and integrative therapies come in. Dr. Langevin gave examples of complementary practices with overlaps among these three areas. For example, mindfulness-based stress reduction is primarily psychological but may include attention to muscle relaxation (physical) and mindful eating (nutritional). Therapies delivered physically, such as massage therapy, also include psychological components, such as sensory awareness. Practices such as yoga and tai chi have both psychological and physical components. Some multicomponent systems of care, such as Ayurveda, include all the components, and this is increasingly seen in conventional care as well, such as in cardiac rehabilitation programs and diabetes care programs.

Regardless of their primary therapeutic input, complementary and integrative therapies share a focus on engaging the patient's own resources to foster a return to health rather than simply treating symptoms. So instead of asking "Does the treatment work?" as one would for a drug, a different type of question needs to be asked when the patient is doing the work of healing: "How can we assist this individual patient's health restoration?" This is not a question that can be answered one organ system at a time; it is a whole person health question.

The "whole person" and "health" components of whole person health are related because health involves the whole person. Understanding this is important to NIH because the majority of NIH Institutes are focused on specific organs or diseases. However, the focus at NIH is beginning to change. Active working groups interested in whole person health research have been built at NIH, including an internal working group that includes 16 NIH Institutes, Centers, and Offices. NCCIH has also assembled an external working group for whole person health research, and the members of this group have participated in planning

today's meeting. Some leaders of organizations who belong to the external working group will help moderate today's breakout sessions.

Research methods are a crucial element of whole person health research. Last year, NIH held a very successful 2-day workshop on methodology. A recording of that workshop is available on the NCCIH website. Research on whole person health is different from reduction-based research focused on single interventions and systems. Workshop participants discussed how to approach research on the whole person, including how to study interconnected, interacting systems; the impacts of interventions on multiple systems; and the impacts of multicomponent interventions. Gaining this understanding will require adapting existing research strategies as well as developing new methods for whole person research.

Research of this type is challenging but possible. One example is a study on quantification of biological aging in young adults led by Dr. Terrie Moffitt of Duke University, in which a large number of measures were followed over a decade, and a composite measure of the pace of aging was developed. Interestingly, the biological age correlated with many functional measures. An older study by Dr. Dean Ornish's group at the University of California, San Francisco, illustrates how research on multicomponent interventions can be performed. This observational study looked at the effect of a multicomponent intensive lifestyle intervention on cardiac biomarkers and found effects on multiple measures, including serum lipids and C-reactive protein, a measure of systemic inflammation. Another study by the same group provided evidence that intensive lifestyle changes involving diet, exercise, and stress management may have desirable effects in patients with early-stage prostate cancer. These studies demonstrate that trials of multicomponent interventions are feasible and worth the effort.

Artificial intelligence (AI), which greatly increases the power to analyze complex datasets, can play a role in whole person health research. NCCIH is one of the lead Institutes and Centers for NIH's Bridge to AI program, and one of the grand challenges being tackled by that program focuses on health restoration, also called salutogenesis. AI may make it possible to represent the entire metabolic network of a person who might be less than optimally healthy because of poor diet, inactivity, and psychological stress, for example, and who may have some signs of trouble, such as an increase in hemoglobin A1c (HbA1c), an indicator of prediabetes or diabetes. The glucose-lowering medication metformin, which is typically prescribed for such patients, overrides some metabolic pathways, with numerous effects that are not well understood. If the entire metabolism of this patient before and after starting metformin can be visualized, changes in this metabolic network can be linked to drug side effects. Side effects are considered acceptable because of a drug's benefits, but there may be unpleasant surprises along the way, such as the recent realization that cholesterol-lowering statins can increase the risk of diabetes.

Many people with poor diet, sedentary lifestyle, and chronic stress have multiple health conditions, which are treated independently with different drugs. Each condition and drug may lead to increasing distortion of the metabolic network over time. However, if the same individuals were able to manage their stress, improve their diets, and increase their physical activity through self-care and nondrug therapies, they might have an improvement in HbA1c similar to that produced with drug therapy, but with the metabolic network moving closer to normal. This process of returning to health or salutogenesis is an important part

of whole person health that can begin to be studied using advanced research methods such as AI and network analysis.

Another component of research is developing a consistent set of measures of whole person health so that different studies and research groups can talk to one another in the same terms. NCCIH has obtained community input on this topic through a request for information (RFI) to help identify a set of factors that can influence health either positively or negatively. Respondents identified many relevant factors, including sleep (the number one answer), health services, accessibility, exercise, spirituality, and social support, among others. This input has helped NCCIH develop a framework for whole person health that is intended to have enough factors to capture the whole person but not so many as to be unmanageable. Social, environmental, and behavioral determinants of health are included, and biological aspects of health, such as genetics and metabolic markers, are also part of this framework. The individual person, including what matters to that individual and how the individual feels about their health, is central to the framework. The framework also includes the bidirectional continuum of health, where an individual can move from health to disease and, under the right circumstances, back toward health, because of the influences of biological, behavioral, social, and environmental factors. Next steps will include building a set of common data elements and measures for each of the factors in the framework.

Other groups, for example in the Department of Defense (DOD) and U.S. Department of Veterans Affairs (VA), have developed similar frameworks, but theirs are oriented more toward patient care, where NCCIH's framework is oriented toward research. Nevertheless, there are many similarities in the frameworks, with much agreement in the number and types of categories represented. The concept of whole person health is growing rapidly. Many organizations, including universities and health systems, are adopting this perspective.

Another way that NCCIH is moving forward is by expanding its portfolio analyses and incorporating the key elements of the framework into the analysis of funded research. Ultimately, these areas will point toward NCCIH's main goal of developing new funding initiatives. There is much interest in the research community and across NIH in establishing research programs on whole person health.

The goal of today's meeting is to hear from stakeholders about the kinds of research that are needed. NCCIH wants to learn about gaps that need to be addressed and about research topics and questions that will have the greatest overall impact. Existing funding mechanisms can support a range of types of research, including basic and mechanistic studies, translational studies, intervention refinement and optimization, efficacy studies, effectiveness and pragmatic studies, and dissemination and implementation science.

Dr. Langevin discussed the breakout sessions for this meeting and suggested ways in which participants might choose groups to join based on ideas they wanted to share in the first session, which would focus on gaps and opportunities in research of different types, and the second session, which would focus on what is needed to implement whole person health in real-world settings. Dr. Langevin urged participants to be bold during the first session in considering what types of research data could help health care move from a disease-focused model to a whole person model. Then, she asked them to come back to the real world in the second session and consider what incremental changes need to be made to start moving toward whole person health. Dr. Langevin asked participants to keep

their comments brief so more people could participate, to refrain from promoting their own products, platforms, or services, and to remember that the goal is to be prepared to answer the following questions at the end of the meeting: Is whole person health a unifying concept that can successfully coalesce the organizations represented here? Although each of the organizations has its own special interests, does advancing the cause of whole person health rise above the special interests of individual groups?

Questions and Answers

Dr. Ellen Kamhi, representing Natural Alternatives Health Education and MultiMedia, Inc., raised the issue of the financial interests of pharmaceutical and insurance companies. With pushbacks from those interests, can the mission discussed here be accomplished? Dr. Langevin replied that she thinks it can be done with strength in numbers. If enough organizations rise with a common voice and common purpose, people will listen. Having a coalition is important. In addition, health statistics show that there is a need for change, especially in the United States. The health of the nation has reached an alarming state, with life expectancy going down and multiple health crises taking place at the same time. These problems—such as high rates of depression and suicide, drug abuse, maternal mortality, and obesity—are not isolated issues. They are related problems, and there is a need to look at the whole person to address them.

Mr. Awol Seid of Addis Ababa University asked in the chat whether whole person health is best addressed by qualitative research. Dr. Langevin said that qualitative research will play a role, especially in human trials, where qualitative outcomes can be embedded into the design of studies.

Dr. Paul Herscu of the American Association of Naturopathic Physicians suggested that there will be a dynamic tension between whole person research, particularly studies on the effect of a single component on interconnected systems, and the research done in the pharmaceutical industry to commercialize a product. Specifically, when a drug passes through regulatory trials, it does so based on one indication, with a hoped for vert specific target. One drug/one biological target/one specific disease indication. In other words, the current model of looking at one introduced substance and one indication is very different that looking at the whole person. Two different views of research. He asked whether these types of work will overlap and whether they can be kept separate. Dr. Langevin replied that if you have a good, solid method for looking at the effect of a drug on multiple systems, the same type of methodology could be used to look at the effect of a nondrug intervention, such as exercise, on those systems. The important thing is to have sound research methods. Dr. Langevin said that drugs are not the enemy. At some point in the development of a disease such as diabetes, drug treatment may become necessary. It is not an either/or situation. I agree here, but the actual question is how do we develop methodology that looks at the whole person on the one hand and interface that with another model designed to look very narrowly on one indication. There is a sort of dynamic tension here, and these will have to be worked on, to develop language that FDA will be able to use in their trials. Otherwise, there are two methods that have the potential of contradicting each other's work. Whatever the solution, before finalizing this new methodology, FDA should be consulted and brought into discussion, for better implementation and generalizability.

Dr. Lisa Taylor-Swanson of the University of Utah College of Nursing asked in the chat whether NCCIH would consider organizing a common data elements workgroup and where

the common data elements effort might go next. Dr. Langevin said that in developing the whole person health framework, NCCIH first wanted to identify the right factors to include, and that effort has been completed. Next, NCCIH wants to look at the actual data elements that will inform these factors. For example, sleep is known to be an important factor, but the best ways to measure it need to be determined. In this area, NCCIH is following very closely what the NIH working group on social determinants of health is doing already. That group is currently developing common data elements for some social and environmental factors. Other groups at NIH have been developing more behaviorally oriented common data elements, and NCCIH wants to be in sync with them as well.

Dr. Per Gunnar Brolinson of the Edward Via College of Osteopathic Medicine at Virginia Tech said that having healthier individuals and communities and being able to achieve that in a less expensive and more integrated fashion is a broadly desirable goal, but there are special issues in very rural or very urban communities. For example, there have been cases involving groundwater contamination. New technologies are increasing the ability to accumulate large amounts of environmental data and creating opportunities for research in this area, eventually making it possible to be community and region specific in terms of the types of health care delivery that need to occur. Dr. Langevin said that the National Institute of Environmental Health Sciences was one of the first to comment on NCCIH's new strategic plan, with its whole person health focus. They made the point very strongly that environmental factors, such as air, water, pollution, and toxins, need to be incorporated into the whole person health model. NCCIH is also very interested in the interaction between environmental factors and stress because stress may make people more sensitive to environmental impacts.

In the chat, CDR Heidi Hudson of the National Institute for Occupational Safety and Health and Dr. Maria Mascarenhas of Children's Hospital of Philadelphia (CHOP) asked about age-related topics, with one asking about whether whole person health has a specific age range and the other asking whether the research will include children. Dr. Langevin said that the National Institute on Aging (NIA) and the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) are both part of the NIH internal whole person health working group and have contributed to this workshop. The whole person health concept applies across the lifespan, especially in important times of transition, such as birth to childhood, adolescence, middle age, and finally old age. The dynamic processes across the lifespan will be very important to study. It is important to recognize that people are not necessarily always going downhill as they grow older. There are opportunities for improving the trajectory. Important topics to study include the impact of lifestyle choices on the pace of aging and the impact of what is going on in the family on the development of children, for example.

Mr. Michael Goldstrom of GetMotivatedBuddies asked about the extent to which the Small Business Innovation Research (SBIR) program would reflect the changes discussed at this meeting and whether there would be support for businesses who are working in the whole person health space. Dr. Langevin said NCCIH welcomes grant applications that use the SBIR or Small Business Technology Transfer (STTR) funding mechanisms. Whole person health is the central focus of NCCIH's strategic plan, so funding for small business projects in this area is possible.

Dr. Ben Kligler of the Veterans Health Administration (VHA) asked whether the whole person health concept is giving enough weight to the social and structural determinants of health and whether there are enough stakeholders present from populations whose health is compromised by such factors. There has been much discussion of the idea that ultimately, the way to move to whole person health is to flip spending from health care to social support and the social safety network. Is this topic being incorporated enough into the whole person health conversation? Dr. Langevin said that this area is one of the reasons why she serves on the executive committee of the social determinants of health working group at NIH. NCCIH wants to make sure that NIH's extensive efforts related to social determinants of health are incorporated into the conversation on whole person health. There is disagreement about whether the social and environmental determinants of health should include individual behaviors. Behavioral and biological factors, along with social and environmental ones, are part of the whole person health framework.

Dr. Kevin Klauer of the American Osteopathic Association asked about follow-up initiatives that will be created in response to this workshop and whether there will be NIH funding for research on whole person health. Dr. Langevin said that NCCIH has already developed and will continue to develop research funding opportunities specifically targeted to whole person health, but she cannot specify now what future initiatives will consist of. The discussions at this meeting will help in identifying research gaps and therefore in informing future funding opportunities.

Breakout Groups—
Gaps and Opportunities in Research

Clinical Trials/Clinical Research

Moderators

— Peter Murray, Ph.D., program director, Clinical Research in Complementary and Integrative Health Branch, Division of Extramural Research (DER), NCCIH

— Wendy Weber, N.D., Ph.D., M.P.H., branch chief, Clinical Research in Complementary and Integrative Health Branch, DER, NCCIH

Attendees

— Iris Bell, M.D., Ph.D., professor emerita, College of Medicine, University of Arizona (representing the American Institute of Homeopathy)

— Per Gunnar Brolinson, D.O., vice provost for research, Edward Via College of Osteopathic Medicine

— Daniel Cherkin, Ph.D., director of research, Osher Center for Integrative Health, University of Washington

— Lisa Conboy, D.Sc., chair of research committee, American Society of Acupuncturists

— Danielle De Pillis, certified yoga therapist, Twelve Petals Wellness

— Wyona Freysteinson, Ph.D., R.N., professor, Texas Woman's University (representing the American Holistic Nurses Association)

— Julie Fritz, Ph.D., P.T., professor, University of Utah (representing the American Physical Therapy Association)

— Varleisha Gibbs, Ph.D., O.T.D., O.T.R./L., A.S.D.C.S., vice president, Practice Engagement and Capacity Building, American Occupational Therapy Association

— Lori Gooding, Ph.D., associate professor, Florida State University (representing the American Music Therapy Association)

— Patricia Herman, N.D., Ph.D., senior behavioral scientist, RAND Corporation

— Paul Herscu, N.D., M.P.H., chair, Scientific Affair Committee, American Association of Naturopathic Physicians

— Sunil Iyengar, director of research and analysis, National Endowment for the Arts

— Helene M. Langevin, M.D., director, NCCIH

— Erem Latif, M.S., M.B.A., vice president of marketing, CorEvitas, LLC

— Michele Maiers, D.C., M.P.H., Ph.D., member, Integrative Healthcare Policy Consortium; executive director, Northwestern Health Sciences University

— Maria Mascarenhas, M.D., medical director, Integrative Health Program, CHOP

— Nora Nock, Ph.D., M.S., associate professor, Case Western Reserve University

— Donna Pittman, M.D., vice president, American Academy of Medical Acupuncture

— Archana Purushotham, M.D., Ph.D., assistant professor, Baylor College of Medicine; director, Veterans Health Administration Integrative Headache Center of Excellence, Michael E. DeBakey Veterans Affairs Medical Center

— Jennifer Rioux, Ph.D., vice director of integrative medicine programs, George Washington University

— Karen Roberto, Ph.D., executive director, Institute for Society, Culture, and Environment, Virginia Tech

— Milagros Salas-Prato, M.Sc., Ph.D., president and chief executive officer, Hans Selye Foundation

— Michelle Simon, Ph.D., president and chief executive officer, Institute for Natural Medicine

Drs. Wendy Weber and Peter Murray hosted this session. Dr. Weber introduced herself and Dr. Murray. She said this breakout session would address the gaps and opportunities in clinical trials and research. She asked the group what needed to be done to expand whole person health research.

Dr. Lisa Conboy of the American Society of Acupuncturists said a lot of work is being done in schools and individual clinics around the country. She would like to find a way to build on what has already happened in places that have used whole person health models. She said that NCCIH does not usually fund research that targets the bottom of the evidence hierarchy. NCCIH wants researchers to use randomized controlled trials, systematic reviews, and meta-analyses. She said that developmental research and research in real-world situations should receive funding support. Scientists can become siloed in their approaches to research. Investigations conducted by practitioners and those based on theory have not been encouraged.

Dr. Michelle Simon, representing the Institute for Natural Medicine, said practices that address whole person care, such as those that use Ayurveda and naturopathy, could be examined to learn more about systems of care. Those practices could be evaluated to examine the effects of whole person care on specific conditions. Practice-based networks of providers are sources that could inform the creation of whole person health systems.

Dr. Iris Bell of the University of Arizona, representing the American Institute of Homeopathy, said randomized controlled trials are structured to test individual pharmaceutical drugs, but that type of trial has become the standard for determining if a therapy is an acceptable intervention. Instead, researchers could focus on implementing N-of-1 studies and meta-analyses of N-of-1 studies. To move forward, clinical research must be able to accommodate the individualized treatment of patients.

Dr. Julie Fritz of the University of Utah, representing the American Physical Therapy Association, said more foundational investigations need to be conducted before the field is ready for rigorous clinical trials. Interventions focused on whole person health inherently have multiple components. Designing, defining, and optimizing multicomponent interventions requires a lot of development. Research methodologies need to be developed to fit those interventions. Strategies need to be developed to define interventions. To understand patterns in outcomes and compare outcomes across studies, researchers need to first define measurable components and create a common data set.

Dr. Brolinson of the Edward Via College of Osteopathic Medicine suggested developing better interventions and systems of interventions to treat patients with long COVID-19. The clinics that have been treating long COVID-19 should be examined to determine which approaches, exercises, and supplements have been beneficial. A clinical study could be developed to learn what needs to be measured and which interventions make people feel better.

Dr. Herscu of the American Association of Naturopathic Physicians said that conceptualizing and operationalizing an approach are the next steps in whole person health research. He noted that time and money are important variables in research. The amount of time spent engaging in an intervention should be considered. He said the development of any intervention should incorporate the conceptual model of the therapeutic order of naturopathy.

Dr. Jennifer Rioux of the George Washington University recommended establishing guidelines for reporting what transpires in studies. She also suggested establishing minimum guidelines for collecting outcomes related to social and environmental influences on health and wellness. In holistic disciplines such as Ayurveda, tailoring and individualized care are important features of intervention design. These disciplines need semi-standardized protocols. Conditions and research populations need to be clearly delineated. She added that researchers should measure the sustainability of therapeutic outcomes.

Dr. Patricia Herman of the RAND Corporation said that reporting guidelines for a study on a system of medicine should include information on how that system differs from a multicomponent intervention. Research reporting needs to include the underlying theory behind the intervention. Including the theory could enable study replication. She noted that health care researchers tend to believe the health care system can solve everyone's problems but directing funding toward and implementing interventions through social services may result in better outcomes.

Dr. Daniel Cherkin of the University of Washington said he is a clinical trialist, and investigating the whole person creates enormous challenges for researchers. Standardization has been the hallmark of research at the NIH. Tailoring interventions to the individual is the objective of whole person health. Research methods that isolate the specific effects of an intervention to make that intervention replicable makes it less relevant to the whole person. Striving for replication eliminates the intent of whole person health.

Dr. Wyona Freysteinson of Texas Woman's University, representing the American Holistic Nurses Association, said that research settings such as home health care, nursing homes, and clinics could be advantageous to whole person health research, but they are not perfect and cannot be controlled as rigorously as randomized controlled trials. She added that research must focus on learning how to empower individuals and communities to improve their own health care.

Dr. Michele Maiers of Northwestern Health Sciences University, representing the Integrative Healthcare Policy Consortium, said she agrees with developing a core set of outcome measures for research on whole person health. She said study designs should consider measuring people's preferences and their expectations about interventions. Those outcomes are especially relevant to real-world situations because learning how people choose providers for this type of care is important.

Dr. Bell said predicting both global and local improvements is a challenge when studying homeopathy. Research on whole person health needs to view global outcomes as an emergence from a complex, adaptive system, and that system is the whole person. A person is an intact, integrated system, and interventions have multiple components that interact with that system. Outcome measures in whole person health research need to be adapted to reflect that complex, adaptive system.

Dr. Mascarenhas of the CHOP recommended beginning data collection when children are infants in a hospital. Data from a hospital's electronic medical records could be examined for patterns. She added that research needs to be pragmatic. She suggested holding a conference for pediatric researchers to learn about appropriate study designs and outcomes. She also encouraged NCCIH to issue policy statements that could be used to inform institutional review boards for funding. She noted that hospitals already collect data on education levels and economic status, and that information could contribute to a whole person health approach.

Dr. Rioux said that discipline-specific causal theory should be included in all research designs to explain why a study intervention works. She added that research conducted on multicomponent, multivariable therapeutic approaches needs to acknowledge that many holistic disciplines purposefully invoke nonspecific effects, because those effects may generate unexpected results. Nonspecific effects may be a feature of a study's paradigm and should not be interpreted as confounding variables.

Dr. Rioux commented that comparing studies and reproducing studies are different concepts. She said comparing the features of an intervention, not its specific outcome, is important. Researchers cannot always rely on systematic reviews and meta-analyses, because those methods erase the features, context, and participant experiences of an intervention. Ethnographic, qualitative, mixed, and whole-systems methods are good approaches for research in the holistic disciplines. Empowerment and values drive whole-systems research. She added that collecting data using AI methods erases the lived experience.

Dr. Murray asked the group to suggest methods and tools that could be developed to achieve the outcomes important to this research community.

Dr. Conboy said most practitioners at NIH have a biomedical viewpoint. However, research in complementary and integrative fields should include more people who understand the theory of whole person health, especially when establishing the metrics, doses, and time frames that will produce the best outcomes.

Dr. Lori Gooding of Florida State University, representing the American Music Therapy Association, said that complementary and integrative researchers and practitioners need to be represented in studies. Patients and families should also be represented. An infrastructure that can enable multiple kinds of research needs to be in place. Members of complementary and integrative disciplines and professions need to have access to information in electronic medical records. Randomized controlled trials may not be the best way to explore research questions.

Dr. Simon said that to understand the complex approaches to whole person care, researchers should investigate the models and systems that have already successfully delivered those patient outcomes. The use of platforms that collect patient-reported

outcomes should be considered to help understand the patient experience. Many standardized tools, such as the General Anxiety Disorder–7 scale and Patient-Reported Outcomes Measurement Information System (PROMIS) program, can be used to assess the models and can be used across disciplines.

Dr. Cherkin said that the specific effect of a treatment on a patient is less important than the global effect. For example, if a person's pain is treated with acupuncture, many aspects of that person's life may improve. Determining how to measure the different dimensions of well-being in a way that would be considered valid and meaningful is a challenge. Exploratory measures and outcomes should be added to studies.

Dr. Fritz asked how an aspect such as spiritual well-being could be quantitatively measured. She said developing an outcome that quantitatively incorporates all the dimensions of well-being may not be possible. She added that leveraging measures derived from digital health devices that monitor people outside of the health care setting will be critical for the management of chronic conditions.

Dr. Archana Purushotham of the Michael E. DeBakey Veterans Affairs Medical Center and the Baylor College of Medicine said that measures of general wellness should be included in studies that measure a specific outcome. For example, in a study of the effect of an intervention on headaches, a measure should be included that asks if the participant feels generally better. She suggested developing a wellness index.

Dr. Weber mentioned some trial designs that had been added to the chat, including multiphase optimization strategy (MOST), AI, and machine learning. She noted that in October 2021, NCCIH held a workshop on methodologies that included these suggestions and others, such as N-of-1 designs, meta-analyses of N-of-1 designs, and data mining. She said all research proposals at NIH go through peer review, and the process examines scientific rigor very carefully. She asked the group how they would manage and minimize bias in study designs.

Dr. Rioux said that people may interpret subjective experience as bias. The bias label is problematic and hinders progress in the field of health outcomes science. The holistic disciplines focus on the quality of a relationship. Features of a study can be specified but not necessarily controlled. She recommended using description as an antidote to the notion of bias. Researchers should be specific about what they did and how they did it.

Dr. Rioux commented that many populations that experience an undue burden of disease have been subjected to a high degree of surveillance. These populations tend to have an adverse reaction to AI methods of data collection. The research community has caused a lot of harm to vulnerable populations. She said that trust and reciprocity are important issues to consider, and she advocated for reflection and sensitivity when collecting data.

Dr. Cherkin said that the peer review process is the reality of science, even if it seems unreasonable. Researchers need to be proactively educated about the process.

Dr. Weber asked for other ways to introduce rigor into study designs that use a whole person health approach. What analytic methods allow for multiple measures in a study? Will a good description of an intervention enable similar results in the broader research community?

Dr. Herscu said that studies need to be matched and have controls. A lot of money is spent on interventions. Clinicians need to understand and be able to demonstrate how an intervention will affect outcomes.

Basic Research

Moderators

— Wen Chen, Ph.D., branch chief, Basic and Mechanistic Research Branch, DER, NCCIH

— Mark Pitcher, Ph.D., special assistant to the director, NCCIH

Participants

— Julia Arnold, Ph.D., program director, Translational Research Program, National Cancer Institute (NCI)

— Juliane Baron, M.P.A., executive director, Federation of Associations in Behavioral and Brain Sciences

— Catherine Bushnell, Ph.D., president, International Association for the Study of Pain

— Sharon Harrasser, holistic nutrition and wellness provider, Thirteen Zebras Wellness

— Richard Harris, Ph.D., professor, Department of Anesthesiology, University of Michigan (representing the Society for Acupuncture Research)

— Emrin Horgusluoglu, Ph.D., program director, Basic and Mechanistic Research Branch, DER, NCCIH

— Lou Jent, owner, BrainCaveOrg

— Helene M. Langevin, M.D., director, NCCIH (participated in one portion of the session)

— Jade Ly, Ph.D., consultant, Handford, LLC

— Leena Palav, M.S., chief executive officer, Grandview Group, LLC

— Erin Burke Quinlan, Ph.D., program director, Basic and Mechanistic Research Branch, DER, NCCIH

— Koninika Ray, Ph.D., director of biomedical research, Open Health Systems Laboratory

— Jennifer Sacheck, Ph.D., professor, Milken Institute School of Public Health, George Washington University

— Jeff Schmitt, Ph.D., scientific advisor, Sanesco Health

— Laura Stone, Ph.D., professor, Department of Anesthesiology, University of Minnesota

Dr. Wen Chen, branch chief for the Basic and Mechanistic Research Branch in the DER at NCCIH and Dr. Mark Pitcher, special assistant to the director of NCCIH, hosted this session. Participants introduced themselves, and then each participant had the opportunity to describe one challenge for basic research on whole person health, along with a potential solution if possible.

Dr. Laura Stone of the University of Minnesota said she was struck by the idea presented by NCCIH Director Dr. Helene M. Langevin of looking at multiple outcomes or multiple interventions in whole person health studies. She expressed concern that NIH grant applications with multiple outcomes or interventions would be triaged as unfocused. She suggested the possibility of having special calls for preclinical studies focused on multiple

interventions or systems. Dr. Chen said that this topic had been raised at the 2021 mechanistic workshop. There is no solution yet, but with the advent of AI and large data analysis, it may be possible to develop a single rating scale for whole person health.

Dr. Julia Arnold of NCI, NIH, who works with integrative oncology, including Ayurveda, said that reductionist inquiry is not an effective way to study multiple modalities used together or to study herbs or other modalities that have multiorgan and multisystem effects. Getting people to work together and brainstorm is an important first step in addressing research challenges.

Dr. Jeff Schmitt, a former faculty member from Wake Forest University who is now in the private sector, said that large private health-related databases may be an asset for whole person research if collaborations can be established without compromising trade secrets. He also said that on a global level, what may be missing is a definition of a well society. Without a common benchmark for a well society, it becomes diffuse and difficult to align around research designs. Drawing on his experience as a curandero, he said that the difference between healing and curing is important, but many practitioners do not make this distinction. Healing is inextricably connected to one's self-identity, meaning, and spirituality.

Dr. Richard Harris of the University of Michigan, co-president of the Society for Acupuncture Research, said that Dr. Schmitt's comment made him think of the archetype of the wounded healer—a concept missing from Western medicine. One of the challenges he sees is being able to translate across the full spectrum of analysis and synthesis to identify the molecular constituents of whole person health. Based on his background in neuroscience, he said that the brain has a privileged position in our physiology and that he expects that the interconnection of organ systems, involving both the nervous system and the fascia, is likely to be important. Hormones, inflammatory cytokines, and neurotransmitters may also play roles in whole person health. It is unlikely that there will be one key factor; he expects to see more of a soup.

Dr. Catherine Bushnell, current president of the International Association for the Study of Pain and former scientific director of NCCIH's Division of Intramural Research, said that NIH's usual funding model will not work well for whole person health. Epidemiologic studies of multiple factors and outcomes are needed, and naturalistic studies of animals in social environments could be valuable. Dr. Chen mentioned current research in Japan on monkeys that use herbs to heal themselves and pass knowledge from mother to children. Dr. Bushnell mentioned past studies of social touch, including studies of the effect of naloxone or placebo on social touch. Dr. Pitcher mentioned studies on aggressive behaviors in rodents in realistic environments and suggested that larger-scale research of this type could be informative.

Ms. Sharon Harrasser, a wellness coach and new integrative health researcher, said that wellness in the context of chronic disease is not well understood. She also said that getting whole person ideas accepted in clinical practice will be challenging. Although the importance of whole person health is recognized, it does not fit in with the current allopathic structure, which makes it more difficult to do research.

Mx. Lou Jent, who was representing the neurodiversity platform BrainCaveOrg, pointed out that the responsibility of attaining and maintaining health has been placed on the individual, but this is difficult for individuals who exist within broken systems. This stakeholder meeting is taking place because of recognition that the system is broken.

Redefining our systems is a huge challenge. A potential solution is to center individuals within the whole person health initiative, but individual perspectives are not well represented at this meeting because only representatives of organizations were invited to make public comments. Mx. Jent also noted that many people have a medical or mental health diagnosis and asked what it would be like for everyone to feel like a whole person despite that.

Dr. Koninika Ray, who is involved in evaluating Ayurveda treatment of cancer, said that Ayurveda expects to address the whole person in both health and disease and incorporates the concept that multiple systems interact in the body. However, data are lacking, and techniques of modern medicine need to be combined with traditional methods. To study whole systems, collaborations are needed. No one individual or organization can do the work alone.

Ms. Jade Ly, who was representing a company with interests in acupuncture, brought up the need to focus on health, not just disease, and on the individual person. It is a challenge to incorporate alternative therapies into today's medical system to promote health.

Ms. Leena Palav, who explained that she is a medical device professional, suggested that whole person health should be looked at as a system, using systems engineering. In addition, more long-term research is needed, particularly for chronic conditions. One challenge for researchers is how to incorporate time as a factor and simulate long-term impacts.

Summarizing the discussion so far, Dr. Pitcher said that some of the challenges discussed have to do with the NIH grant review process, which may not be ideally suited for multicomponent interventions and multiple outcomes. Other comments focused on the need to support more naturalistic or ecologically relevant preclinical research, some of which may need to be longitudinal. Some comments focused on technological and methodological challenges, including the challenge of identifying the molecular components of whole person health. There was discussion of data sharing and the difficulties in getting it right when multiple stakeholders or proprietary data are involved. There were also comments on how to incorporate approaches such as Ayurveda into whole person health and the medical system and how to define a well society.

Dr. Langevin, who was visiting this breakout session, pointed out that basic research on mechanisms may need to begin with integrative research involving interactions of two or three systems. For example, much recent research has focused on the brain-gut axis, but 10 years ago, no one was working on this concept. She said that in her mind, these types of integrative research are part of whole person research. They do not reflect the entire person but putting together systems that are not typically considered together is an important part of understanding the whole person. Proposals for experiments that link different body systems or parts that are not usually studied together would fit in with whole person health research. Dr. Chen suggested that it may be possible to take advantage of existing large datasets and look for connections there to study two or more systems. Dr. Langevin said that she understands that the term whole person can introduce confusion, and she wanted to clarify that integration is part of it.

Dr. Ray said that looking at mechanisms for interactions and connections between mind, body, nutrition, and lifestyle is fundamental to Ayurveda. The biological mechanisms of these interactions need to be better understood. More observational studies of real-world

treatment are needed. The body responds to treatments as a whole rather than as a collection of individual systems.

Mx. Jent said that open data sharing is valuable, and patients' fear that their data will be misused is overblown. Besides, Google already has their data anyway, Mx. Jent said. It will take a great deal of education to overcome this fear, and that is a challenge for public health. Mx. Jent also pointed out the importance of involving patients in policymaking.

Dr. Harris pointed out that therapies may have collateral benefits as well as undesirable side effects. An example is the collateral benefits of acupuncture discussed in a Society for Acupuncture Research white paper. It could be valuable to consider the possibility of collateral benefits in clinical trials. Might there be a funding mechanism or stimulus that would support this? There may even be existing data on collateral benefits that would support the whole person health concept.

Dr. Schmitt asked whether discussions are taking place at NIH to lower barriers to access to genomic data. If researchers who are doing integrative, unconventional research have access to genomic data, they could get systems-based insights on their findings and investigate hypotheses about connections between gene expression and the treatments they are studying. However, researchers outside of the teaching hospital mainstream may not have easy access to the data. Dr. Chen said that in her experience with the Database of Genotypes and Phenotypes (dbGaP), people can obtain access for scientific research purposes, but the process takes time.

Additional points made in the chat included the following:

- Dr. Stone: It may be possible to target epigenetic trauma through lifestyle changes that modulate epigenetic changes.
- Mx. Jent: The current structure for health care may discourage empathy, and the current siloing of research and health care for reasons of funding and insurance does not lend itself to whole person health.
- Dr. Schmitt invited everyone to reach out to him if human stress axis (HPAT), nutrigenomic (SNPs), and/or cardiac (wearable real-time monitoring, including electrocardiogram) data would help their research.
- Dr. Arnold: Focusing on common mechanisms of disease, such as inflammation and loss of immunity, may be a way to address the whole person.

Implementation Science and Dissemination Research

Moderators

— Beda Jean-Francois, Ph.D., program director, Clinical Research in Complementary and Integrative Health Branch, DER, NCCIH
— Patricia Deuster, Ph.D., M.P.H., executive director and professor, Consortium for Health and Military Performance, Uniformed Services University of the Health Sciences

Participants

— Gautum Bose, M.S., software entrepreneur, health coach, and graduate student, Maryland University of Integrative Health

— Joseph Brady, M.S., Dipl.O.M., adjunct professor, University of Denver and Colorado School of Traditional Chinese Medicine

— Margaret Chesney, Ph.D., professor of medicine, University of California, San Francisco (representing the Integrative Health Policy Consortium)

— Sekai Chideya, M.D., M.P.H., program director, Clinical Research in Complementary and Integrative Health Branch, DER, NCCIH

— Doug Coatsworth, Ph.D., associate dean of research, College of Social Work, University of Tennessee–Knoxville

— Katherine Dondanville, Ph.D., clinical psychologist and associate professor, Health Science Center, University of Texas San Antonio

— Emmeline Edwards, Ph.D., director, DER, NCCIH

— Carol Goldman, D.A.C.M., acupuncturist, Penn Medicine, Lancaster General Hospital

— Amy Goldstein, M.S.W., director, Alliance to Advance Comprehensive Integrative Pain Management

— Michael Goldstrom, chief executive officer, GetMotivatedBuddies

— Heidi Hudson, Dr.P.H.(c), M.P.H., research program coordinator, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention

— Ellen Kamhi, Ph.D., R.N., A.H.N-B.C., R.H.(A.H.G.), vice president, Natural Nurse Health Education

— Crystal Kimbrough, M.S., nurse, Chicago Department of Public Health

— Ben Kligler, M.D., executive director, Office of Patient Centered Care and Cultural Transformation, VHA, VA

— Amy Locke, M.D., chair of board, Academic Consortium for Integrative Medicine and Health

— Mo Merritt, Ph.D., consultant

— Juli Olson, D.C., D.A.C.M., F.A.I.H.M., national lead, acupuncture, Central Iowa Health Care, VA

— Deborah Outlaw, J.D., Federal lobbyist, The Outlaw Group (representing the American Massage Therapy Association)

— Leena Palav, M.S., chief executive officer, Grandview Group, LLC

— Stacie Salsbury, Ph.D., R.N., associate professor, Palmer Center for Chiropractic Research

— James Snow, D.C.N., department chair, Nutrition and Herbal Medicine Department, Maryland University of Integrative Health

— Lisa Taylor-Swanson, Ph.D., M.Ac.O.M., assistant professor, College of Nursing, University of Utah

— Shimon Waldfogel, M.D., physician, Citizens4health

— Steven Weiniger, D.C., advocate, PostureMonth.org

— Charis Wolf, D.T.C.M., vice chair of operations and research co-chair, American Society of Acupuncturists

— Weijan Zhang, Dr.P.H., assistant professor, David Geffen School of Medicine, University of California Los Angeles

Dr. Beda Jean-Francois said that implementation science can accelerate progress toward achieving health equity goals. The whole person health initiative provides a lens through which to look at the context and social determinant factors relating to health.

Dr. Patricia Deuster said that there has not been much emphasis on program evaluation or the fidelity of implementation, which drives the anticipated and desired outcomes. How do we get these into the implementation of implementation science? How do we disseminate this information and reach the people who work in the programs, considering their location, culture, and other similar factors?

Dr. Deuster asked what the participants would like to see come out of the whole person health initiative and opened the floor to discussion.

Dr. Emmeline Edwards noted that in the context of this discussion, the term "dissemination" should be considered through the lens of implementation science. This means considering the specific methodology and context that need to be included in implementation science research.

Dr. Edwards noted that considering the accumulated evidence base is necessary before going into implementation science. NCCIH published an article in the *Journal of Alternative and Complementary Medicine* a year and a half ago that focused on conceptualizing the concept of implementation science regarding complementary and integrative health. NCCIH has developed several initiatives to move forward in this area. In reference to an earlier comment about not needing more research, she said it may be possible to begin moving forward in some practice areas, but this is not the case for all areas.

Mr. Goldstrom said that although Dr. Langevin had mentioned measuring individual and social impact, he believes that these measures should be fully integrated because the community is comprised of individuals. Thus, measurement starts with the individual. There is a misalignment that often occurs between individual perception of or feelings about an intervention or an experience, and the true meaning of abstract information in the medical community. Bridging the chasm between individual perceptions and abstract information is the greatest challenge to translating research for people's lives. Collecting both qualitative and quantitative data are crucial for bridging this chasm, but those measurements may not be sufficient because often, the language used to convey the data

is very narrow and only pertains to certain disciplines. For example, to address “behavior,” you need to know what type of behavior is being addressed and in what area, especially in the context of “whole health.”

Professor Joseph Brady said that measuring health is not the problem because enough information is already known on how to prevent disease; the problem is funding. Searching for “health promotion” in the NIH RePORTER yields a few studies that assess health promotion among AIDS patients or cancer survivors, but not among healthy people. NIH funding seems to go to disease, not health. Large health promotion programs may typically get $100,000 in funding, whereas a drug intervention program can get $100 million in funding. With such large funding disparities, it is difficult to get the word out about the health promotion techniques that are known to work. If whole person health does not become a priority, it will be extremely difficult to get funding.

Dr. Deuster said that NCCIH understands this, and she requested that participants frame their comments from the perspective of implementation.

Mr. Gautum Bose said that the workplace presents a good opportunity for implementing whole person health research. Currently there is not a single, cohesive, systematic approach to wellness in the workplace. Different corporations have different approaches to wellness, so if there is a way to package whole person health content into workplace wellness platform, that would be a good way to reach a lot of healthy people.

CDR Hudson said that in the whole person health slides, the workplace was not shown on its own. However, the workplace can be considered a social determinant of health on its own because we spend so much time working. Employers and workers are important audiences for the whole person health initiative. Health insurers, workplace wellness programs, and occupational safety and health programs could be tapped as both research partners and audiences who should receive whole person health information and research data.

Ms. Crystal Kimbrough said that there is a need for increased care coordination, which is a key component for bridging the gap. More funding is needed for the care coordination aspect, to shift the care coordination paradigm, which is currently passive in that there are few partnerships between payers and providers. Quality measures and decision support tools need to be incorporated for providers to use in care coordination. These will allow care coordinators to engage with individuals and incorporate patient activation measures that assess the individual experience and perceptions about their own involvement in decision making about their own care. Also, open-source census data mapping tools can be used to drill down into the populations being served to determine the resources that are required to provide needed services. Funding and research are needed for a decision-making tool for care coordination.

In the chat, Mr. Goldstrom said that a crucial component of implementation is incentives. Regarding workplace health, what are the incentives to implement protocols? Often, asking workers to implement wellness activities for insurance purposes can lead to “rebelling” because it feels top down, and they are perceived as a means of limiting autonomy. Individual autonomy is a crucial component of implementation, he said, especially regarding long-term motivation.

Dr. Margaret Chesney said she agrees with the recommendation about using the work setting. We need to think about the full lifespan when considering implementation, from children to seniors, and consider partnering with NICHD and NIA.

Dr. Taylor-Swanson said that to get buy-in from leadership, we need to provide evidence on efficacy and data on costs before leadership will consider moving forward on implementation. In the area of acupuncture research, even evidence from systematic reviews and meta-analyses with moderate effect sizes is not considered sufficient. There is a need for strategic conversations about how to present data in compelling, accurate ways and how to determine when the existing data is sufficient.

Ms. Amy Goldstein said that different community members use different terms to explain the concept of access to pain management, and this affects implementation and dissemination. There are many dissemination awards and coalitions, such as those from the Patient-Centered Outcomes Research Institute (PCORI), but dissemination alone is not enough. It must be combined with end-user (i.e., employer) perceptions of what concepts like pain management mean for them, so they understand how it can change their practice. They need a whole structure that translates what is being learned to metrics that are important to them, such as productivity, return to work, return on investment, and absenteeism. Although her organization just published a paper on barriers to pediatric pain care that included input from all the relevant stakeholders, nothing has been implemented because no organization has stepped in to pull it together. It is important to consider how the funding can create something meaningful to change current practice.

In the chat, Mr. Goldstrom said that he agreed that there needs to be common language. Many people do not delineate the differences between concepts like well-being and wellness, he said.

Dr. Charis Wolf said that she has been trying to get integrative medicine to work together at the state and national levels. In addition to the need for common language, a structure is needed for integrative disciplines and organization—hospitals, clinics, and others—to work well with each other in practice. Another challenge is that many different complementary forms of medicine are private practices that are not yet integrated into health care systems.

In the chat, Dr. Juli Olson agreed that it is challenging to engage private practices.

Dr. Kligler said he agreed with a previous comment about the need to determine how much evidence for effectiveness is needed before we are ready to test implementation strategies, especially for interventions that have no or little downside. He urged NCCIH to flex where we put bar regarding the level of evidence that is needed before we can test implementation strategies.

Dr. Edwards said that she had shared in the chat the information about the paper that she had mentioned. The link is: https://pubmed.ncbi.nlm.nih.gov/33788600/ and the citation is: Clark D, Edwards E, Murray P, Langevin H. Implementation science methodologies for complementary and integrative health research. *Journal of Alternative and Complementary Medicine*. 2021;27(S1):S7-S13.

Dr. Edwards said that NCCIH is encouraging the research community to begin thinking about hybrid design. This would allow researchers to use type 1 or type 2 designs if there is not much evidence yet. Hybrid studies could combine efficacy research with implementation science, thus, allowing implementation science to begin earlier than usual.

Dr. Kligler agreed that hybrid designs are useful as a strategy for moving forward.

In the chat, Dr. Taylor-Swanson said that it is exciting to hear about the hybrid designs that are fundable with NCCIH. This can drive science forward faster toward implementing in meaningful ways, she said.

Ms. Deborah Outlaw agreed with Ms. Goldstein's comment. She also mentioned points that had been raised by several speakers, including the need for a common language and care coordination. She said that she believes that there is a particular need to involve other government payers, especially the Centers for Medicare & Medicaid Services (CMS) in these discussions.

Dr. Steven Weiniger said that more money needs to go into health promotion, not only disease care. There are opportunities to leverage funding by collaborating with providers in the same local area if messaging around self-care could be agreed upon. There is an element of competition that happens at a local level, he said. Having common, agreed language that is supported by organizations such as NIH or NCCIH that targets health care professionals and paraprofessionals in specific local areas to promote good habits for posture, eating, and basic preventive care is needed. It is not enough to just develop agreed language, however. Materials about health promotion would need to be sent to them and interactions would need to be established and maintained, possibly through collaboratives at local hospitals, to communicate the common language and practices we aim to promote and to get their buy-in. These types of points of synergy are not currently being explored, he said.

Ms. Palav agreed with the previous comment on the need to include other agencies such as CMS. Including the U.S. Food and Drug Administration (FDA) is also important for regulatory approvals. She suggested that NCCIH and the whole person health community members consider leveraging consumer demand for supplements, devices, and other complementary and integrative health modalities as an opportunity for whole person health implementation and dissemination.

Dr. Stacie Salsbury said that NCCIH had worked with the DOD and the VA. However, those organizations have money elsewhere that takes away from their ability to look at whole health in other settings, such as community health settings, where most people receive complementary and integrative care. Regarding the previous comments on the low amounts of health promotion research, she said that the nonpharmacologic community often portray themselves as in opposition to pharmacologic groups. She suggests considering the latter as partners, instead, to support health promotion work. Regarding the comment on including CMS, she said that chiropractic research is largely funded for spinal manipulation but not for other things. Chiropractic care is a multimodal intervention that extends far beyond spinal manipulation, but activities such as nutritional counseling, health promotion, and exercise are not reimbursed, so they are not done as often. When NCCIH only uses the words "spinal manipulation," and hides the word "chiropractic," this does not allow rigorous investigation of an entire approach to health care, she said.

Dr. James Snow said he encourages NCCIH not to think of research as linear, but instead, to consider how implementation and dissemination can be used to inform other research areas as well as which interventions are even worthy of being studied based on scalability and sustainability.

Dr. Edwards said that NCCIH does not think of research in a linear way. While research is a continuum, NCCIH is not recommending it to be done linearly or by a single set of individuals. Knowing the barriers to implementing a particular approach can inform different areas of its development, she said, so the continuum is not one-way.

Dr. Snow said that even so, sometimes interventions are investigated that are difficult to scale. The implementation and dissemination viewpoint needs to be considered earlier, he said.

Ms. Goldstein said that scalability is another example of an area where it is valuable to understand and consider the experiences of each stakeholder. Sometimes one group of stakeholders will say that a particular intervention is scalable, but others, such as payers, will disagree. It is important to discuss the nuances of how to translate whole person health interventions into the real world for all the stakeholders, not just some of them. Nevertheless, focus groups have shown that all stakeholders say they want whole person health. The details of what whole person health actually looks like still need to be ironed out to follow the money, she said.

In the chat, CDR Hudson said, for each of the determinants of whole person health, there are research questions that can lead to better understanding systemic and organizational-level changes that affect population-level health.

Mr. Goldstrom said that the challenge for dissemination is that the information space is already overwhelming because there is so much information. Effective information dissemination requires considering many factors, including the source of the information, the target audience, the dissemination channels, the actual audience, how people are interpreting it, and the competition. All these factors influence how much people trust the information. Allowing people to experience an intervention increases trust, even if the experience is second-hand through someone they know personally. Building or rebuilding trust is critical to information dissemination, especially for abstract research concepts, because trust in institutions has been decreasing.

Mr. Goldstrom also said that equitable access to interventions is crucial. Access is related to scalability, he said, but the intervention also must be doable on a practical, everyday level by people at every level of the socioeconomic scale.

Dr. Amy Locke said there is a need to fund projects that look at psychological aspects of health behavior change, such as cognitive flexibility and self-awareness. Psychological literature is often considered separately for physical actions, but psychological capacity is critical for implementing behavior change. Finding ways to combine these would help us move forward.

Dr. Deuster said that she agreed and added that in stages of change theory, practitioners need to know where people are regarding their readiness for change. Knowing people's inherent traits and locus of control is also important. There are many questions that need to be considered, she said.

Dr. Jean-Francois said that the participants have made many important points regarding topics such as the importance of partnerships, the need to bring FDA and CMS to the table, and the role of incentives within implementation science, including with insurers and payers. She urged the participants to also consider other ways to use incentives in implementation science and dissemination.

Dr. Kamhi said that she has been working in clinics that use natural therapies within facilities that use mainstream medicine, such as Columbia Presbyterian Medical School, which now has an Office of Traditional Medicine. Traditional refers to the use of natural healing modalities such as botanicals. The problem is insurance reimbursement, so such care tends to be limited to those who can afford to pay for treatment costs out of pocket. This group may be interested in knowing about an organization called Integrative Medicine for the Underserved.

Dr. Shimon Waldfogel said that a whole new paradigm is needed that extends beyond modalities and includes politics and the systems around each person. He said that the group should explore N-of-1 studies. Social media platforms can be used to do N-of-1 studies, as they can be a powerful tool for mobilizing people and generating excitement around whole person health. As citizens, we need to think about where funding for health care should go, he said.

Professor Brady said that it still is not clear to him how implementation science and dissemination can happen unless these become funding priorities. For example, physical activity has been researched for 30 years, but implementation and dissemination are not happening due to lack of funding.

In the chat, Ms. Kimbrough asked the group what the highest priority should be for funding.

Dr. Edwards suggested that Dr. Jean-Francois speak about the funding opportunity, Fostering Mental, Emotional, and Behavioral (MEB) Health Among Children in School Settings: Opportunities for Multisite Trials of Complementary and Integrative Health Interventions (Clinical Trial Optional), available at https://grants.nih.gov/grants/guide/rfa-files/RFA-AT-23-003.html.

Dr. Jean-Francois said that there is a short turnaround time on this funding opportunity announcement (FOA). Its purpose is to increase the evidence base about complementary and integrative health in school systems to address the youth mental health crisis. Taking a whole child health perspective is encouraged.

Capacity Building/Training

Moderators

— Patrick Still, Ph.D., program director, Basic and Mechanistic Research Branch, DER, NCCIH

— Melissa Treviño, Ph.D., health program specialist, Clinical Research Branch, NCCIH

— JoAnn Yanez, N.D., M.P.H., C.A.E., executive director, Association of Accredited Naturopathic Medical Colleges

Participants

— Paul Amieux, Ph.D., research administrative director, Bastyr University

— Susan Benigas, B.S., executive director, American College of Lifestyle Medicine (ACLM)

— Heena Bhatt, M.S., B.A.M.S., founder and executive director, Pramukh Ayurved (representing the Global Council for Ayurvedic Research in the United States)

— Elisa Cotroneo, B.A., executive director, International Somatic Movement Education and Therapy Association (ISMETA)

— Heidi Crocker, Ed.D., D.C., C.-I.A.Y.T., accreditation manager, International Association of Yoga Therapists (IAYT)

— Veronica Estrada, B.A., teacher, Fullerton School District

— Cara Feldman-Hunt, M.S., F.M.C.H.C., N.B.C.-H.W.C., associate director, Osher Center for Integrative Health, University of Vermont

— Leigh Frame, Ph.D., M.H.S., director, Integrative Medicine, George Washington School of Medicine and Health Sciences

— Varleisha Gibbs, Ph.D., O.T.D., O.T.R./L., A.S.D.C.S., vice president, Practice Engagement and Capacity Building, American Occupational Therapy Association

— Liza Goldblatt, Ph.D., M.P.A./H.A., director of national and global projects, Academy of Integrative Health & Medicine

— Ann Blair Kennedy, Dr.P.H., professor, University of South Carolina School of Medicine Greenville (representing the American Massage Therapy Association)

— Britt Knight, Ph.D., director of operations, United States Association for the Study of Pain

— Irene Liu, M.P.H., public liaison officer, Officer of Communication and Public Liaison, NCCIH

— Michelle Mangroo, M.B.A., A.H.C., Ayurvedic health counselor and founder, Ayurvedic Home of Wellness, LLC

— Anita Milicevic, Ph.D., principal investigator, Center for Contemplative Research

— Melissa Monbouquette, M.P.A., deputy director, BUILD Health Challenge

— Charlie Noel, Ph.D., (representing Northwestern Health Sciences University's Institute for Integrative Care)

— Anne Pera, R.N., Sutter Health (representing the American Holistic Nurses Association)

— Samantha Simmons, M.P.H., chief executive officer, Academic Consortium for Integrative Medicine and Health; director, Whole Health in the States Initiative

— Noel Smith, M.A., senior director of physician assistants and industry research and analysis, American Academy of Physician Assistants

— Mary Anne Walker, senior researcher, Michigan State University College of Osteopathic Medicine

— Taylor Walsh, B.A., founder and director, Center for Whole Health Learning in K12

Dr. Patrick Still said that training, career development, and capacity building are high priorities of the NCCIH. NCCIH partook in two flagship meetings this past summer to inform trainees of different funding opportunities.

At the first meeting, the International Congress on Integrative Medicine and Health (Phoenix, AZ), NCCIH conducted a training workshop where several program staff answered questions about different areas of the NCCIH portfolio and different capacity-building initiatives in integrative medicine.

At the second meeting, the American Society of Pharmacognosy Annual Meeting (Charleston, SC), NCCIH, in conjunction with the National Institute of General Medical Science (NIGMS) and NCI, conducted a workshop on grantsmanship and the application process.

Dr. Still said NCCIH offers ongoing programmatic advice to applicants on proposing an appropriate scope of research, the importance of aligning with NCCIH priorities, the involvement of mentor relationships, and the integration of training and research plans in applications. NCCIH offers different career awards for training, including the K01, K08, K23, and K99/R00. NCCIH fosters its F applicants through the F30, F31, and F32 fellowship awards.

Dr. Still asked the meeting attendees to begin discussion on strategies to enhance training and career development in whole person health research.

Dr. Paul Amieux, research administrative director at Bastyr University, said he was at a large research institution, University of Washington, for most of his career, and he has been at Bastyr University for the last 7½ years. He said that many of the small complementary and integrative health colleges and universities lack the infrastructure (money, resources, staffing) to successfully support individuals in career awards. However, the small colleges and universities are forced to turn internally to figure out how to support and train their own people with the existing basic sciences staff they have because the bar is set too high at NIH. Dr. Amieux asked what types of bridging mechanisms NCCIH could envision to allow small complementary and integrative colleges and universities to adequately support individuals wishing to become career researchers.

Dr. Still said a new request for application (RFA) called the REsearch Across Complementary and Integrative Health Institutions (REACH) Virtual Resource Centers focuses on schools of acupuncture, chiropractic, osteopathy, and naturopathy, and it is designed to build, cultivate, and enhance the competitiveness of schools and students that are in this area of research so that they have the chance for research awards. Dr. Melissa

Treviño said this is the first time NCCIH is offering the REACH RFA and that NCCIH is aware of the gap for trainees to acquire access.

Dr. Still read an individual's comment in the chat box: "I think training and funding opportunities should include an interprofessional review of scopes of practice beyond physicians and nurses to thoroughly address the social drivers of health at the community and population level—for example, occupational therapy and social work can truly help address whole person health."

Dr. JoAnn Yanez, executive director of the Association of Accredited Naturopathic Medical Colleges and former chair of the Academic Collaborative for Integrative Health, wrote in the chat box: "Paul's point highlights the structural inequities in resources available across many programs as well as emerging professions. It is a Catch-22—research/data needed but many programs are not as competitive in the process to build the body of literature."

Dr. Liza Goldblatt, director of national and global projects for the Academy of Integrative Health & Medicine, said that at an earlier time, NCCIH required conventional medicine schools to include researchers from the complementary and integrative health disciplines to obtain certain grants. Requiring that the two institutions collaborate led to opportunities. Also, NCCIH awarded complementary and integrative health colleges with R25 grants to teach and inculcate a culture of research.

Dr. Goldblatt described the current health care system as a fractionalized, disease-based, conventional medical setting. She said that an aerial view is needed to ensure that environments are created to include the variety of professionals involved in whole health. The distinction between large, resourceful institutions versus small, resource-limited institutions has a significant impact on moving forward with whole health because evidence and data are important. Dr. Goldblatt said she and many others see the economic and institutional barriers as an area that needs to be addressed to move whole health forward. The interprofessional education collaborative practice movement is still within conventional medicine, with very little opening to the complementary and integrative health disciplines.

Dr. Still said this type of collaborative focus is reflected in the scope of the REACH centers. For example, they emphasize interdisciplinary research teams, teambuilding, and administrative support.

Mr. Taylor Walsh, founder and director of the Center for Whole Health Learning in K12, said his work, which targets the youth and adolescent realm, is on the antecedents to the dismal status of population health in the United States. Mr. Walsh asked for everyone's recommendations on what NCCIH should do relative to capacity—something specific and that gives NCCIH and its supporters a way to be responsive. Does NCCIH need $50 million more a year to engage with the integrative practitioners and smaller schools? What is the out-of-the-box formula for moving in a transformational way to the next stage, where the presence and development of the whole person health enterprise suggests the growing need for expertise from these specialist schools? Mr. Walsh would like to see NCCIH receive many specific suggestions. Dr. Still said NCCIH welcomes the suggestions.

Ms. Elisa Cotroneo is the executive director of the ISMETA, which includes trained clinicians like yoga therapists and massage therapists. Ms. Cotroneo said if a trained clinician like a yoga or massage therapist is needed in a research project, there needs to be a partnership with a primary investigator in a university setting. Her focus has been to

determine how to prepare and build the capacity of clinicians such as yoga and massage therapists so they can participate capably in the research project.

Ms. Susan Benigas is the executive director at the ACLM. She represents conventional medicine doctors who try to identify and eradicate the root cause of disease as a first treatment option by addressing what people eat, how they move, and how they manage stress, with an allopathic approach being secondary. She said that funding is an obstacle. Much of the research on health, disease, and treatment is funded by pharmaceutical companies or other big industries. Although ACLM was founded in 2004, it did not start a research department until about 2018 because of a lack of funding, and it began with economic research. Ms. Benigas said we need to come together and band because both outcomes research and economic research are needed. Data on both are needed to move the needle on whole person health. Ms. Benigas said that with the known trajectory of so many lifestyle-related chronic conditions, there is real urgency. She said there is strength in numbers and that Dr. Langevin's call for galvanization around this effort is essential because it is not something that any of them can do alone. Opposing forces benefit from a disease and disability system, but the default to disease management is unsustainable. Ms. Benigas said disease management is not in the best interest of providers nor patients, and it will bankrupt us. Ms. Benigas said that Alzheimer's disease alone is projected to have direct costs of $1.1 trillion sometime between 2040 and 2050, and she noted that it is believed that what people eat and how they move may play a role in prevention. In terms of solutions, ACLM has designed a randomized controlled trial on type 2 diabetes reversal and is seeking funding for it.

Dr. Still referred to Dr. Goldblatt's comment in the chat box, which indicated that exposure to and collaboration with complementary and integrative health providers needs to start in medical and graduate schools and continue in fellowship as part of the maintenance of certification efforts. The leadership at these institutions needs to buy into complementary and integrative health and not feel threatened by it.

Dr. Yanez reiterated the initial directive to be bold. She said that in being bold, they need to look at the entire infrastructure, structural inequities, and whole picture. She said there are "turf issues" and there is a feeling that one's power and control is going to be taken away. Dr. Yanez said we have payers that do not support prevention-focused, whole person–focused care—it is the payment model that exists, and that is outside of our control.

Dr. Yanez said she sees inequities in our educational institutions as a major theme. As one of the people from the External Working Group, Dr. Yanez believes that their purpose today is to congeal the big themes, and she said she would love to hear from people on big-wish items. For instance, in thinking "big," Dr. Yanez re-envisions the entire system—how and where they are included at the table, how the whole picture addresses patient care, from societal issues to nutritional issues. She said there is a structural issue and an equities-within-a-structural issue that will not go away unless they do something bold that reimagines and reconfigures the structural root cause.

Dr. Heidi Crocker is the accreditation manager at the IAYT. She is also a practicing yoga therapist at a major yoga system. Dr. Crocker said there is an issue with the tracking mechanism of research and who is providing the integrative services. There is no record that a yoga therapist is doing a treatment because there is no National Provider Identifier (NPI) or provider taxonomy code. She said that they have applied for it, but if it is showing

in the data that physical therapists or others are doing the treatment instead, it is a disservice. It is important to have the identification that the complementary and integrative health professionals are providing the services. Dr. Crocker also noted that at the Academic Consortium last year, many major universities participated in the poster session in which there were three components: (1) what they were doing research on, (2) what services they were providing in their health systems, and (3) what they were educating people on. Of the posters, over 60 percent highlighted research on yoga/yoga therapy or practitioners of yoga/yoga therapy within their health systems, but only 2 out of the 40 posters had information on education of yoga/yoga therapy. Dr. Crocker said there is a gap that needs to be addressed to include all three components.

Dr. Yanez wrote in the chat box that Dr. Crocker is discussing professional appropriation, which she wrote is an issue in the complementary and integrative space.

Dr. Goldblatt said the 2010 *Lancet* report calling for a mandate to do interprofessional education and collaborative practice that is nonhierarchical, collaborative, team-based, and patient-centered care was essentially a call for radical change. The National Academy of Medicine is evaluating how slow the situation is to change. Dr. Goldblatt described the situation as a locked triangle with a follow-the-money issue involving insurers, pharmaceuticals, and hospital specialists. Dr. Goldblatt said she would like to completely change the health professional education system to make it true interprofessional education in which health professionals come together, learn together, practice together, and truly focus on patient-centered care. She said we are still in a fractionalized, disease-based, perverse payment system. Dr. Goldblatt said one of the biggest barriers is the current economics of our health care system. She said 9.4 percent of the population has diabetes, a third is obese, a third is overweight, and only a small percentage of the other third is healthy. Access is a key factor. Dr. Goldblatt asked, “Can someone access excellent nutrition? Can they pay for it? Can someone who is working three jobs and experiencing the stress that comes with multiple jobs then find time to exercise?” Dr. Goldblatt said the United States is an experiment of extremes. It is the only developed country without health care for all, which by itself causes enormous stress. Dr. Goldblatt said they have the means to put together an excellent system and research approach and to use this platform of research to include conventional medical practitioners, insurers, and government, which she thinks has a lot of power. Dr. Goldblatt supported Dr. Langevin’s earlier message of enough organizations coming together to call for whole health and engage in a grassroots movement.

In the chat box, Dr. Leigh Frame wrote, “The same is true for many complementary and integrative health fields, even nutrition, which is more mainstream in our current health care system. Many clinicians are physicians with no formal training in the complementary and integrative health field they are promoting.”

Veronica Estrada said that she—as someone who is interested in transitioning into this area of research, particularly sound healing—would need a lot of help. She has yoga teacher training but not a graduate degree. She said she would not know how to get herself into a position where she could apply her background in sociology and urban planning. In terms of the economic costs, she said online learning pathways might be helpful to people like herself.

Dr. Yanez wrote in the chat box that Ms. Estrada’s point to recruit researchers within complementary and integrative health is massively limited.

Dr. Still said any one of the program staff would be happy to speak with Ms. Estrada about funneling her expertise and interests into a possible award and grant to help with training and advance her research program.

Dr. Amieux referred to research by Drs. Patricia Herman and Ian Coulter at RAND Corporation and said we have lost a generation of complementary and health researchers, which is a crisis. He said this issue is discussed at many meetings at Bastyr University, other complementary and integrative colleges, and the RAND Center for Collaborative Research in Complementary and Integrative Health, which includes 13 colleges and universities. Dr. Amieux said one possibility is to massively amplify an already-successful, already-funded project, such as Ryan Bradley's grant "Building Research across Interdisciplinary Gaps (BRIDG)," in which complementary and integrative health researchers, doctors, osteopathic medicine doctors, chiropractors, etc. are sent to the University of Washington to work in extremely accomplished labs. Dr. Amieux suggested doubling or tripling the funding of such a project to expand it and make up some ground on the complementary and integrative researchers that have been lost.

Anne Pera is an integrative healing arts practitioner and a registered nurse. Ms. Pera said she is not hearing about research in nursing. One of her goals is to continue a program that trains nurses in holistic and complementary modalities in institutions and in any clinical setting as well as train them in self-care. Her projects are about rescuing the soul of the health care practitioners across the board—physicians, nurses, anyone who is subjected to current stresses—and teaching them how to care for themselves.

Dr. Goldblatt wrote in the chat that 60 percent of conventional health professionals are now burned out. Dr. Frame wrote that is the reason why she founded a new center at George Washington University to treat them, and she is hopeful the exposure to whole health will help change their minds.

Breakout Groups—What Is Needed To Implement Whole Person Health in Real World Settings From the Perspective of...

Individuals/Consumers/Educators

Moderators

— Beda Jean-Francois, Ph.D., program director, Clinical Research in Complementary and Integrative Health Branch, DER, NCCIH

— Taylor Walsh, B.A., founder and director, WholeHealthED, Washington, D.C.

Participants

— Paul Amieux, Ph.D., research administrative director, Bastyr University

— Carissa Bishop, M.P.H., executive director, Access Care Anywhere

— Liza Goldblatt, Ph.D., M.P.A./H.A., director of national and global projects, Academy of Integrative Health & Medicine

— Ann Blair Kennedy, Dr.P.H., professor, University of South Carolina School of Medicine Greenville (representing the American Massage Therapy Association)

— Melissa Monbouquette, M.P.A., deputy director, BUILD Health Challenge

— Peter Murray, Ph.D., program director, DER, NCCIH

— Sara Rue, M.P.H., program director, DER, NCCIH

— Kathryn Schubert, M.P.P., president and chief executive officer, Society for Women's Health Research

Introducing the session. Dr. Jean-Francois, program director in the Clinical Research Branch of the NCCIH DER, emphasized the need for a partnership approach to whole person health, with different groups of stakeholders represented. When considering how to implement whole person health in real-world settings, she asked the group to think about how this can be accomplished in the current atmosphere of misinformation and distrust. Mr. Walsh, founder and director of WholeHealthED, said that his approach is to just go ahead and do it.

Dr. Amieux, research administrative director at Bastyr University, explained that at academic institutions, programs in health-related disciplines have connections with multiple community sites and organizations. These relationships, as well as the large number of students who are involved in work in the community, add to a university's power to educate the public about whole person health.

Mr. Walsh asked whether the breakout group participants think of themselves as part of the whole health community. He explained that his organization's educational focus is on children in K–12 schools. He said that the whole health experience for children is

being provided today in a fragmented way at settings such as YMCAs and some pediatricians' offices, as well as in some families. Also, some schools provide hands-on programs such as mindfulness classes, school gardens, and teaching kitchens, but they are not yet organized Into a whole health framework. The tools and expertise to provide these types of activities need to be brought together, and the positive health benefits of such activities need to be emphasized. Mr. Walsh expressed appreciation for NCCIH's efforts to investigate topics beyond the clinic such as emotional well-being, the benefits of nature and music, and most recently, fostering emotional and behavioral health in school settings.

Dr. Amieux pointed out that some health care disciplines, such as naturopathy, incorporate an integrative focus. He asked Mr. Walsh whether what is being presented to children reflects an integrative philosophy or just individual modalities. Mr. Walsh said there are two intertwined facets—an interventionist approach when necessary and a health promotion approach. There has not been much inclination to study the benefits of health promotion approaches in healthy children, but these approaches can have important benefits for preventing health problems later in life. He asked where the path is from the clinical, integrative whole health mentality to the schoolyard.

Dr. Goldblatt, the founder of the Academic Collaborative for Integrative Health, which recently merged with the Academy of Integrative Health & Medicine, said that when the term "whole health" was first used, some people thought it was simply a renaming of integrative medicine. However, in the past 10 years, there has been an increasing emphasis on the roles of systems, such as the public education, health care, and economic systems, in health. With regard to children, one area of great concern is safety in schools. Although many areas are important, the whole health movement needs to focus on social and mental health determinants, Dr. Goldblatt said. Today's systems may not fundamentally support whole health. The pace of the development of a whole health approach may not match the pace with which society is moving in other, less positive directions. Planetary health and human health are connected.

Ms. Melissa Monbouquette, representing BUILD Health Challenge, which supports the development of collaboratives involving health systems and community-based organizations, said that current systems are not meeting the medical, mental, and emotional needs of communities. Building trust within a community is crucial, and collaborations that include community-based organizations are critical to building trust. When community organizations feel that they have some ownership over what is happening in their communities, they build trust with the medical establishment and government.

Mr. Walsh mentioned the community schools model, in which the school becomes the focus for a variety of community health efforts and services. Empowerment of local organizations is a key to success, and the model could be considered a whole health operation.

Dr. Ann Blair Kennedy, representing the American Massage Therapy Association, said that patient preferences need to be considered. For example, some people object to the touch from strangers that is involved in massage. It is important to consider how language around health is used. Different groups may use different terms for the same concepts. For

whole health to come together, it is necessary to agree on a common dictionary of terms and what they mean. Dr. Kennedy said that community-building efforts can have important impacts. She cited an example from her institution, the University of South Carolina School of Medicine Greenville, where a community-building effort reduced burnout in clinicians and staff. Adding to previous discussions of whole health for children, Dr. Kennedy drew attention to a study in which massage therapy in kindergarten led to a decrease in bullying later. She added that different people working from different perspectives each have a piece of the whole health picture, which they need to share with others.

Dr. Amieux said that society is changing rapidly and developing its own healing and health practices. It is important to be thoughtful and respectful of programs created at the grassroots level. National authorities such as NIH can learn a great deal from what is already being done at the local level. Mr. Walsh mentioned the use of TikTok by youth to advise each other on topics such as stress management as an example of a practice that has developed on its own.

Dr. Goldblatt pointed out that one of the principles of whole health, as implemented in the VHA, is asking patients/clients what matters most to them. Some of the best models in the community, especially those for which some formal data have been collected, can be translated into practical knowledge and information, which can then be adapted for application to other communities. Dr. Goldblatt said that despite issues that have arisen during the COVID-19 pandemic, NIH is still well respected, but trust in government agencies and the health care system is an important concern. For whole health, seeing what is already working well in communities and scaling up those approaches could be important and influential.

Dr. Walsh said that the National Prevention Council created by the Affordable Care Act still exists in law. It might be possible to use it to support whole health learning. He asked how collaborations with community efforts could fit in with NIH. The idea that much of health happens outside the clinic does not fit well with NIH's role as a biomedical research institution, Dr. Walsh said. NCCIH's history has been to try to create an evidence base around things people are already doing. Its strength is being a path for NIH out into the community.

Dr. Jean-Francois said a common theme of this discussion seems to be that an equity-focused lens to partnerships is crucial so that programs can have an impact. NIH does support community engagement research and encourages researchers to partner with community stakeholders. Ms. Sara Rue, program analyst in the NCCIH DER, added that even during her short time at NIH, she has seen community-focused research growing and expanding. The new initiative on behavioral health in children in school settings will address some of the violence and safety issues mentioned earlier. NCCIH is also involved with a pain management initiative that reaches out to veterans and their families. NIH is working to diversify not only its workforce but also the people it reaches out to. Dr. Jean-Francois said that efforts centered on schools may be particularly valuable in communities that lack the resources for other options.

Mr. Walsh said that an important research question for NCCIH and others is how to measure strengthening well-being and resilience. Dr. Goldblatt said that some self-

evaluation instruments focused on well-being and resilience that have been developed for adults could be modified for children. Programs could do pre and post self-evaluations. In general, evaluating whole health outcomes is more complex than evaluating the effect of a single intervention such as a drug.

Dr. Amieux suggested that NCCIH could help to support citizen science initiatives in whole health to help local organizations document what they are doing and collect data. Ms. Monbouquette said data already exist to support some types of initiatives such as green space, but no one is acting on those data. She asked what sort of investment is needed to support such interventions and what research is needed to drive investment. Mr. Walsh said that some interventions in the school setting are ready for implementation now.

Clinicians/Practitioners/Community Health Workers

Moderators

— Sekai Chideya, M.D., M.P.H., program director, Clinical Research in Complementary and Integrative Health Branch, NCCIH

— Amy Locke, M.D., chair of the board, Academic Consortium for Integrative Medicine and Health

Participants

— Heena Bhatt, M.S., B.A.M.S., founder and executive director, Pramukh Ayurved (representing the Global Council for Ayurvedic Research in the United States)

— Joseph Brady, M.S., Dipl.O.M., adjunct professor, University of Denver and Colorado School of Traditional Chinese Medicine

— Danielle de Pillis, certified yoga therapist, Twelve Petals Wellness

— Varleisha Gibbs, Ph.D., O.T.D., O.T.R./L., A.S.D.C.S., vice president, Practice Engagement and Capacity Building, American Occupational Therapy Association

— Carol Goldman, D.A.C.M., acupuncturist, PennMed, Lancaster General Hospital

— Ellen Kamhi, Ph.D., R.N., AHG(RH), AHN-BC, vice president, Natural Nurse Health Education

— Maria Mascarenhas, M.D., director, Integrative Health Program, CHOP

— James Snow, D.C.N., department chair, Nutrition and Herbal Medicine, Maryland University of Integrative Health

— Steven Weiniger, D.C., chiropractor, Posture Practice, founder/instructor of Certified Posture Exercise Professional (CPEP)®

Dr. Sekai Chideya acknowledged that this is a group trying to implement whole person health in the context of being a clinician, provider, or a community health care worker—people who are on the front lines rather than in a research setting. The challenge is trying to apply or combine research while implementing clinical work.

Dr. Chideya explained that the charge of the breakout session is to discuss what can be done now to implement whole person health from the clinical lens. She posed the questions, “How can we move the dial?” and “Where do we potentially have the power to leverage change?”

She opened the floor for discussion to hear about others’ experiences and perspectives.

Dr. Mascarenhas, director of the Integrative Health Program at CHOP, said that when patients arrive at the clinic, they complete a comprehensive form that asks about their whole health, including physical activity, wellness, and relationships. Clinicians review the form before they interact with the patients. After meeting with the patient, she said that she and a nurse talk to the entire team about what they learned and discuss recommendations for a holistic approach. She compared this method to being a social worker trying to bridge the gap. When needed, the team will try to refer to colleagues beyond the clinic. For

example, if a patient needs physical therapy, the team will try to refer them directly to an integrative provider where insurance will cover the costs, because costs become a barrier. The team also takes cultural sensitivities into consideration and tries to refer patients to providers within the system who are sensitive to cultural differences.

Ms. Heena Bhatt, an Ayurveda and yoga clinician, related that 20 years ago in India, she cofounded an integrated system of medicine in a primary care 2,000-bed hospital. They developed their own index in the hospital setting focusing solely on the population that the hospital served. Ayurvedic medicine follows prakriti, an individualized therapy tool that is very difficult to generalize. However, the analysis of the individual gives a genotype and phenotype to create a whole person health index. She said she would be interested in developing something like that on a larger scale.

Ms. Goldman, an acupuncturist working at a practice within PennMed in Lancaster, Pennsylvania, said that within the practice, acupuncture indexes are built into the patient electronic files. Acupuncturists incorporate a variety of clinical calculators, including anxiety index and the PROMIS pain calculator, and they are building more. This information is gathered in general conversations as rapport is created with patient and practitioner, then added to the calculators. As more information is logged, more data will be available. As each patient pays (or insurance pays), data is being collected. But the question is what to do with the data. Although not specific to any research study, the potentially useful data is accumulating.

Professor Brady, adjunct professor, University of Denver and Colorado School of Traditional Chinese Medicine, said that the Osher Lifelong Learning Institute is conducting a whole person study of 1,200 older adults participating in tai chi classes, yoga classes, etc., using PROMIS scores, which are free to use. Evaluation of PROMIS scores can be done automatically by uploading data to their database for analysis. They would like to use an accelerometer app on participants' phones to track physical activity to get data. But how to break it down to funding is the big question.

Dr. Kamhi, vice president, Natural Nurse Health Education, said that group teaching is a proven technique to encourage people to make lifestyle changes that can have a significant impact on overall health. She shared several examples from Stony Brook, including:

— Teaching diabetes management through cooking classes with high protein foods while monitoring blood levels.

— Instead of prescribing antibiotics for minor ear infections in pediatric patients, recommending homeopathic methods, such as hot compresses and moonflower oil in ear canal, for 1 week then returning for reevaluation. She said the vast majority did not need antibiotics.

— Growing organic produce on a rooftop garden at the hospital for the cafeteria to use. After 2 years, the hospital saved $1,800 by feeding patients the organic produce.

She also shared that a colleague in Florida provides clients with lists of natural products (e.g., vitamin C, echinacea, goldenseal) for colds and other viruses that do not need an antibiotic, which have been proven to heal. The client can purchase these treatments in the hospital for a reduced rate.

Dr. Chideya moved the discussion to focus on how to get wider support for program development and funding. Suggestions included:

— Demonstrating cost-effectiveness to the hospital/clinic/practice encourages buy-in.

— Using the NCCIH Clinical Research Toolbox that contains a wide set of outcome measures that are free and easy to use in a community setting.

— Creating partnerships—combining 30 or 40 different schools and university programs to get statistically significant samples.

— Networking opportunities within specific complementary disciplines and beyond to conventional practices. Several group members shared examples of positive reception from conventional practitioners in their communities.

The discussion of opportunities for leveraging support moved to the challenges for achieving support. Dr. Locke reiterated that a significant challenge is getting complete, accurate measures in the brief amount of time clinicians have with patients or clients. This is where a whole person index could be helpful. The group agreed that there is a need for better validated tools that happen to be brief and that should be a funding and research priority.

The discussion expanded to lack of funding. The group agreed that there is a willingness to fund all types of research on drugs and surgery but very little commitment to community health promotion. Professor Brady said that it is a challenge to get funding for keeping healthy people healthy; it is a lot easier to get funding for disease.

There was general agreement that capturing health outcomes is difficult. Showing successful results will lead to more funding. Dr. Mascarenhas noted that CHOP has captured financial outcomes, which is what the hospital wants, but has limited examples of improved health outcomes. Both are needed for increased support.

The perceived costs are also a barrier to support. Dr. Kamhi said that we need to get evidence-based therapeutics that have thousands of years of use along with better adverse effect profiles at a much lower cost. She said the sense is that the reason it appears to cost more is because of insurance companies. Some policies do not allow clinicians to share information with patients about efficacy and safety of natural medicine.

The group also agreed that improving knowledge about complementary approaches with health care providers across all specialties and disciplines of conventional medicine can seem challenging but can be achieved.

Ms. Bhatt remarked that their team created programs and conferences and gave incentives to every department in the hospital to learn how whole person works for chronic diseases. When it comes to emergency, you cannot beat conventional medicine. But when it comes to chronic conditions, there are so many complementary interventions that add value to the client's health.

Dr. Weiniger, chiropractor, Posture Practice, Founder/Instructor of CPEP®, said that in Georgia there has been an incredible increase in conversations and/or collaborations between orthopedists, neurosurgeons, and chiropractors. His practice, which focuses on posture, created a public health program that distributes information about good posture to a broad range of health professionals and community members.

The session concluded with discussion that more data is needed to create standardized measurement tools for whole person health evaluation and treatment. To do this, more information needs to be shared between practitioners, schools, and, ultimately, funding sources. The following recommendation were made:

— Microgrants were very successful for the Centers for Disease Control and Prevention for community health promotion programs. Giving $1,000 to individual practitioners goes a long way.

— More teambuilding workshops where practitioners in communities can meet established researchers and explore partnerships would be helpful.

Policymakers

Moderators

— Margaret Chesney, Ph.D., professor of medicine, University of California, San Francisco

— Elizabeth Ginexi, Ph.D., program director, Clinical Research in Complementary and Integrative Health Branch, NCCIH

— Samantha Simmons, M.P.H., chief executive officer, Academic Consortium for Integrative Medicine and Health; director, Whole Health in the States Initiative

Participants

— Catherine Bushnell, Ph.D., president, International Association for the Study of Pain

— Heidi Crocker, Ed.D., D.C., C.-I.A.Y.T., accreditation manager, IAYT

— Patricia Deuster, Ph.D., M.P.H., professor, Uniformed Services University of the Health Sciences

— Veronica Estrada, B.A., teacher, Fullerton School District

— Leigh Frame, Ph.D., M.H.S., director, Integrative Medicine, George Washington University

— Heidi Hudson, Dr.P.H.(c), M.P.H., research program coordinator, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention

— Cara Feldman-Hunt, M.S., F.M.C.H.C., N.B.C.-H.W.C., associate director, Osher Center for Integrative Health, University of Vermont

— Kevin Klauer, D.O., chief executive officer, American Osteopathic Association

— Ben Kligler, M.D., executive director, Office of Patient Centered Care and Cultural Transformation, VHA, VA

— Helene M. Langevin, M.D., director, NCCIH

— Irene Liu, M.P.H., public liaison officer, Office of Communications and Public Liaison, NCCIH

— Michele Maiers, D.C., M.P.H., Ph.D., member, Integrative Healthcare Policy Consortium; executive director, Northwestern Health Sciences University

— Juli Olson, D.C., D.A.C.M., F.A.I.H.M., national lead for acupuncture, Central Iowa Health Care, VA

— Jennifer Rioux, Ph.D., vice director of integrative medicine programs, George Washington University

— Michelle Simon, Ph.D., president and chief executive officer, Institute for Natural Medicine

— Noel Smith, M.A., senior director of physician assistants and industry research and analysis, American Academy of Physician Associates

— Melissa Treviño, Ph.D., health program specialist, Clinical Research Branch, NCCIH

— Charis Wolf, D.T.C.M., vice chair of operations and research co-chair, American Society of Acupuncturists

Moderators Dr. Chesney and Ms. Samantha Simmons introduced themselves and asked the other participants to introduce themselves.

Ms. Simmons said this group will discuss the following questions from Dr. Helene M. Langevin:

— What are the most important research topics to address that will have the most impact?

— What is needed to implement whole person health in a real-world setting?

— What incremental changes can be made now?

Ms. Simmons said that research drives health care policy and asked if anyone from NCCIH wanted to frame the discussion.

Dr. Elizabeth Ginexi of NCCIH said NIH usually studies single-disease treatment and has a lot to learn about studying real-world implementation of whole person services. The NIH Pain Consortium does some research in that field, but NIH has room to grow.

Dr. Kligler of the VHA said every Federal agency discusses evidence-based policymaking, but the level of evidence sufficient for making policy is unclear. For example, what kind of evidence and how much evidence would the Centers for Medicare & Medicaid Services (CMS) require to provide coverage for integrative approaches, an area that clearly needs policy improvement? Is observational or pragmatic evidence sufficient?

Dr. Kligler said that NCCIH may be able to encourage discussions within NIH about levels of evidence. He said he is a member of the National Advisory Council for Complementary and Integrative Health, and he regularly approaches NCCIH about this topic. He noted that this breakout group represents a lot of nongovernmental agencies, and he asked the participants for their opinions about the level of evidence needed to change policy.

Dr. Chesney asked for an NCCIH response. Dr. Ginexi said she is an applied social psychologist, but scientific methods interest her. She suggested using alternative methodologies to complement standard methodologies such as the randomized controlled trial, because standard methods may not be the best way to get the best scientific answer. She mentioned observational data, pragmatic trials, and longitudinal data from individuals, which is now available through electronic health records and wearable tracking devices, as examples of alternative methodologies.

Dr. Ginexi discussed an example of a randomized controlled trial that involved administering a colonoscopy to participants. A large percentage of potential participants refused the colonoscopy, which makes interpreting the results difficult. She said she agrees with Dr. Kligler that this area of research may require other forms of evidence.

Dr. Kligler said that researchers need to question assumptions about the kind of science needed to investigate outcomes that focus on whole person care. Defining well-being and measuring it with quantitative outcomes is a challenge.

Dr. Deuster of the Uniformed Services University of the Health Sciences said this type of research should not use randomized controlled trials because volunteers who want to participate in these studies create a population bias. She said N-of-1 studies are better for whole person research because they examine the experience of one person, and every

person has a different context. She added that to have long-term value, whole person health policies need to coincide with appropriate funding to implement those policies.

Ms. Simmons asked the group why they chose this breakout session and about their policy priorities.

Ms. Cara Feldman-Hunt of the University of Vermont said she joined this group because her program provides a comprehensive approach to pain. Her organization has worked well with Blue Cross Blue Shield for reimbursement of services, but she has not been able to work with Medicaid. She said she wants to learn what matters to Medicaid and what kinds of research might motivate Medicaid to allow reimbursement.

Dr. Maiers of Northwestern Health Sciences University, representing the Integrative Healthcare Policy Consortium, said a significant policy concern is the development of discipline-agnostic health care policies, especially as scopes of practice expand. Consistent policies regarding covered benefits and services are another interest.

Dr. Chesney said she recently learned about the Center for Medicare & Medicaid Innovation (CMMI) at CMS, which does research. She speculated about CMMI as a potential source of funding for creative experiments.

Dr. Wolf of the American Society of Acupuncturists said she is interested in learning how to integrate acupuncture care into health care policies. Most acupuncture practitioners are not based in hospital settings, and care providers do not know how to get Medicare to reimburse acupuncture services. She noted that for Medicare to recognize them as care providers, acupuncture practitioners need to introduce a bill to the Federal legislature.

Dr. Klauer, representing the American Osteopathic Association, said that funding will follow policy. However, the linear path of conducting research, creating policy based on the evidence, and following up with funding will take too long. A parallel approach, such as creating the research design while creating a funding pathway, will shorten the cycle. He suggested that CMMI might be interested in funding research examining the development of an alternative payment model for implementation of a proven treatment modality. The research could investigate the sustainability of treatment as permanent policy or preventive care.

Dr. Bushnell, representing the International Association for the Study of Pain, said research clearly needs a paradigm shift. She joined this group because she would like to learn how her organization can encourage NIH and other government funders to fund whole person research.

Dr. Simon, representing the Institute for Natural Medicine, said that whole person health is a qualitative and quantitative issue and needs to be defined, and whole practice outcomes need to be examined. Whole practice medicine requires a flexible approach and needs to be tested on a whole practice level. She said investigators should use standardized and validated instruments to poll patients and learn which interventions provide benefit. Qualitative measures derived from patient-reported outcomes could inform policy changes. Dr. Simon commented that Medicare should recognize complementary and integrative health providers. Providers do not have access to funded residencies because Medicare does not recognize her profession. If providers had access to residencies, the residencies could become locations for studying interventions.

In response to Dr. Bushnell, Dr. Kligler said external stakeholders need to exert influence to encourage change within NIH. Stakeholder organizations, such as those that represent

people with specific diseases, can have a strong influence on NIH policy. NCCIH needs help to change the paradigm of research at NIH.

Dr. Crocker, representing the IAYT, said that academic institutions conduct a lot of research, and education regulatory agencies drive education for professionals. Funders could require academic institutions to collaborate with integrative health practitioners as a condition of funding. She added that future generations of professionals need to be trained in collaboration.

Dr. Deuster said she is a Federal employee with the DOD, and the military health system does not have the money to support whole person research because a return on investment has not been demonstrated. She thanked Dr. Langevin for her efforts and suggested that if the VA, DOD, NIH, and the U.S. Department of Education worked together, they could implement change.

Dr. Wolf said educating practitioners to work together is a key component. She added that the electronic health record is a great tool for research on the long-term benefits of preventive care.

Dr. Langevin agreed that electronic health records are important, and researchers can influence the design and construction of those records. Currently, those records are designed for billing purposes, not for patient care. Influence in the domains of business and policy could shift how those records are constructed and used.

Dr. Chesney noted that in some health systems, measures can be added to the electronic health record.

Dr. Simon said a pilot study could use electronic health records. A practice-based research network of clinics could use the same platform for electronic health records and patient-reported outcomes. Clinics that provide different interventions would have standardized data collection.

Ms. Simmons summarized the themes presented in this session. She asked the group if something like the Institute of Medicine's 2009 Summit on Integrative Medicine and the Health of the Public could make a difference.

Dr. Chesney said the National Academies of Sciences, Engineering, and Medicine recently completed a study on a whole person approach to health. The report will be published in 2023. She suggested that the stakeholders at this workshop capitalize on that report to motivate change. She encouraged the stakeholders to energize communities toward supporting NCCIH and whole person health.

Ms. Simmons said stakeholders could focus on individual policy gaps and barriers, such as a lack of insurance billing codes.

Dr. Rioux of George Washington University said infrastructure is a huge part of the problem. Organizational infrastructure does not support complementary and integrative health practitioners and other types of practitioners equally. She added that electronic medical records need to include patient perspectives to give patients a voice.

In the chat, a participant noted that channels for referrals to integrative care do not exist, which hinders communication among providers.

Ms. Feldman-Hunt said that the University of Vermont has examined insurance claims data to reduce health care utilization; they have not examined electronic health records. She has observed that a comprehensive approach provides better results than individual

therapies. She wants to identify a better method for analyzing data and a way to scale up her investigation. She added that payers have been interested in the results demonstrated at her university.

Several participants commented in the chat that they use the Charm platform to manage electronic medical records.

Dr. Crocker said her client retention rate has been good, and those clients self-refer for these types of modalities. When her clinic informed other health care practitioners about the clinic's retention rates, referrals from those practitioners increased. Health care providers need to be reminded about the availability of complementary and integrative services and that patients want the services.

Ms. Feldman-Hunt commented that she lives in a rural community where practitioners are scarce. She is interested in training health care providers in medical homes.

Dr. Maiers said patient advocacy groups could influence funding at NIH. Stakeholders should be advocates and show how whole person health approaches can address challenging public health issues such as long COVID-19, obesity, and chronic pain. The traditional medical model has failed in these areas.

Dr. Simon suggested offering a series of lectures from providers who have worked together on a case and demonstrated how collaboration delivered patient care and health promotion. She suggested highlighting case studies of integrative medical care.

Use of the BraveNet Practice-Based Research Network was suggested in the chat.

Dr. Ginexi suggested creating a consortium of data sharing, like the model used by Kaiser Permanente, which could be used to answer questions about the cost-effectiveness of complementary and integrative services.

Dr. Rioux said she would like to see the concept of salutogenesis included anywhere in U.S. policy.

Insurers

Moderators

— Susan Benigas, B.S., executive director, ACLM

— Wendy Weber, N.D., Ph.D., M.P.H., branch chief, Clinical Research in Complementary and Integrative Health Branch, DER, NCCIH

Participants

— Erem Latif, M.S., M.B.A., vice president of marketing, CorEvitas, LLC

— Jade Ly, Ph.D., consultant, Handford, LLC

— Deborah Outlaw, J.D., Federal lobbyist, The Outlaw Group (representing the American Massage Therapy Association)

— Anne Pera, R.N., Sutter Health (representing the American Holistic Nurses Association)

— Mark Pitcher, Ph.D., special assistant to the director, NCCIH

— Ceciel Rooker, B.S., president and executive director, International Foundation for Gastrointestinal Disorders

— JoAnn Yanez, N.D., M.P.H., C.A.E., executive director, Association of Accredited Naturopathic Medical Colleges

Ms. Benigas said we need to have the payers engaged in what we are representing.

Dr. Weber said she has been involved in several large pragmatic trials looking at what level of evidence is needed to make sustainable changes in health care delivery. Dr. Weber said she has also worked on activities with the Centers for Medicare and Medicaid Services (CMS).

Dr. Yanez said she is very passionate about the topic of insurers because it lends itself to the sustainability of everything they do. Dr. Yanez said without a funding system and infrastructure for services, the sustainability of the services is at stake.

Ms. Pera said nursing needs to be reconfigured. Nurses are not being paid for the work they do in hospitals. Ms. Pera said it was a beautiful experience to bring in alternative programs and teach hundreds of nurses, but the funding would dry up. She has attended some of the CMS webinars and is grateful to hear about CMS's openness to include some of the billions spent annually out of pocket for services that integrative nurses provide. Ms. Pera said insurers are the key piece. She said we need to get this story out, so the public is aware and can get on board with having their insurance providers acknowledge the healing that happens with complementary and integrative services.

Ms. Ceciel Rooker said whole person health is new to gastroenterology, and patients are seeking this type of care. Ms. Rooker said getting services paid for is very important for a patient population that suffers from a chronic illness.

Dr. Ly said she is a consultant for the Handford Foundation Company, which has a couple of acupuncture clinics. She said their patients have been increasing significantly in number

but that insurance is a big issue. She would like to raise the concern and learn more about why insurance companies will not incorporate alternative therapies.

Ms. Erem Latif works with the real-world data company CorEvitas and has been involved in clinical research for the last 10 to 15 years. She has designed different types of patient pilots that have received uptake by payers. She wants to know how to combine the whole health concept with patient pilots that she has helped support.

Ms. Benigas reiterated Dr. Yanez's point that if something is not reimbursable then it is not sustainable. The question often asked in her conversations is, "For whom is there immense profit in optimal health?" Ms. Benigas said it is the self-funded employer populations because they are covering a huge burden of the cost and there can be immense profits for them with savings on health care costs. Others who benefit from optimal health are commercial insurers, Medicare, and Medicaid. Ms. Benigas asked, "What do we see as the biggest gaps? What are the bold steps we can take to close those gaps? What is needed?" Ms. Benigas said it gets back to data—outcome data and economic data.

Ms. Rooker said it is related to her last breakout session on how to structure the data. She said it is difficult in complementary medicine to have steady endpoints. She asked what can be done to conduct analysis of larger datasets. Ms. Rooker said she thinks it starts with research proving good outcome measures, but without that, which is the case now, she does not know where to start for opening eyes and raising awareness. She said raising awareness of what is available and some of the successes might be the first step.

Ms. Benigas asked Ms. Rooker if she sees anything encouraging to fill the data gap. Ms. Rooker said in the chronic gastrointestinal illness population that she serves, with over 40 disease states in their portfolio, she sees a lot more interest from the young clinicians, which is very exciting to her. As the new group of physicians are coming in, they are encouraging their colleagues to consider other types of therapies and the whole person approach—not just a laxative prescription to treat constipation but other approaches that will help patients' lives.

Ms. Outlaw agreed that we need more and better data but said most complementary and integrative services are not covered by CMS, and CMS says it does not understand how such services would work in the Medicare population. Ms. Outlaw said most of the complementary and integrative services are so minimally invasive that she thinks the already existing data could be extrapolated to the Medicare population. She said we may be at the start now, and perhaps we need a better affiliation and relationship with CMS to provide a better and broader understanding of the whole person approach and role of integrative therapies.

Dr. Yanez said several years ago she had a conversation with a CMS leader regarding the exclusion of many professions from payer codes within CMS. Dr. Yanez said the current infrastructure is not inclusive of many professions. Dr. Yanez said that looking at the larger model from the naturopathic perspective, naturopaths can provide care to patients under insurance up to age 65, after which coverage stops and payment must be cash. Dr. Yanez said in looking at CMS and considering the big picture, going bold would involve inclusivity across the complementary and integrative health professions to include access to complementary and integrative health care across the dimension of patients.

Dr. Pitcher asked what the burden of proof is that insurers need to decide to cover a service and what kind of research does NCCIH need to support for increasing the likelihood of change. Dr. Pitcher asked if it is implementation and dissemination research, and he asked what NCCIH needs to do now to see a change down the road.

Ms. Benigas asked to hear from others on research they have been involved in or research they are aware of that has already had or may have strong data, especially for chronic conditions that are ravaging the nation and have a heavy cost burden. Ms. Benigas said ACLM is involved in a study with Blue Cross Blue Shield on rheumatoid arthritis remission via lifestyle medicine—heavily through nutrition and exercise—in a state covered by Blue Cross Blue Shield. They have been encouraged by major remission in rheumatoid arthritis, especially because it is such an expensive condition, with the medications alone being tens of thousands of dollars a year. The hope is that there will be exceptional study outcomes, not only in disease remission but also in associated cost (both outcome and economic data), which could speak volumes. Ms. Benigas asked whether already-existing research can be amplified in a way that sends a compelling message and moves the need from a reimbursement standpoint.

Ms. Outlaw said a few of the studies highlighted at a recent massage therapy foundation conference could be extrapolated to the Medicare population. But she said they continue to hear, “Show us explicitly that this is an efficacious therapy for the over 65.” She recently sent an email to get more information about one of the studies presented at the conference and will share the information she receives.

Ms. Benigas said the quality measures that everyone strives to adhere to and tries to achieve are designed for process as opposed to outcome. Ms. Benigas said a physician described a patient with hyperlipidemia for whom he did not prescribe a statin but instead did a lifestyle intervention—an exercise prescription and a dietary prescription—and in 60 days the patient had dramatically dropped their cholesterol by more than 60 points. Ms. Benigas said the lifestyle intervention certainly achieved an outcome that was equal or superior to what would have been achieved with the statin. But, from a quality measure standpoint, the physician got dinged because he did not prescribe a statin, and the “rules” of the health care game are process-oriented instead of outcome-oriented. Ms. Benigas said if they work together, they have the power to address such multilevel challenges. She asked if anyone faces quality issues as an obstacle or if anyone has a creative idea for addressing such an obstacle.

Dr. Weber said insurers, particularly CMS, try to think through the unintended consequences of the quality measures they create, but they cannot think through every example. Dr. Weber suggested submitting comments when insurers have proposed rule changes around quality measures and have open comment because insurers are required to respond to every comment. Dr. Weber said she does not think everyone knows how that system works, and she herself is learning bits and pieces of it, specifically for CMS.

Dr. Weber asked Ms. Latif about the pilot studies and uptake by payers she mentioned during the introductions. Dr. Weber asked whether Ms. Latif or others have seen demonstration projects leading to insurance coverage of different approaches or to allowance of more complex billing for more complicated appointments, which is what is being proposed in a new Medicare code (i.e., billing for extra time for coordinated pain care and referrals to different groups). Dr. Weber referred to Dr. Pitcher’s question of what

payers need to make a decision—is it always evidence, or are there other elements that drive those decisions?

Ms. Benigas said the decision seems to be heavily economic. Dr. Pitcher agreed. He said the VA's Whole Health system is working, and it would be helpful to do a cost analysis of it. He said the resulting data would hopefully show that such a program is cheaper and better, which would be incontrovertible evidence. Ms. Benigas said the work being done at the VA is outstanding.

Ms. Benigas said the relevant information seems to exist, but we are not doing a good job of communicating about it in a way that gets the attention of the right people. We focus so often on health outcomes because that is the foundation—we want whole person health, optimal health, and health restoration—but how does that translate from an economics standpoint and from a predictive modeling standpoint? When we look at the alarming financials coming out of the Congressional Budget Office, it is truly unsustainable.

Ms. Outlaw said she found an ongoing study on older adults that speaks directly to whole health. The study is evaluating the effect of abdominal massage on overall quality of health, constipation, and gastrointestinal issues in older adults. Ms. Outlaw said Medicare Advantage covers massage therapy for pain. When Ms. Outlaw asked CMS why they covered it and what studies they looked at, CMS responded that massage therapy was minimally invasive, it made sense, and they thought the time had come (i.e., there is evidence about integrative health overall as a pain therapy and to reduce opioid overreliance). Ms. Outlaw said sometimes we put so much emphasis on needing yet one more study, but sometimes the existing studies speak for themselves.

Ms. Benigas said the shift to value-based care is playing in their favor, and even the shift to an interdisciplinary team-based approach is helpful. She said new forms of medical practice design, which have not been implemented pervasively yet but need to be, can create new revenue centers because there are existing CPT (current procedural terminology) codes with which group visits can be added.

Dr. Pitcher asked about the process for getting CMS to cover acupuncture and talked about the idea of demonstration projects for broad conditions like pain. Dr. Pitcher said in his last breakout session, Dr. Langevin spoke about how to do whole person research in a preclinical setting. He said there has been a fair amount of research over the last 10 years and an increasing amount on social modulation of pain in rodents. The uptake of ideas has evolved organically, such that if someone does not describe how they house their animals in their paper, they will be dinged by the reviewers and journals. Dr. Pitcher said there is slow movement toward incrementally increasing the rigor of how they conduct research.

Ms. Pera said the pilot projects and implementation of integrative healing arts into nursing practice, which has been done at the University of California, Irvine, led to not only improvements in the patient's experience and engagement but also a team that is building and caring for each other based on compassion on the care unit. Ms. Pera said this approach changes culture and hopefully eventually changes the system's delivery of care. She said it has been successful, but the data is needed to show that they are not starting from the beginning.

Ms. Benigas said it always goes back to the data. She applauded NCCIH for moving forward with common data elements because of the need for agreement with some of the foundational aspects. She said a centralized data repository will enable them to

compellingly tell the story of what they are advocating. She asked what the greatest hurdles are in data aggregation and analysis and what they are most hopeful about because, she said, she thinks that is what will ultimately move the needle for the insurers.

Dr. Pitcher said one concern for measuring whole person health is the number of outcome measures—there cannot be too many measures. Determining what to measure will be a process. He said the social determinants of health group at NIH is considering this. Dr. Pitcher said a 2-day workshop last September explored methodological approaches for whole person research, and he thinks they have the technology to move forward.

Dr. Weber said there are methods used in other fields that can be applied to this field. She said there are people who understand how to use these methods in already complex systems and with millions if not billions and trillions of datapoints. She asked how we draw these people into the whole health field to study it and how these people can partner with and learn from those who treat people in a whole person approach. Dr. Weber said it involves taking methods used in different places and figuring out how to apply them in this setting.

Dr. Weber asked what factors might influence payers' decisions about coverage other than quality of the data and cost effectiveness analysis. Dr. Weber said insurance is a business—insurance companies are trying to attract employers to sign up for their system and are trying to attract patients who have choices on what insurance to select. Dr. Weber said some insurance companies offer different types of benefits such as smoking cessation and weight loss programs as well as payments for gym membership or meal services—she asked how much of this is driven by data versus attracting employers and patients.

Ms. Outlaw said the massage therapy community has done extensive analysis of what different plans offer, and it seems to be an economic decision.

Ms. Benigas said her association is active on Capitol Hill, addressing misaligned quality measures, reimbursement issues, and the overhaul of medical education. Ms. Benigas said there is a need to work from the top down and to create consumer demand. She said patients and consumers do not realize how much power they hold, and they are not galvanized on their advocacy. Ms. Benigas said the work they are all doing on Capitol Hill is fragmented, and the fragmentation dilutes what could be the collective impact.

Dr. Pitcher said NCCIH has the view that whole person health could be a wonderful perspective for everyone, not just for those who are insured but also for those who are not insured and particularly for those who are disadvantaged. He asked how to get whole person health to people who are not insured.

Ms. Benigas said their health systems council, which includes about 72 health systems, is working on targeted outreach to Federally Qualified Health Centers, of which there are about 1,400 across the country. The council is pushing out free educational resources so that lifestyle medicine is available to everyone. Ms. Benigas said they must network through the existing channels and infrastructure to reach uninsured people. She said tapping into and leveraging the infrastructure will help them advocate for whole person health. Dr. Pitcher said the YMCA seems to be interested in developing a way to get primary care into a YMCA setting. Ms. Benigas said the approach intersects the community represented by the YMCA with clinical services. She said it is challenging

because of the decentralization but is an incredible footprint to be able to tap into and leverage.

Ms. Benigas asked for everyone's single big idea that could be actively done and spearheaded by NCCIH—something that they could galvanize around and would make the biggest impact in garnering the attention of insurers to embrace what they represent.

Dr. Yanez said NCCIH could help with gathering large, consumer-based data. Dr. Yanez said a unified, large-scale piece of data that surveyed consumers on services they use and services they might use if covered by insurance would hopefully be affirmative for nutrition assistance, massage therapy, naturopathic medicine, acupuncture, chiropractic, etc. and could be something that they take to insurers.

Ms. Rooker said consumers are not aware of their options and that the data piece described by Dr. Yanez could help to identify how many people are aware of the options for their chronic conditions. Ms. Rooker said the data may show which communities are not aware of the options and where increased awareness is needed. Ms. Rooker said as patients and consumers become aware of and start using complementary and integrative services, people will then want to demand the services be covered by their insurance plans. Ms. Benigas said a massive public awareness campaign would be a big part of that.

Ms. Pera said they need to also focus on maternal-child health instead of only chronic conditions that develop over time. Ms. Pera recommended looking at stressors in childhood and the dismal outcomes of maternal-child health.

Dr. Pitcher said from NIH's perspective, published research shows that an outcome was met or a reduction in medicine was achieved. He asked whether they could report on the associated costs or the reductions in medicine to the insurance companies.

Dr. Yanez said it is important to highlight the cost savings of an initiative and link to something tangible that the person with whom they were talking cared about. Dr. Yanez described a past study by American Association of Naturopathic Physicians and the Vermont Auto Dealers Association, which looked at presenteeism and whether people showed up at work and were able to work because they were not in pain. She said providing tangible information on cost savings, disease savings, and presenteeism is important.

Ms. Outlaw said they have the extrapolated data, especially the data related to pain and the opioid epidemic, and the data can be broken down by state. She encouraged NCCIH to talk with other groups like the U.S. Pain Foundation, which has similar data that might be helpful.

Ms. Benigas said Richard Carmona, former surgeon general, recently wrote an excellent piece on the unsustainable economic toll of lifestyle-related chronic diseases. It was a powerful economic message of what they represent.

Dr. Yanez said an NCCIH meeting back in 2008 or 2009 forecasted the 4.1 trillion dollars in annual health care costs and budget deficits. She said people are not listening, however. She said they should focus on how to play their card in a way that is going to get outcomes. She said even if they do amazing research, if it does not result in the necessary outcomes, then they are spinning their wheels. Dr. Yanez said she would like to see time

and attention spent on how to present the information in a way that will get attention and action.

Ms. Benigas said COVID-19 shined a bright light on the urgent need to address the underlying conditions that exacerbated the virus's most harmful effects and on the disproportionate impact on underserved communities. She said there is heightened awareness and receptivity now. The recent White House conference on hunger, nutrition, and health may not have happened without COVID-19, because there is now a glaring spotlight on the conditions that are so detrimental and jeopardize the health infrastructure of humanity. Ms. Benigas has seen steps being made in the positive direction and an opening to their message, such as advocating for the expansion of medical nutrition therapy and medically tailored meals and the McGovern-Burgess House resolution that passed unanimously advocating for nutrition to be incorporated in all medical education. Ms. Benigas said NCCIH can collectively take a lead on this, representing them to be able to amass and document the information in a way that is compelling to payers and others who need to understand the power of what they represent.

Dr. Weber asked how they can influence the insurers that are making the decisions and how they can make their approach the next best thing that insurers want to have as part of their programs. Dr. Weber said it seems that insurers are making decisions in isolation.

Dr. Pitcher said step one is probably getting the information in front of the statisticians and actuaries, including those working for insurance companies, to show that the approach can work and its value. Once the actuaries have gone through the data, they will need to plug in money to determine the costs. Dr. Pitcher suggested showing posters at the actuary conferences. Ms. Benigas said the group Actuaries for Sustainable Health Care feels the current system is broken and could possibly be recruited to help.

Ms. Rooker said the brother-in-law of an employee is the CEO of a major insurance company, and even he could not get Ms. Rooker's team a meeting with the insurance company. Ms. Rooker said this shows how firewalled insurance companies are. Ms. Rooker said she is part of a group that is raising awareness about multidisciplinary care in the gastrointestinal setting. They have actively tried to get insurance companies to join the conversation but have had a very hard time accomplishing it. Ms. Rooker said more force will come from people demanding the services be covered.

Ms. Rooker said one of the major medical systems with multiple institutions around the country tried to use their dataset to prove that dietary management made a difference in gastrointestinal care. The data, however, was found to have holes in it and determined unpublishable. Data was missing on whether physicians had conversations with patients about dietary management, whether patients followed through with referrals, whether patients received dietary management regardless of referral, etc. Ms. Rooker said this indicated the importance of raising awareness with physicians about the different kinds of therapies, having conversations with their patients, and documenting whether patients follow through with referrals to dietary management or other therapies.

Ms. Benigas said ACLM advocates for raising this type of awareness. She said the national associations of payers, payers' councils, and others all need to hear Dr. Langevin's earlier presentation. Ms. Benigas recommended Dr. Langevin be slated at the large conferences of payers.

Researchers

Moderators

— Wen Chen, Ph.D., branch chief, Basic and Mechanistic Research Branch, DER, NCCIH

— Patricia Herman, N.D., Ph.D., senior behavioral scientist, RAND Corporation

Participants

— Julia Arnold, Ph.D., program director, Translational Research Program, NCI

— Iris Bell, M.D., Ph.D., professor emerita, College of Medicine, University of Arizona (representing The American Institute of Homeopathy)

— Daniel Cherkin, Ph.D., research director, Osher Center for Integrative Health, University of Washington

— Doug Coatsworth, Ph.D., associate dean of research, College of Social Work, University of Tennessee–Knoxville

— Lisa Conboy, D.Sc., chair of research committee, American Society of Acupuncturists

— Elisa Cotroneo, B.A., executive director, ISMETA

— Wyona Freysteinson, Ph.D., R.N., professor, Texas Woman's University (representing the American Holistic Nurses Association)

— Julie Fritz, Ph.D., P.T., associate dean for research, College of Health, University of Utah (representing the American Physical Therapy Association)

— Lori Gooding, Ph.D., associate professor, Florida State University (representing the American Music Therapy Association)

— Sharon Harrasser, holistic nutrition and wellness provider, Thirteen Zebras Wellness

— Richard Harris, Ph.D., professor, Department of Anesthesiology, University of Michigan (representing the Society for Acupuncture Research)

— Paul Herscu, N.D., M.P.H., chair, Scientific Affair Committee, American Association of Naturopathic Physicians

— Crystal Kimbrough, M.S., public health nurse II, Chicago Department of Public Health

— Anita Milicevic, Ph.D., principal investigator, Center for Contemplative Research

— Koninika Ray, Ph.D., director of biomedical research, Open Health Systems Laboratory

— Karen Roberto, Ph.D., executive director, Institute for Society, Culture, and Environment, Virginia Tech

— Stacie Salsbury, Ph.D., R.N., associate professor, Palmer Center for Chiropractic Research

— Milagros Salas-Prato, Ph.D., M.Sc., president and chief executive officer, Hans Selye Foundation

— Patrick Still, Ph.D., program director, Basic and Mechanistic Research Branch, DER, NCCIH

— Laura Stone, Ph.D., professor, Department of Anesthesiology, University of Minnesota

— Lisa Taylor-Swanson, Ph.D., M.Ac.O.M., assistant professor, College of Nursing, University of Utah

Dr. Chen, branch chief for the Basic and Mechanistic Research Branch in the DER at NCCIH, and Dr. Herman, senior behavioral scientist at the RAND Center for Collaborative Research in Complementary and Integrative Health, hosted this session. Participants introduced themselves, and then each participant had the opportunity to describe a challenge to the implementation of whole person health from the research perspective, with a potential solution if possible.

Dr. Herman said that research methodologies need to be developed and clear lines of funding need to be established to pay for this type of research. There is a need for FOAs specifically for whole person health research, and study sections need to be brought up to speed on how to evaluate grant applications in this area.

Dr. Fritz, representing the American Physical Therapy Association, said that much research relevant to whole person health takes place in settings other than academic health centers, but academic centers are where most of the resources to conduct rigorous science are housed. This situation may be changing, but historically it has presented challenges. She also pointed out that studying clusters of symptoms with poorly understood mechanisms is always challenging, particularly as research expands to considering the whole person. It is important to identify both the most patient-centered outcomes and the outcomes most meaningful to the research community. Dr. Fritz added that educating study sections is key. Funding agencies can play a large role in defining and leading the field, particularly in terms of the most important outcomes to study.

Ms. Harrasser, a wellness coach and new integrative health researcher, said that whole person health models need to be integrated into current practice to make research possible. This will be difficult because existing clinical standards and structures do not allow for a whole person approach. Dr. Chen agreed that standards are needed for researchers, those who evaluate researchers' work, and regulatory agencies.

Dr. Karen Roberto of Virginia Tech said that getting faculty engaged in whole health or one health as part of their research agenda rather than as a side interest will be a challenge. Grant reviewers will need to understand that some whole person and person-centered research must be performed outside of academia. She cited research in rural communities as an example; a wide variety of care practices in rural areas need to be involved.

Dr. Stone of the University of Minnesota said it is important to include individuals with lived experience throughout the scientific research process, including scientific review and the development of study protocols. These individuals have knowledge that researchers may lack—for example, about the experience of working in specific settings, such as rural settings, or of having a particular health condition. They should be at the table starting with the conceptualization of a study. Dr. Stone said that NIH needs to encourage qualitative research to obtain a better understanding of different people's perspectives, and the NIH funding system needs to incentivize integration.

Dr. Freysteinson of Texas Women's University, representing the American Holistic Nurses Association, said that more qualitative research is needed to obtain an understanding of

what statistics mean. She also pointed out the importance of fidelity testing of interventions when studies are conducted in settings other than research hospitals. For example, if nurses who are not trained in research are providing an intervention, close attention needs to be paid to ensuring fidelity in the delivery of the intervention. It will be challenging to have reviewers appreciate the special considerations in real-world research. Dr. Chen agreed that fidelity is a major challenge, especially with complex interventions. In the chat, Dr. Frysteinson noted that philosophically the notions of empowerment and adaptation are from different paradigms.

Dr. Anita Milicevic, from Endeavour College of Natural Health in Australia, said that mixed methods research, including first, second, and third person data collection, is necessary but challenging. Currently, the different types of data are disconnected, and this has impacted the study of meditation, for example. She asked how open-mindedness can be created in the health and education systems so that first and second person data collection can be integrated with numerical data collection in a single mixed methods research design.

Dr. Salsbury of the Palmer Center for Chiropractic Research said that the understanding of chronic conditions needs to be expanded beyond simply regarding them as undesirable and trying to prevent them. People who live with chronic conditions may experience them as life lessons with positive aspects, and short-term studies may not capture this part of their experience. Long-term longitudinal observational studies are needed to understand how people live with and adapt to health conditions, and the outcomes measured in these studies need to include concepts such as growth and understanding. Dr. Herman added that big-picture measures of what individuals think their whole person health consists of need to be included in outcomes. Symptoms and International Classification of Diseases, Tenth Revision (ICD-10) codes may not capture the full picture.

In a comment in the chat in response to Dr. Salsbury, Dr. Taylor-Swanson suggested thinking about foreground and background when considering health and disease. Perhaps wellness or well-being can be in the foreground, while a specific diagnosis remains in the background.

Responding to Dr. Salsbury's comment, Dr. Harris of the University of Michigan pointed out that NCCIH's model for whole person health includes spirituality. Challenges associated with health conditions can help people grow spiritually in ways the physical body cannot express. Dr. Harris said that without funding, no research will happen, and the focus of many NIH Institutes and Centers (ICs) on single organs or organ systems is an issue for whole person research. RFAs that specifically require multiple principal investigators from different specialties to work together might be helpful. The ICs and the Center for Scientific Review may also need to create study sections that understand the types of research being discussed at this meeting and therefore can review grant applications appropriately. Dr. Chen said that NCCIH is funding research network grants that require people from different fields to work together. Networks on emotional well-being and force-based manipulations are currently being funded, and there is a new funding opportunity for networks related to music-based interventions for pain or Alzheimer's disease. NCCIH wants to learn whether the network structure is productive in terms of building a new dimension of collaboration.

Dr. Gooding of Florida State University, representing the American Music Therapy Association, explained that she has served on review panels for studies of music-based interventions but sometimes sees a lack of understanding of the field among reviewers,

including a lack of appreciation of the difference between music therapy and other types of music-based interventions. Study sections need comprehensive knowledge and understanding of the research areas they are reviewing. Dr. Chen said that for almost all the research networks NCCIH is funding, developing consensus terminology and frameworks to guide research is a priority. NCCIH is working to develop this approach to address the type of challenge Dr. Gooding mentioned. In additional comments in the chat, Dr. Gooding said that she would like to highlight three challenges from the perspective of the music therapy community: access (access to research support, built-in time for research at the university level, access to interdisciplinary teams, postdoc placements, and other important elements of the research process), funding (monies and openness to projects that may not fit the more traditional molds of research), and understanding/knowledge of the disciplines themselves, the roles they play in whole person wellness and treatment approaches, and awareness of the expertise the practitioners can contribute to the research.

Dr. Doug Coatsworth of the University of Tennessee said that it is important to build networks within a university. Work at universities is often siloed, and there are incentives for faculty to stay in their own areas rather than incentives to collaborate. At his university, an effort is being made to reduce barriers and build a network on human health and well-being. Getting the academics talking to one another is a first step and connecting to community partners is the second step. The network at the University of Tennessee is working to develop a partnership with a large integrative health care provider in the area. Helping researchers learn about what's happening out in the field and what's being done at their own university is an important step. Another challenge is the complexity of the interventions that would be studied. The methodology for studying complex interventions and outcomes involving multiple systems is complex and challenging, and much work needs to be done on study design.

Ms. Conboy, representing the American Society of Acupuncturists, agreed with previous comments about the importance of qualitative research. Studies involving complex adaptive systems—a type of complexity science—could be used.

Dr. Cherkin, director for research at the Osher Center at the University of Washington, said that the whole person health concept presented by Dr. Langevin represents a revolutionary paradigm shift. It cannot succeed without NIH, and the fact that a component of NIH is promoting it is a reason for hope. It sets the tone for others to understand that this idea is now considered legitimate and worthy of research. Translating whole person health into practice will have other barriers related to vested interests and competition among specialties. The current health care system, which has developed over decades, supports reductionistic acute care.

Dr. Taylor-Swanson of the University of Utah mentioned the challenges in operationalizing whole person health concepts, determining how best to measure them, and writing and reviewing grant applications.

Dr. Herscu of the American Association of Naturopathic Physicians said that data is always messy, and with whole person interventions it will be messier. He suggested focusing on development of endpoints and outcomes first because this is an achievable goal and because the endpoints and outcomes can be used throughout all of medicine. Studies of whole person health should be adaptive in nature because there will be subclasses of people who respond and do not respond to an intervention.

Dr. Arnold of NCI, NIH, said that the issue of responders versus nonresponders might be most appropriately considered as a systems-level problem rather than a molecular problem. She said that Ayurveda offers many insights into whole person physiology, and biomedical science can learn from traditional medical systems. Dr. Arnold added that she would like to see integration of methods to select or analyze patients based on body constitution.

Dr. Milagros Salas-Prato, representing the Hans Selye Foundation, said that national and international collaborations should be emphasized, and people from different disciplines should be included. The whole person includes mind, body, and spirit, as well as all age and life stages, including mothers and children, so obstetrics and gynecology fits into the whole person health picture. For stress as a social determinant of health, it is important to remember that it can be either good or bad and that the person's interpretation of the stress makes a difference.

Dr. Ray of Open Health Systems Laboratory said that whole person health research will involve studying multiple modalities and seeing the interplay of different systems, while moving away from reductionist methods.

Ms. Kimbrough of the Chicago Department of Public Health mentioned including patient satisfaction measurements as an outcome. She recommended aligning outcomes with current nationally endorsed measures to enable assessment of providers' performance improvement.

Dr. Bell of the University of Arizona, who was representing the American Institute of Homeopathy, put her comment in the chat because time was running out. She explained that she wanted to raise the issue of using mixed methods approaches for evaluating the model validity of intervention designs in research studies of whole systems of care to develop review criteria. Then, model validity should be required as one criterion of review of grant applications. This has been done in looking at past studies in the field of homeopathy, and it balances the criterion of internal validity used by peer reviewers as an issue in evaluating a proposed study.

Ms. Cotroneo, representing the ISMETA, also put her comment in the chat. She raised the question of how to integrate treatments brought forth by emerging professions. Practitioners/clinicians who are trained in the treatment need to be part of the research although not necessarily as principal investigators. Challenges include bringing awareness to interventions and building the capacity of practitioners to participate in research. Ms. Cotroneo noted that movement, interoception, and proprioception are important aspects of whole person health.

Businesses/Innovators/Entrepreneurs

Moderators

— Emmeline Edwards, Ph.D., director, DER, NCCIH

— Emrin Horgusluoglu, program director, Basic and Mechanistic Research in Complementary and Integrative Health Branch, DER, NCCIH

Participants

— Gautum Bose, M.S., software entrepreneur, health coach, and graduate student, Maryland University of Integrative Health

— Shakira Franklyn, M.S., M.P.H., C.N.M., founder, Korpo Wellness, LLC

— Amy Goldstein, M.S.W., director, Alliance to Advance Comprehensive Integrative Pain Management

— Michael Goldstrom, chief executive officer, GetMotivatedBuddies

— Michelle Mangroo, M.B.A., A.H.C., Ayurvedic health counselor and founder, Ayurvedic Home of Wellness, LLC

— Leena Palav, M.S., chief executive officer, Grandview Group, LLC

— Jeff Schmitt, Ph.D., scientific advisor, Sanesco Health

Dr. Emrin Horgusluoglu, program director in the Basic and Mechanistic Research in Complementary and Integrative Health Branch in the DER at NCCIH, began the session with a round of introductions.

Dr. Edwards, Ph.D., director of the DER at NCCIH reminded the participants to avoid promotions and asked them to focus the discussion on general technologies that may be helpful rather than specific enterprises.

Dr. Horgusluoglu asked the participants to comment on what they believe is needed to implement whole person health in real-world settings from their perspectives as innovators, entrepreneurs, and representatives of the business community.

Mr. Goldstrom, chief executive officer of GetMotivatedBuddies, said that money is the most important factor that is currently missing. When businesses secure funds from other sources such as venture capital, that funding is driven by numbers such as growth and other specific measures. In whole person health, what measurements are we showing, he asked. Most people do not understand what the term “whole person health” means. Businesses need money to test the efficacy of protocols and technologies, and this need is fundamental. It is difficult to communicate the whole person health initiative to people who are funding initiatives in this field. For example, health-related behaviors can mean many different things. We know that behavior is an effective way to implement a protocol, and we can use technology to implement behaviors and capture measurements about them. However, it is not clear how to communicate integrative health approaches to funders.

Dr. Edwards asked Mr. Goldstrom if he has used demonstration projects in his business.

Mr. Goldstrom said that yes, he had, but doing so has been both exhilarating and frustrating. He said that he has shown that his platform works to create behavior change, but he has not marketed it or taken venture capital money. For the private sector, incentives must be considered, such as to integrate a whole person health protocol into a community. Venture capital has one goal, which is rapid growth. When technology companies prioritize growth, we see that most of the funding goes to platforms like Facebook and TikTok, which lead to decreased well-being outcomes, such as greater depression, decreased longevity, and decreased mental health. There is a need for a business model that is not premised on growth, such as a subscription-based model that does not necessarily give content away for free, and support is needed to build it out.

Dr. Horgusluoglu said that phase 1 of the STTR and SBIR programs does not provide much money. She urged the participants to look at NCCIH's waiver topic areas, for which applicants can ask for more money. Whole person health is one of these topics.

Dr. Schmitt said he agrees that money helps, but NIH also has many other resources that could enable pathbreaking innovations from small companies and entrepreneurs that are currently stuck. There are ways that NIH could help outside of the SBIR/STTR rubric. For example, he said that conventional doctors will often say, if only there were a paper showing the efficacy of xyz treatment, I might adopt it. He asked if there was a way to lower the barrier to systems-based screening and assessments for innovators and their interventions. For example, making gene expression profiling available to small innovators would be very helpful so they could know what the relationship is between snipped polymorphisms and certain outcomes. High throughput centers have a lot of infrastructure already in place that are not available to small companies and innovators that are looking for ways to mechanistically define and understand the efficacies of what they are doing. On the data collection side, he asked if resources could be built for small clinicians to enable them to collect data easily in the clinical or translational sense that is rigorous and easier than putting in place a lot of Health Insurance Portability and Accountability Act of 1996 (HIPAA) infrastructure and other systems. He said that there are many ways that NIH can help entrepreneurs that are not in place yet.

Dr. Horgusluoglu said that NCCIH allows small business applicants to collaborate with academic and other institutions as partners within SBIR applications.

Dr. Schmitt said that he is a grateful recipient of many SBIR grants over the years, and they have been invaluable for his research. Entrepreneurs live and die by their burn rate, and the ticking of the clock can get in way of entrepreneurs' ability to set up partnerships with academic and other institutions, write SBIR grant applications, do the research, and get the paper published. Often, these require a time scale that does not work for entrepreneurs, who have tighter time schedules.

Dr. Edwards said that currently, there are several large-scale initiatives that are collecting a lot of data. An example is the All of Us Research Program (All of Us), which is collecting phenotypic data. This initiative has just released the first wave of data. Investigators can access this data, so this is a resource that NIH can provide. The work was done in a different setting, she said, but the data may be useful for secondary analysis.

Mr. Goldstrom suggested that NIH or NCCIH create a clearinghouse or a central location to house data from initiatives such as All of Us and to make it accessible in a way that is easy for entrepreneurs and businesses to access and integrate.

Ms. Goldstein, director of the Alliance to Advance Comprehensive Integrative Pain Management, said she agrees with Mr. Goldstrom's suggestion and Dr. Schmitt's comment. In her work, she often hears from groups who are attempting to implement innovative whole person health changes, who express frustration over not being able to access funding due to a lack of clinical capacity or unfamiliarity with the whole funding process. Moving from traditional pain management to more integrative approaches to pain has been challenging, in part because of the animosity between conventional and integrative practices and a perception of competing interests. Some integrative stakeholders are not familiar with the policy realm, or do not understand all the levers that can move whole person health forward. It would be very helpful for NCCIH to create a structure that would allow more people to come into the fold who may not know how to move forward on their own.

Dr. Edwards said that NCCIH has been wrestling with this challenge for many years in the context of not only small businesses but also integrative schools that are not participating in the research enterprises as much as they could. NCCIH recently started an initiative called REACH to foster these partnerships. The goal is to help research-intensive institutions work more closely with affiliated parties to provide the infrastructure that is currently missing. The link to REACH is https://grants.nih.gov/grants/guide/rfa-files/RFA-AT-23-007.html. The original purpose of REACH was to support integrative schools, but it can support partnerships with businesses as well.

Ms. Palav said that she has been involved in launching several new medical products, and bureaucratic regulatory processes are a huge barrier to entry for business start-ups. Sometimes, the companies that can check all the bureaucratic boxes manage to get approval to launch products that are not effective or even safe. We need someone in government to build a "product introduction lite" process to allow more innovative products to reach consumers.

Dr. Edwards said that NCCIH has two processes that may relate to Ms. Palav's comment. For years, NCCIH has had a product integrity program that applies to funded projects, which are required to go through this program. The grant recipients are required to demonstrate that their product does what they say it does, and the data must be independently verified.

Dr. Edwards said that a year and a half ago, NCCIH and the FDA held a 2-day meeting, and there is now a resource available on how to move products through the FDA process for an Investigational New Drug (IND).

Dr. Horgusluoglu said that NCCIH has an Office of Clinical and Regulatory Affairs, which helps to ensure that all products are safe.

Mr. Goldstrom said that filling out an SBIR application is time consuming. It can be overwhelming to figure to out which one is best and then go through the process of completing the application because they are very involved. Start-ups, which are almost always lean, can only participate if they have enough funding to pursue SBIR funding. A more accessible application process is highly desirable. Several other countries including Canada and Germany have models of more accessible processes that can be considered.

Dr. Edwards said that while she appreciates Mr. Goldstrom's comments, trying to change NIH's entire SBIR model is a daunting task. However, there is a program that provides coaching to potential applicants to help them learn the process.

The link to this program is https://seed.nih.gov/support-for-small-businesses/technical-business-assistance-program.

Dr. Horgusluoglu said that NCCIH is participating in this program in 2023, but there is a technical assistance program available free of charge to applicants. The program walks applicants through the steps of the process and can provide feedback on their applications. The link to this program is https://seed.nih.gov/support-for-small-businesses/technical-business-assistance-program.

Dr. Horgusluoglu said that she encourages small business applicants to build partnerships because the grants are research based, so any devices that they include in their applications must be evidence based and validated. That is why collaborating with research institutions is important for application success.

Dr. Edwards asked the participants to share what kinds of measurements and technologies will be needed for whole person health.

Dr. Horgusluoglu asked each of the participants for their opinion regarding which types of sensory diagnostic devices or applications are needed to elucidate physiological, biological, and psychological mechanisms of multicomponent interventions for health promotion, restoration, resilience, and other factors that influence our whole health.

Mr. Bose said that some work has already been done to use AI, such as chatbots or conversational AI, for example. Such technology already exists. Organizations like NIH could put out reference implementations to guide smaller companies regarding the basic minimum requirements that are needed prior to launching a product in the market. In the case of conversational AI, although the technology exists and has been validated, it is not yet being used for whole person health applications, even basic ones like for making appointments with a health care provider. Using these technologies for whole person health would free up health resources so they can spend more time providing care. For example, in the area of mental health and related issues in the workforce, burnout and quiet quitting are big issues, especially among younger employees. Nevertheless, many new technologies already exist to help with understanding sentiments. Although there is a lot of misinformation and bad press around AI, it has the potential to be very useful for whole person health. Having an authoritative organization publicly acknowledging the potential use of this technology to reach people would be helpful.

Dr. Horgusluoglu said that big data, such as genome-wide association data, could be incorporated into AI techniques to advance whole person health.

Ms. Palav said that it is easy to get onto the measurement and data track, but the health system already has too much diagnostic testing. Testing does not always lead to solutions. So many applications already track many health parameters, but whole person health extends far beyond measurement of health parameters based on data. Outcomes and clinical expertise also need to be factored into the broad framework of whole person health, as Dr. Langevin alluded to in her presentation. She said that the main goals of whole person health should be clinical outcomes, and those should be the big metric, with smaller metrics supporting this larger metric.

Dr. Horgusluoglu said that the development of some applications using AI may be able to help with this.

Ms. Shakira Franklyn said that from her perspective as a nurse and coach in populations with chronic diseases, she believes that increasing human caring input is more important than expanding applications like AI. Human input is needed to bridge the disconnect between the provider relationship and the patient's ability to act on their providers' suggestions and recommendations. Currently, there are not many health care professionals available to help facilitate implementation, but there is a big need for facilitation. People need human contact to facilitate the recommendation implementation process in creative and innovative ways. There is a need to support health care professionals who are looking to leverage their experience and knowledge to fill this gap, potentially to help them partner with institutions. Demonstration projects are useful for testing whole person health concepts, theories, and interventions, but how do individual health care practitioners who are launching their own small-scale businesses to fill human contact gaps in health care implementation tap into them?

Dr. Horgusluoglu said she agrees that there is a huge gap between providers and patients. She said that there are some applications that help to integrate the many components of health, such as exercise, diet, and mindfulness, but relaying the results of these interventions to providers is lacking. There is a need to better connect providers and patients, and this is an area of interest for NCCIH. We need to understand the impacts of these interventions on multiple systems.

Ms. Michelle Mangroo said that she would like to see larger scale statistics on how specific complementary health approaches such as Ayurveda have helped patients and clients with managing diseases and health issues. A statistical system that provides data on the use of complementary approaches and is easily accessible would be helpful to small practitioners and would enable them to help educate the public on the effectiveness of complementary approaches and how whole person health improves health outcomes.

Mr. Goldstrom said that accuracy of measurements depends on the devices used to capture them. Devices must be accessible and available to everyone. However, it is unlikely that most new devices that currently exist or are being developed will be widely accessible in all communities. For example, not everyone has access to the internet or to a telephone, but whole person health requires that whichever devices are used to capture measurements are accessible to all.

Outcomes such as longevity are complex and, thus, difficult to measure, Mr. Goldstrom said. There has been a big emphasis on quantitative data, and more emphasis must be given to qualitative data for a more complete picture of whole person health. Although a lot of qualitative data exists on platforms such as social media, it is unstructured. AI can be used to "bulk" qualitative data, however.

Mr. Goldstrom said that whole person health is a large topic that consists of thousands of smaller topics that can be measured in many ways. He suggests looking at well-being metrics as a model; well-being metrics have nine specific dimensions that can be reduced with validated scales. For example, self-determination theory reduces well-being metrics to three fundamental metrics—autonomy, competence, and relatedness. Also, it is important to consider who the data are for when formulating measurements, whether the patients, researchers, providers, or another audience. People are overwhelmed with too much information, so just adding more is not helpful. We need to consider which measures are impactful to the outcomes that we are seeking.

Dr. Horgusluoglu said she agrees that considering who the target audience is for the data is an important factor to consider when designing measurements. NCCIH uses some qualitative measurements of well-being such as the Likert scale, but these measurements can have a degree of bias.

Ms. Goldstein said that big data has already shown the extreme lack of access to integrative providers in low-income, non-White zip codes. There may be ways to use these data to increase access. Many zip codes lack acupuncturists, physical therapists, or chiropractors, for example. Currently, there is a lack of ample quality studies of cost analyses, utilization, or pragmatic trials of complementary approaches. The Agency for Healthcare Research and Quality recently did a systematic review of comprehensive pain management that did not look at these studies, mainly because so few were available. She said this led to sweeping statements about these areas of complementary approaches that were made with no backing from evidence-based sources. This represents another opportunity for improvement.

Ms. Goldstein said that coverage and reimbursement for integrative care is an important topic for the business sector. An innovator has developed a narrow network for bringing together providers from five different integrative disciplines—chiropractors, massage, acupuncture, health coaching, and naturopaths. Unlike payers that tend to pay low rates, this narrow network pays providers according to their experience to connect the outcomes to the most experienced providers. They are having excellent outcomes; however, it is very challenging to pay for this approach as a start-up. This is an example that could have research implications regarding correlating experience with outcomes. It could be used to compare the big networks with the smaller ones regarding paying providers for outcomes.

Dr. Schmitt asked if it would be possible for NCCIH to consider a whole person health equivalent to the ASIS system, creating a unified, comprehensive system of outcomes that spans everything from socioeconomic status to spiritual wellness. This system could be made available for everyone to use to compare relative efficacies of different interventions or combinations of interventions.

Dr. Horgusluoglu said that NCCIH is thinking of research around whole person health in relation to socioeconomic status.

Day 1 Closing Remarks

Dr. David Shurtleff, deputy director of NCCIH, thanked the participants for their enthusiastic participation in the breakout sessions and for their cooperation in focusing on the overall topic of whole person health rather than their individual special interests. He said that the meeting had featured a wide and diverse group of people who had many important comments and that he was looking forward to the specifics that would be presented in the report-outs from the breakout sessions. It was clear from the first day's conversations that people are thinking about many important issues related to whole person health research including the need for interdisciplinary teams, the choice of outcome measures, tailoring treatments, empowerment of the individual, the value of flexible research designs and qualitative or observational research, and the importance of aspects of the environment that go well beyond the health care system.

The new focus on whole person health is timely for many reasons including the COVID-19 pandemic, the opioid and pain crises, declining life expectancy, the mental health crisis for youth, mistrust of public health experts, and disinformation on social media. Dr. Shurtleff said that new ways of addressing public health are needed, rather than doing the same things over and over and expecting different results. Integrating new approaches with the work that is already happening at NIH and elsewhere will help to bring the best to public health.

Dr. Shurtleff pointed out that NCCIH's introduction of the whole person health concept has received an enthusiastic reception from various NIH Institutes, Centers, and Offices. NCCIH can also reach out to additional research organizations. However, he explained that other stakeholders can do more than NCCIH can to amplify the whole person health message and bring it to the attention of those who pay the bills—namely, Congress, which appropriates money to NIH. Members of Congress listen to constituent groups about how they should best support NIH.

Dr. Shurtleff thanked the meeting participants again for their insightful suggestions.

Dr. Langevin said that her impression of the meeting was consistent with Dr. Shurtleff's. She visited several of the breakouts, and everything she heard was very substantial, thoughtful, constructive, and creative. She said that she is looking forward to the reports from the breakout groups and the public comments on the second day of the meeting.

Dr. Edwards agreed with the positive impression that Drs. Langevin and Shurtleff had received from the breakout groups, and she said that it had been a very exciting day.

Dr. Langevin thanked Ms. Catherine Law and Ms. Mary Beth Kester of NCCIH for their work in organizing and running the meeting, and she closed the first day's session.

Report-Outs From Breakout Groups and Discussion

Ms. Law welcomed the participants and introduced Ms. Kester. Ms. Kester set the stage for the first session and turned the floor over to the moderators of one of the first breakout sessions.

Clinical Trials/Clinical Research Breakout Group Session

Dr. Murray said that he and Dr. Weber hosted this session. He said that there is an interest in more descriptive and practice-based research networks to understand models of practice that provide whole person health care. We can learn from whole person health care and practices that are already underway in communities and use what we learn to inform interventions for clinical trials.

Dr. Murray said that there is an interest in N-of-1 designs, multiphase optimization strategy (MOST) designs, and other adaptive study designs, as randomized clinical trials (RCTs) may not be the best method of studying whole person health care. Some of these other study designs can take context and variability between participants into account better than RCTs.

Dr. Murray said that work is needed to develop multicomponent interventions to resolve the tension between tailoring to the individual and standardization. Standardization provides consistency and comparability but does not allow for maximizing the effect of interventions on individuals, which may require tailoring to the individual and to the context.

The need for a conceptual model or framework for whole person health interventions and disciplines was discussed. A suggestion was made to focus on the theory to which the intervention was applied rather than simply tallying the total components or the different modalities that are included in interventions. Such an approach may foster better comparisons in the research.

There is a great interest in common outcomes to use across research for whole person health. Global measures that account for context are needed to foster comparisons across trials and outcomes. Reproducible research reporting guidelines need to be enhanced for different disciplines.

Basic Research Breakout Group Session

Dr. Chen said that she and Dr. Pitcher hosted this session. She said that the session participants discussed the difference between research analysis, which tends to be linear and reductionist, and research synthesis, which has multiple layers of complexity and is nonlinear.

Dr. Chen said that the discussion in the basic research breakout session focused on three main topics:

1. Defining “health” and “being well”
2. Basic research challenges between analysis and synthesis
3. More global issues

The first topic revolved around the definition of “well” at the macro or societal level as well as on the micro or molecular scale, which was discussed as a sort of “wellness soup.” They discussed how to measure these concepts. They differentiated the concepts of

healing, which is considered as coming from self-identity, and curing, which is thought to be coming from the practitioner's perspective.

The second topic focused on the basic research challenges between analysis and synthesis. Analysis was discussed as a bottom-up approach that starts to integrate two systems and researches their interactions. It involves building up from reduced or isolated elements. Examples include research on the gut-brain axis and on interactions between the nerves and fascia. However, there are challenges with multiple outcome analysis, which is perceived as unfocused and overly ambitious. On the opposite end of the spectrum are top-down approaches, which are longitudinal, naturalistic observational studies in human and animal models and aim to generate novel hypotheses of multisystem or multicomponent interactions for future mechanistic studies. Such studies could track side effects and off-target effects of single target or outcome interventional studies.

Among the global issues that were discussed were challenges around general acceptance of the whole person health framework and approach at the individual and societal levels and in health care and academia, which could impede research. The need for research networks to connect people with different types of relevant expertise and disciplines was discussed, such as connecting people with large datasets to those who need datasets to test their ideas. Also mentioned were needs for suitable funding mechanisms and study sections to support new lines of research applications, supplemental funding to existing studies, which may be suitable for some research ideas, and high-power computing capabilities at the methodological level. Although there is some fear around public data sharing, the participants noted that last year's methodology workshop on whole person health research was a good start for addressing some of the key methodological challenges.

Implementation Science and Dissemination Research Breakout Group Session

Dr. Jean-Francois said that she and Dr. Deuster co-facilitated this session. Participants shared that whole person health should be viewed from a lifespan perspective. Themes that were discussed included needs for common language for information and dissemination research and for funding for health promotion and care coordination, such as for workplace wellness programs. Pharmaceutical companies could be tapped as partners for health promotion in populations such as those with diabetes. Participants said that decision tools should be developed to incorporate care coordination, quality measures, and census information, and to foster shared decision making. They discussed reconsidering the level of evidence needed to move to implementation science, as RCTs may be overemphasized, and hybrid designs may be useful. There was a recommendation to leverage consumer demand in implementation science and dissemination research and to consider issues of trust and sources of dissemination in the current overwhelming information landscape. Another recommendation was to bring the FDA and other government payers such as CMS into whole person health research, given that there may be implications for workplace wellness initiatives and reimbursable interventions such as nutrition support. Participants said that allocating funding for psychological behaviors support health promotion, such as cognitive flexibility and locus of control, and considering stages of change is important in implementation science and dissemination research. They

also suggested considering equitable access to interventions regarding implementation science and dissemination research.

Capacity Building/Training Breakout Group Session

Drs. Still and Treviño hosted this session. Dr. Still said that training and career development are top priorities for NCCIH, and the Center's training portfolio spans all areas of research, including basic, mechanistic, and clinical science, with research in natural products, mind-body practices, and multicomponent approaches. The group in the breakout session discussed challenges for career development and strategies to attract more trainees into the field. The need for training to get current conventional clinicians to understand and collaborate with complementary and integrative health practitioners was raised. Participants said that exposure to and collaboration with complementary and integrative health providers should start in medical school, continue in residency/fellowship, and be part of certification maintenance. Smaller institutions may need capacity building to support complementary and integrative health trainees. Professional appropriation was discussed as being an issue within the complementary and integrative health space, and tracking who is providing integrative care can be challenging.

Research data in the complementary and integrative health field is needed, but many institutions are not competitive in funding, making it difficult to build the body of literature. Participants discussed the need to bring nurses into the complementary and integrative health field and increasing their training in complementary and integrative health approaches. In the area of scientific review, the need for increasing complementary and integrative health approach awareness among reviewers was raised as an important focus area.

Discussion

Dr. Langevin thanked the session participants and hosts for their contributions to the discussions. She especially appreciated the participants' frankness and out-of-the-box ideas. She highlighted several points raised in the report-outs to continue discussion around them among the broader group. First, she raised the concept of wanting to understand the theory behind a particular therapeutic approach because research has not yet tackled this fundamental topic. Research needs to understand the decision-making process that practitioners use to arrive at a particular complementary and integrative health diagnosis and treatment plan, including the theory that they are using in their practice. She invited the participants to comment on this subject because understanding the theoretical, diagnostic, and therapeutic frameworks requires methods development so that the theories can be built into the research design, and this idea is included in NCCIH's current strategic plan.

In the chat, Dr. Pitcher provided the following link to the NCCIH strategic plan: www.nccih.nih.gov/about/nccih-strategic-plan-2021-2025.

Dr. Yanez said that one thing that came forward in the capacity building and training breakout session was fostering researchers with an interest in academic research and academic medicine in the complementary and integrative health fields. There is a stigma in the field around the idea that complementary and integrative health research will not have as much funding or prestige. The question is how to recruit students and elevate them into complementary and integrative health research pipelines; many students do not understand that a career in complementary and integrative health research is feasible.

Equity was also mentioned by several people in this session, meaning ensuring equitable representation across complementary and integrative health fields and institutions.

Dr. Herman said that for 3 to 4 years, she has been wanting to do a CONsolidated Standards of Reporting Trials (CONSORT) statement, with reporting guidelines for whole systems of medicine/health. This has been on the agenda of the RAND Center for Collaborative Research in Complementary and Integrative Health, and she believes it would benefit from having a much wider audience. The idea would be to define what it means to do a study on a whole system of health, which entails theory-driven care. Because the theory stays the same, it could be tested by following what happens when practitioners trained in that theory deliver care using that theory, as compared to using a different theory or a standardized protocol in the absence of a theory. She would like to see agreement among the participants in this meeting on doing this.

Dr. Langevin agreed and said she would like to hear from others on Dr. Herman's point. In the chat, the following people also expressed agreement: Dr. Swanson-Taylor, who added that the whole system CONSORT should include the specifics of the care delivered; Ms. Pera; Dr. Kligler; Dr. Harris; Dr. Herscu, who added that AANP is very enthusiastic about this idea; Dr. Goldblatt; Dr. Pratibha Shah and the Global Council for Ayurveda Research; Dr. Bell; Dr. Chesney; Dr. Simon and the Institute for Natural Medicine; Ms. Danielle De Pillis and the International Association of Yoga Therapists; Dr. Varleisha Gibbs and the American Occupational Therapy Association; Ms. Cotroneo and the International Somatic Movement Education and Therapy Association; and Dr. Ann Blair Kennedy and the American Massage Therapy Association.

Also in the chat, Dr. Bell said a previous set of publishing guidelines for homeopathic research exists as supplement to CONSORT, available at pubmed.ncbi.nlm.nih.gov/17309373/. In terms of potential methodology from a systems science model, she added that NCCIH (under its former name, NCCAM) co-sponsored a workshop that brought complementary and integrative health researchers and complex adaptive systems science researchers together in 2009. Papers from that workshop were published in 2012 and are available at www.karger.com/Journal/Issue/256740.

Dr. Shah apologized for being unable to attend yesterday's sessions and asked if a framework would be developed that includes the points and questions being raised at this meeting. She asked how the complementary and integrative health systems are being looked at in regard to verifying and validating complementary and integrative health measures and whether a methodology for the practice of inclusion in complementary and integrative health fields was being discussed for either health and wellness or therapeutics.

Dr. Brolinson said that cranial sacral therapy is something that many manual medicine practitioners do, and yet it is not well researched, and the underlying molecular mechanisms and effective amounts of pressure are not well understood or easy to measure. If reviewers do not have expertise in this approach, it is difficult to get funding for research. However, this therapy is useful for concussion and potentially also for Alzheimer's disease.

Dr. Langevin asked if Dr. Brolinson was referring to methods and not the underlying theory. She added that studying the underlying theory would also be of interest, and Dr. Brolinson agreed. He said that we can study the practice of what is done, which is based on clinical outcomes, and the theory that the bones of the skull can move, which was first proposed in

the 1920s. There is an inherent cranial rhythmic impulse that you can palpate and influence with your hands. It is important to study what happens at a molecular level when manipulating this impulse in terms of mechanisms that influence molecular changes. Dr. Langevin said that theory is based on assumptions about mechanisms that are believed to be responsible for observed results. Theory can generate mechanistic hypotheses that can be tested, and those hypotheses can be derived from classic physiological theory or other theoretical models. Often, basic science does not make this distinction well, and the way that research questions are asked may need to be refined.

Professor Brady said that when discussing theory, he suggests using the convention that prevention should be primary. He believes that prevention is currently considered secondary, following in importance to the emphasis on early detection of disease. In whole person health, preventing disease should be the first theoretical component. Empowerment should be another important theoretical component, with the patient as an active participant in their own health. People should be taught techniques such as tai chi, qigong, or meditation, so they have practices they can do for themselves to be part of the process instead of only being recipients of care. Complementary and integrative health is ideal for encouraging people to take care of their own health. The final theoretical component he said he would add is how to measure whole person health. He said that in acupuncture medicine, a person's health is measured by the person's movement and activities. This theory is based on the observation that when people are healthy, they move more and engage in more activities. This could be a way to gauge successful aging.

In the chat, Dr. Salsbury said that patients' theories on how an intervention works might be very different than practitioners' theories. When looking at health promotion, researchers should start with children. Whole person health cannot be done at only the individual level; it must also include healthy families, communities, and the environment. Mr. Walsh agreed, and Ms. Pera agreed with Professor Brady. Dr. Carol Goldman said that we need to address what happens before a patient walks into our office. For example, urban planning to build parks for health is a part of what our government should mandate. Dr. Chesney agreed with Professor Brady. She added that whole person health should begin with understanding how to sustain health over time, especially under different conditions (stressors), as well as study people when their health falters. Dr. Wolf said that an electronic health record that tracks patient experience across practitioners would be a valuable tool for practitioners as well as for research, which could use the data.

Dr. Herscu said that there should be people in the review room who are able to assess the quality of the proposal, which will also address the equity question. Regarding networks, he said that cities like Portland [Oregon] have schools that teach many integrative practices, but others, such as Knoxville [Tennessee] may not have as many. Different locations may need different types of networks. In Portland, different practices could see the same patient, whereas this may not be possible in a rural area, for example.

Dr. Freysteinson agreed with the comments by Dr. Herscu and Professor Brady. The theoretical model may need to combine two paradigms—a medical model and a model of empowerment. The latter incorporates individual motives for goals such as quitting smoking or weight loss as well as patient decisions and barriers between these decisions and patient actions.

In the chat, Ms. Pera thanked Dr. Freysteinson for her comments, and Ms. Franklyn said that everyone should have access to a nurse coach.

What Is Needed To Implement Whole Person Health From the Perspective of Individuals/Consumers/Educators

Dr. Jean-Francois, Mr. Walsh, and Ms. Rue co-facilitated this session. Mr. Walsh said one of the themes that stood out was the need to educate practitioners in different specialties around a unifying message for whole person health. Other themes were that whole person health assessments should consider social determinants such as environmental toxins, ultraprocessed foods, adverse childhood experiences, and lack of access to nature. Equity-focused research must include community stakeholders as part of the research collaborative enterprise to foster trust and engagement as well as to learn from communities which models work best for them. There needs to be common language and health literacy around whole person health topics. Measures are needed for strengthening well-being in school-based programs. The group also said that NCCIH should consider a citizen-science initiative in whole person health research. Also, the topic of failure to act upon successful interventions was raised along with the question of what research is needed to drive investment when evidence already exists.

In the chat, CDR Hudson said that workers face not only the traditional risks of chemical, physical, and biological hazards but also increased risks related to changes in work, the workforce, and the workplace. As the pace of change in our society, economy, and workplaces quickens, and as new demands on workers rapidly emerge, it is widely predicted that the mental health of workers will face an unparalleled assault. A renewed focus on the pathways of worker stress and the diversity of risk factors will be even more critical in the years ahead, and new insights are needed to address the safety and health needs of an increasingly diverse workforce and the myriad safety and health issues that are impacted by population differences, disparities, and inequalities. This complex, everchanging environment demands new approaches and strategies that holistically safeguard and promote the health and well-being of workers.

Ms. Pera agreed. She added that she believes we are already in the crisis, and she is encouraged to hear that workforce wellness is an area of immediate application.

What Is Needed To Implement Whole Person Health From the Perspective of Clinicians/Practitioners/Community Health Workers

Drs. Chideya and Locke co-facilitated this session. Dr. Chideya said that many of the points that arose in this session were similar to those raised in other sessions. The participants noted that there is a need for brief, validated, and free data collection and measurement tools that can be used across all levels and specialties of clinical practice. These tools can facilitate standardized data collection that enables small datasets to be combined, so that data collected from complementary and integrative health practitioners with small practices can be combined with data from other practitioners for larger analyses. Participants suggested creating a multi-domain "whole person index," where various domains may apply be more applicable to some specialties than others. Having such an index would provide a more comprehensive picture of each person; it could also help move the dial regarding population health changes. An existing resource that could help in the creation of this index is the PROMIS program, and the use of PROMIS scores. Funding and time were also mentioned as essential for whole person health implementation, including time to conduct whole person health assessments with patients as well as to process and analyze the data. Funding and time are needed at both the institution and payer levels, and support will be needed to build the evidence to encourage payers to support a whole person health approach. Another suggestion was to engage complementary health practitioners to evaluate the impact of whole person health approaches, possibly through micro grants, linkages with complementary health schools, teambuilding workshops, and networking hubs. The need to advance whole person health literacy and to train conventional providers was also discussed.

In the chat, Dr. Yanez said that coordination of electronic health records data across complementary and integrative health professionals could be groundbreaking. Especially if there was an initiative to unify practitioners in training on common data collection expectations.

In the chat, Mr. Goldstrom and Dr. Shah agreed with the idea of creating a whole person health index. Dr. Salsbury said that while standardized data collection with a whole person index is an interesting idea, people might not like filling out a bunch of forms. It would require figuring out methods to collect data about life through phones and technology. Dr. Brolinson agreed, adding that wearable technology should be considered to make the process efficient and not time consuming. Dr. Simon said that many patient-reported outcome platforms exist, such as OutcomeMD, to help standardize patient experience reporting. These could be used with a custom wellness assessment, she added. Dr. Kennedy said that creating and linking practice-based networks like Massage Net (massagenet.org/) could help with linking and gathering whole person data as well as linking complementary and integrative health providers who practice individually with other providers. Dr. Conboy agreed with the suggestion to work together with conventional practitioners. Ms. Bhatt agreed that whole person health literacy and a whole person index are a few of the impactful action items from this meeting.

What Is Needed To Implement Whole Person Health From the Perspective of Policymakers

Drs. Chesney, Ginexi, and Treviño and Ms. Simmons co-facilitated this session. Ms. Simmons said that the group discussed the threshold of evidence needed to make a policy change. It is not clear how much evidence is needed to make policy, and whether NCCIH can push the whole person health agenda within NIH, whether external stakeholders need to address this issue, or both. The group also discussed how to provide implementation guidance or a roadmap to policymakers to implement and operationalize policy change when sufficient evidence already exists. The need to look for models that are already doing this was raised, along with the need to direct funds and resources to implementation science and dissemination research. The group discussed how to remove policy barriers that prevent integrative providers from being a core part of the medical team, such as with payers, or in academic settings and health systems. The group also discussed how the external stakeholder group can influence NIH and other government funders to fund the type of research needed to inform policy change. The group explored how to build on existing, underused data sources, such as electronic health records and practice-based research networks. The participants identified numerous calls to action for the whole person health stakeholder group, including defining the level of evidence needed to change policy, increasing resources for implementation science and identifying best practice models, removing barriers preventing licensed health care providers from being part of health care delivery, creating a campaign to urge NIH and the Federal Government to increase funding for implementing whole person health, and supporting existing structures such as practice-based research networks and data sources such as electronic health records.

In the chat, Dr. Snow asked how things are progressing with the Practitioner Research and Collaboration Initiative (PRACI) project in Australia, which he believes is the only practice-based research network (PBRN) that spans multiple complementary and integrative health disciplines. He also asked if there are others. Dr. Milicevic said that PRACI is a well-supported PBRN that is designed to assist practitioners and researchers in working together to collect data from real-world practice settings.

What Is Needed To Implement Whole Person Health From the Perspective of Insurers

Dr. Weber and Ms. Benigas co-facilitated this session. Dr. Weber said that many of the issues raised in the policymaker discussion were also addressed from the payer perspective in the insurers group. The group discussed the need for other research analyses beyond efficacy, such as economic analyses to inform cost effectiveness and return on investment and secondary analyses by insurance status (e.g., Medicare/Medicaid eligible and private, public, and no insurance) to determine effectiveness of an approach for a specific population. The group discussed examples of demonstration projects done in different fields and disciplines and said more such projects are needed to provide data on the effectiveness of whole person health approaches. Because actuaries influence insurers and their decisions, groups such as Actuaries for Sustainable Health Care could be tapped as an advocate group for whole person health. Stakeholders should reach out to such groups, and an actuarial model could be created for whole person health. The uninsured and underinsured must be considered as well as means to increase their access to whole person health beyond insurance, with a view to increasing equity. Among the big ideas discussed included asking Dr. Langevin to present whole person health to a national insurer meeting and raising awareness among

consumers such as employers and employees who may not understand their own power to influence insurers by demanding that they provide coverage for whole person health.

In the chat, Mx. Jent said that insurers are very interested in whole person health based on value-based health care. Blue Cross Blue Shield is one of the leaders in the research around this. Mx. Jent served on the Invest2Innovate cohort (i2i cohort) for defining the values of managed care for the privatization of Medicaid for North Carolina, and one of the findings is that insurance companies value savings, and the research shows that whole person health care saves insurance money. Ms. Melissa Monbouquette agreed with Mx. Jent, adding at the BUILD Health Challenge, they are seeing a growing interest from insurers in engaging in public health and whole person health initiatives, and in better understanding the case for it. Ms. Controneo said that bringing complementary and integrative health practices to insurance companies as a focus on whole person health can be achieved collectively. She added that if NCCIH is going to approach insurance companies, it becomes more important for NCCIH to fund under-researched practices. If NCCIH focuses the research funding too narrowly, those methods and practices that are not funded may be considered less credible. Ms. Palav asked, regarding the return on investment for insurers, if whole person health is equivalent to preventative health, and, if so, how to leverage messaging. She noted that whole person health is about being proactive rather than reactive. Ms. Controneo said that joint messaging is something the Academic Collaborative for Integrative Health is encouraging, as it has the potential to be very powerful if done broadly. Dr. Simon said that employer-funded and state-funded insurance plans can be a target for the cost-effectiveness messaging. Ms. Palav agreed with Dr. Simon and said that complementary and integrative health is in a great position to partner with the insurance sector to drive overall change by demonstrating savings in overall health care costs.

What Is Needed To Implement Whole Person Health From the Perspective of Researchers

Drs. Chen and Herman co-facilitated this session. Dr. Herman said that the group noted that finding data and whole person health models to study is a challenge, and demonstration projects are needed. Because many complementary and integrative health professions already do whole person health, finding ways to consistently gather data from practitioners is important. There is also a need to take research findings from academic settings to see how and if they are valid in real world settings—in rural areas, for example. The group also discussed the need for new measures and methods for studying clusters of outcomes to capture dimensions of relevance for the whole person as well as a measure for whole person health as a whole. This entails incentives for analyses that take an integrative approach rather than a reductionist approach. Fidelity testing and mixed methods are essential as well as the ability to capture first, second (provider), and third person (community) data. Flexible study designs and complex adaptive systems that incorporate complexity science and adaptive design are needed. Systems-level analyses can look at the big picture across the whole person. Quality indicators such as patient satisfaction exist that can be used to develop endpoints. New, diverse collaborations are needed that include individuals with lived experience in review sessions and on scientific teams as well as multiple principal investigators with diverse perspectives, research networks, and multidisciplinary collaborations. Funding mechanisms for this research are also needed, such as RFAs or FOAs targeting whole person health research. A specific study section with review experts who understand whole person health research is also needed. Finally, a participant suggested considering the perspective of life lessons learned

from chronic diseases and health conditions and including research on how people live with these conditions, she said.

In the chat, Mx. Jent agreed with the idea of life lessons around disease, which aligns with indigenous experience. CDR Hudson agreed with this point, as well. Dr. Gibbs said that meaningful activity along with intervention is crucial.

What Is Needed To Implement Whole Person Health From the Perspective of Businesses/Innovators/Entrepreneurs

Drs. Edwards and Horgusluoglu co-facilitated this session. Dr. Horgusluoglu said the participants discussed quantitative and qualitative measures of whole person health and how they fit with and affect clinical outcomes. Qualitative data could be mined from social media or other platforms and then structured. The devices that are used need to be acceptable and accessible to the community. The fact that we do not know who is using the data must also be considered. Between pragmatic trials and causality, there is a lack of information regarding quality studies, the group noted, and a systematic review of complementary interventions and outcomes would help fill this gap. The group suggested that NIH could help outside of its existing small business mechanisms by building bridges between high-throughput centers and small businesses. Regarding data collection, the group asked how to build resources for entrepreneurs to connect with researchers, clinicians, and health care providers to allow small businesses access to data that they could use to test their interventions. NCCIH recently started an initiative called REACH to foster these partnerships. The goal is to help research-intensive institutions work more closely with affiliated parties to provide the infrastructure that is currently missing. The gap between health care providers and patients and their caregivers was also discussed, as was the importance of tracking the outcome of dietary, exercise, and other interventions on health outcomes. Technologies such as sensory or diagnostic devices or applications that use AI or machine learning could be harnessed, such as to gauge mental health issues in the workplace. The group also discussed health insurance and reimbursement for integrative care. Finally, the group discussed the effects of socioeconomic status and spiritual wellness on whole person health.

In the chat, Dr. Mahfoudh Abdulghani said that using AI technology for defining specific alternative medicine approaches requires making associations between whole person health and disease after the alternative approach is implemented.

Discussion

Dr. Cherkin suggested looking at low-back pain as an example where information about evidence-based treatments did not exist 30 years ago but now the opposite is true. Many studies have been done in the past 30 years about what works and what does not, which have led to guidelines from the American College of Physicians (last updated in 2017) that recommend 13 different treatments for chronic low-back pain. Half of those treatments are complementary and integrative health interventions. However, data from actual clinical practice seems to show that not much has changed. He believes that the reasons for the lack of change are lack of awareness about the updated guidance, lack of access to treatments that are not covered by health insurance or are not available in underserved or rural areas, and lack of systems support that limits health care providers' ability to refer patients to applicable treatment resources. The result is that providers tend to rely on the easiest treatment options, some of which are not evidence based. In addition, many primary care providers are not familiar with complementary and integrative health

treatments and are thus reluctant to make referrals. Vested interests are also an impediment because so much money is involved with chronic low-back pain treatments such as spinal fusion and pedicle screws. Health care systems and specialists who do these procedures are reluctant to embrace evidence based complementary and integrative health treatments that could reduce their revenue and income. It is important to be aware of some of the factors that can impede progress toward whole person health. On the bright side, initiatives such as Whole Health in the States, which supports underserved Medicare populations, works with different states on innovative initiatives to operationalize the provision of complementary and integrative health care. Measuring cost effectiveness is very important, as well.

In the chat, Dr. Simon said that the 2017 recommendations suggested complementary and integrative health approaches be considered even before nonsteroidal anti-inflammatory drug (NSAID) therapy. Dr. Jennifer Sudarsky agreed with Dr. Cherkin and added that the Academy of Health and Medicine, American College for Advancement of Medicine, and Institute for Functional Medicine have been having insurer conversations for years. She said that research is needed to show that these therapies are cost effective to get buy-in from insurers. Dr. Goldblatt also agreed with Dr. Cherkin and said that there was also a recent (2018) decision by the Joint Commission on nonpharmacologic treatment of pain. Much of the evidence is there, and she agreed that addressing our systems and vested interests is important. Ms. De Pillis agreed with Dr. Cherkin and said that doctors tend to be unaware that yoga therapists frequently help people with low-back pain. Yoga therapists have a minimum of 2 years more education than yoga teachers, but doctors often do not know there is a difference between the two. Mx. Jent and Dr. Brolinson also agreed with Dr. Cherkin about the issue of vested interests.

Dr. Weber said that it has become increasingly clear that going beyond efficacy trials and RCTs is a necessary next step, including moving toward doing pragmatic trials in health care systems as well as researching implementation science methodologies to improve adherence to guidelines. NCCIH is funding a lot of this type of research now. The Helping to End Addiction Long-term® Initiative (NIH HEAL Initiative®) has several projects that are working to get interventions into communities. Eleven trials are underway in the VA and DOD to understand how to insert complementary and integrative health interventions into military health care setting. The NIH HEAL Initiative® has six trials underway, all of which use nonpharmacologic, complementary and integrative health approaches. One is specifically geared toward providing guideline-delivered care without requiring a referral. There is more research coming and results are expected in the next few years.

In the chat, Dr. Weber shared the link to learn more about the pragmatic trials being done as part of the HEAL Initiative's Pragmatic and Implementation Studies for the Management of Pain to Reduce Opioid Prescribing (PRISM) project. It is rethinkingclinicaltrials.org/demonstration-projects/. She also provided the link to information about the NIH-DOD-VA Pain Management Collaboratory's set of 11 pragmatic trials, all of which use nonpharmacologic approaches to pain management: painmanagementcollaboratory.org/pragmatic-studies/. Dr. Tracy Gaudet agreed that there are many lessons learned in the VA about large system transformation that can be of benefit as we drive this in the private sector. She said that Dr. Kligler is a part of this group, as well.

Dr. Edwards said that Dr. Cherkin provided a good example of the need to move beyond clinical research into implementation science and dissemination research and to study the

barriers and facilitators for implementation. NCCIH has been moving in this direction since 2021 for evidence-based strategies such as those relating to low-back pain management.

In the chat, Dr. Chesney said that dissemination of whole person health advances to the public is so important. She suggested that it might benefit from a program like Bill Moyer's *Healing and the Mind* on Public Broadcasting Service (PBS) television, which aired decades ago. Dr. Harris agreed with Dr. Chesney's idea, noting that the program she mentioned influenced many people.

Dr. Goldblatt said that in 2003, approximately $1 trillion was spent on health care, and now that figure is $4.1 trillion. Now, the medical industry—comprised of pharmaceuticals, hospitals, specialists, and insurance—have created a for-profit system, and this system is one of the most significant barriers to whole person health. She is a member of the Global Forum on Innovation in Health Professional Education, and this group is only just beginning to discuss economic barriers to whole person health. While many people support well-being and disease prevention, the reality is that the funding is not there to support whole person health. In addition, ignorance about the evidence on topics such as low-back pain is an area that NCCIH could effectively address. In 2018, the Joint Commission came out with a mandate for all hospitals to inform patients about nonpharmacologic treatment options for low-back pain, and this mandate lists several complementary and integrative health disciplines. However, a review of this information has shown that the dissemination has moved very slowly. Research can be an excellent bridge for reaching out and educating the hospital systems and insurers about the evidence. There is a gap that needs to be filled to create a bridge to the current health care system to make complementary and integrative health interventions much more accessible; the bridge must include training for complementary and integrative health discipline practitioners as well as education for conventional medicine providers, leaders, and systems. Whole person health could fill this gap.

In the chat, Ms. Pera and Ms. Cotroneo agreed with Dr. Goldblatt. Ms. Cotroneo said that education and bridging the gap between trained complementary and integrative health and conventional health practitioners is important. She said that a model that includes peer educators or people with lived experience might potentially inform us around including complementary and integrative health in conventional medicine. Ms. Pera said that Humana Medicare Advantage is offering incentives for all preventive care, consisting of a system of points that rewards people for speaking with their family. Dr. Wolf said that clearly, complementary and integrative health disciplines all want to be a part of this paradigm shift. She agreed that this should begin in the schools, adding that there is no reason why medical schools cannot have relationships with complementary and integrative health schools and do symposium case study classes as well as rounds together. Dr. Simon said that education could be provided in the form of integrative medicine panels, with different providers delivering examples of complementary and integrative health in action, such as case studies and real-world examples. Responding to Drs. Wolf and Simon, Dr. Conboy said that we have models for this, such as the Osher Centers (in Boston, for example), which have mixed grand rounds. She said that this could be part of an NCCIH education application.

Dr. Fritz said that the NIH-DOD-VA Pain Management Collaboratory has embedded whole person health in ways that go beyond just integrating complementary and integrative health disciplines into the care process by integrating them into the culture, mindset, provision of care, and patient education. Lessons learned from this effort can be

generalized and transferred into the private health care space. The collaboration that has begun around chronic pain for whole person health could also be transferred for other conditions where an integrative approach and complementary and integrative health disciplines are particularly relevant.

Dr. Herscu said there is a bottleneck with primary care physicians who may want to help but who may not have knowledge of complementary and integrative health modalities. He suggested developing clinical tools and guides that can be implemented quickly by health care providers who are not knowledgeable in complementary and integrative health spheres, so that referrals can be made easily based on the type of low-back pain, for example. This needs to be more of an implementable guide, not just a list, to enable quick, refined referrals.

In the chat, Ms. Harrasser agreed with Dr. Herscu, adding that health and wellness coaches would be a great bridge for helping to expand on integrative care in primary care settings. Dr. Salsbury said in response to Dr. Herscu that medical appointments are so short, and there is no time to talk. Dr. Goldblatt said that these challenges were raised in the 1990s in David Eisenberg's studies.

Mr. Goldstrom said that some businesses are already working on tools such as the one mentioned by Dr. Herscu. He said that incentives for patients, clinicians, researchers, and other stakeholders are needed for the success of any such initiative. In the NIH-DOD-VA Pain Management Collaboratory model, the incentives are top-down. For example, the DOD has an incentive to make its fighting force deployable. However, to transfer that model to the private sector, there need to be incentives for insurers and for patients, some of whom are insured, and others are not. Incentives drive market forces and the motivation to act on or study the interventions. Including behavioral economists who could study economic incentives and behavioral outcomes in whole person health is important.

Dr. Kennedy said that regarding big data, electronic health records, and AI, it is important to remember that patients do not talk to their allopathic providers about the complementary and integrative health treatments that they are receiving. This has been shown in the literature. Even those providers who are familiar with complementary and integrative health treatments do not usually ask about those treatments or recommend them, her own research has shown. Also, many aspects of complementary and integrative health are not consistently included in national datasets, making it difficult to track changes over time. We need to capture existing data and begin to follow it consistently.

In the chat, Dr. Weiniger agreed with Dr. Kennedy. He also said that time precludes clinicians from investigating what works for patients. When patients get better, they have no incentive to spend time exploring why.

Also in the chat, Ms. Goldstein said among the disconnects that discourage uptake of evidence-based, guideline-concordant pain care are misperceptions and stigma (in addition to lack of awareness/understanding, business case data disagreement, workforce supply and demand, misaligned financial incentives, and integration and cultural incompatibilities). She said that in discussions among multistakeholders about this, simple dissemination of the existing evidence is not sufficient. Decision makers need to develop trust and understanding of what the evidence means. She suggested creating opportunities to bring many other stakeholders together for further discussion.

Dr. Langevin said that we need to penetrate the market at multiple levels, adding that she appreciated Mr. Goldstrom's comment about incentives because money is one of the drivers of the current system. She asked if there are any counterparts to money that could be just as powerful. She said that decision makers are beginning to understand that the health of the country is in peril. Comparisons of health outcomes around COVID-19 in the United States with outcomes in the rest of the world showcase this clearly. Such comparisons of other health statistics are equally grim. The top country for physical, mental, and emotional health for children right now is the Netherlands, whereas the United States is number 38 out of 40 countries. Facts such as this need to be brought out into the open and looked at as a whole so that we stop blaming our nation's health problems on factors such as the opioid crisis or COVID-19. The truth is that we have a global, systemic problem, and it needs to be addressed as such. Reading Dr. Salsbury's comment in the chat, Dr. Langevin said that even though the Netherlands is a small country (population 17 million), there are many other countries ahead of the United States, and we have a lot to learn from them. She noted that Canada is also a small country based on population, but they are not very far ahead of the United States on health measures; it is not just the size of the country.

In the chat, Dr. Weber suggested doing more direct-to-patient or community-delivered interventions, education, and empowerment, and Dr. Simon agreed with this approach. Dr. Mascarenhas noted the importance of starting education when people are young. Dr. Goldblatt said that the United States is the only country in the developed world that does not have health care for all. Dr. Waldfogel said that the way to change a system is by changing the paradigm. For whole person health, this means a shift from pathogenesis (disease) to salutogenesis (health creation). Dr. Freysteinson agreed with Dr. Waldfogel that there needs to be a paradigm shift from a disease model to a model of whole person health. Mr. Bose said that workplace wellness programs are an excellent vehicle to promote a culture of wellness and prevention.

Public Comments From the Advocates Group

Ms. Catherine Law introduced the public comment session, noting that registered participants who expressed the desire to offer a 2-minute public comment would be speaking on behalf of the organization they represent in this session. The comments were organized according to how participants filled out their registration forms. The first group of comments will be from participants who self-designated as advocates, who will be called on in alphabetical order with a few exceptions due to participants' time constraints.

Ms. Carissa Bishop, who represented Access Care Anywhere, said that using the social ecological model or similar health equity framework would be helpful to implement whole person health, along with taking an implementation and dissemination science approach. Moving beyond primary care and into the community, with a focus on evidence-based community interventions, will help with buy-in. Also important for implementation is collecting and stratifying data according to race, ethnicity, age, sexual orientation, language, disability, and gender identity. This would help to address health disparities, which should be the focus of all the work on whole person health. Nonprofits and community-based organizations should be included in the whole person health effort to engage communities, and they should be funded equitably. Funding should be allocated for the time that it takes to build relationships and trust. Technical assistance and funding should be provided for capacity building to enable small, grassroots organizations to

participate. The work should also be aligned with metrics for performance, outcomes, and quality, after looking at where the current focus has been and diversifying from there.

Ms. Cotroneo, who represented the International Somatic Movement Education and Therapy Association, provided an overview of the types of somatic complementary and integrative health approaches represented by her organization. She said that research has already been done on yoga and tai chi, and additional research on somatic movements can build on this. Research should focus on the effects of interoception on all aspects of health. Continuing to build research literacy among somatic movement professionals so that they can partner with research institutions is a high priority for her organization. She suggested including somatic practitioners on teams that design and implement research studies on somatic approaches, and incentives for doing this are needed to galvanize the development of new methods of improved care for hard-to-manage symptoms, foster health promotion, and prevent diseases.

In the chat, Dr. Kennedy agreed with Ms. Cotroneo about including somatic practitioners in the design and implementation of research that includes the indicated intervention. She added that her own motivation for earning a doctorate degree was to be able to represent massage therapists in research.

Ms. Goldstein represented the Alliance to Advance Comprehensive Integrative Pain Management, a multistakeholder group that is united to advance access to equitable integrative pain care, she said. Many stakeholders are aligning around the use of nonpharmacologic options for low-back pain. However, nonpharmacologic options alone are not necessarily whole person pain care; this requires a biopsychosocial approach. Numerous disconnects discourage the use of widespread, evidence-based multimodal care, especially for the underserved. She shared six research considerations to help connect the dots:

1. Agreement among quality standards and outcome measurements around complementary and integrative health for pain is needed.
2. Pragmatic trials, utilization data, and cost analyses are very important but ample studies are not available.
3. Collaboration on new funding opportunities to assess complementary and integrative health approaches in the safety nets is needed.
4. Implementation science needs to embed whole person health into clinical settings so findings can be translated into the real world.
5. Mobile health and telehealth-based self-management systems and devices are integral, especially with data showing a near absence of integrative health care availability in low income, non-White zip codes.
6. Her organization urges NCCIH to develop targeted funding opportunities that include collaboration with and dissemination across many key stakeholders.

Dr. Schmitt said the partnership between innovative service providers and clinicians is an important element for whole person health. He said that his organization has a large repository of human stress axis data, with data from 150,000 patients, some of whom have been tracked for over 10 years using evidence-based measures and biometric outcomes. He said that his organization is looking to collaborate with others on whole person health relative to the human stress response system, and they are willing to provide access to the data housed in their database.

Mx. Jent, who represented BrainCaveOrg, addressed the challenges faced by neurodivergent individuals. She drew attention to the impact of the stigma of divergence on personhood and overall health, as well as on the larger community, including the public health system. She explained that neurodiverse individuals face rejection sensitivity dysphoria caused by their reaction to living in a society that does not accommodate their minds. They often feel pressure not to disclose their differences because of a lack of safety. Neurodiverse people are disproportionately lost each year to suicide, physical disease, or mental illness, all driven by the stress of trying to process society's structure, Mx. Jent said. She invited the meeting attendees to involve diverse patients of all neurotypes to share their complex challenges, needs, ideas, and solutions within each public health setting, from research, policy, and funding to actual clinical implementation, and do it within environments that allow for their specialized needs.

Dr. Simon said the Institute of Natural Medicine (INM), which she represents, strongly urges dedicated funding for research on provider types who have been trained in whole systems and disciplines of health care delivery that best deliver the whole person health approach, both health promotion and prevention. This includes research on whole system and whole practice clinical outcomes, quality of life assessments, and cost comparison data. Research must assess the practice philosophy, not just isolated therapies or techniques, and guide integration in mainstream health care delivery systems. Naturopathic medicine should be included in this, as naturopathic doctors (NDs) use a systemized, therapeutic ordered approach addressing the key pillars of determinants of health. Primary care delivery of complementary and integrative health approaches should be a key priority for whole person health. Creating practice-based research networks of primary care clinics, primary care naturopathic medicine, and integrative clinics is key. In Washington and Oregon, NDs are part of insurance-based community health care delivery, and they could serve in this capacity. Studying disciplines of medicine with experience in the use of determinants of health in the treatment of long COVID and complex chronic pain could be another research focus. Models of the interplay between internal systems and the external environment are essential. INM encourages bold action, not incremental steps, toward whole person health care.

In the chat, Ms. Bishop said that community-based participatory research approaches should be the gold standard.

Mr. Walsh, who represented the Center for Whole Health Learning in K12, said that whole health learning activities are available in some schools and have an interesting place in the whole health spectrum. Thinking in terms of prevention, health promotion, implementation science, and dissemination research, we see that thousands of schools have gardens and are bringing mindfulness into classrooms, turning old classrooms into teaching kitchens, and emphasizing nature-based learning (which has gained strength in the wake of COVID-19), and physical education (which has been shown to bolster cognition). These hands-on approaches engage children's multiple styles of learning. Each of these domains has shown positive outcomes in mental and emotional behavior and social health, based on over 20 years of research. These experiences support children's well-being and whole person health during those years in two ways:

1. By moving to self-care and the return to health, which are needed to offset the impact of trauma, adverse conditions, behavioral issues, and stresses seen in adolescent mental health.

2. As a specific multifactorial experience that is inherently health promoting and preventive, which keeps healthy children healthy and strengthens well-being.

From a research perspective, the health-promoting focus, which his organization believes is the most important long-term factor, is problematic for the biomedical research culture.

In the chat, Mr. Walsh said that his organization would like to address the continuum between school-based intervention, when needed, and health promotion, which is needed every school day for 13 years. Doing so aligns with their transformational aspiration: "Empowering people to manage their own health," starting at the beginning. He also shared the following link to his organization's website at the request of a participant: wholehealthed.org

Dr. Weiniger, who represented PostureMonth.org, said that his organization advocates for posture as a personally actionable determinant of health. He said that the reflective, neuromuscular skeletal patterns involved in keeping the body vertical affect the physical structure of the body, organ function, and even mindset. Many studies have shown that postural awareness and controlling "text neck" positively affect neck and back pain, but they also affect breathing, digestion, injury proneness, and fall risk in aging populations. Posture also affects body language, emotions, perceptions, self-confidence, and self-efficacy. Over time, unconscious patterns mold our physical structure. Culturally and historically, posture is a mark of vitality, and standing straight is perceived as having good character and level-headed behavior. When posture collapses, function is compromised. In clinical practice, health professionals have seen clinical progress mirrored in posture changes. Posture is biomechanically and behaviorally actionable, and people can be taught to move differently. Doing so changes how they move in their daily lives. Observing posture should be as vital a health indicator as body weight, and it can be done by taking photos to visualize the accumulation of subtle changes over time. PostureMonth.org is a free technology that includes actionable steps and reminders; it can be used by individuals and providers for education and increasing awareness of the influence of posture on health. Posture is currently neglected in research and health promotion, and it needs to be included in both.

In the chat, several participants said that they had improved their own posture while listening to Dr. Weiniger. In response to a participant request, Dr. Weiniger shared his organization's public health website—PostureMonth.org—and his email address, which is weiniger@StrongPosture.com. In response to his comment, Dr. Goldblatt said that reminders are very important. Dr. Weiniger said that retraining subtle motor control is key.

Public Comments From the Clinicians Group

Ms. Law presented the list of speakers in the session and said that one exception was being made to the alphabetical order procedure to accommodate an individual's schedule.

Dr. Goldblatt, who represented the Academy Collaborative for Integrative Health (ACIH) Council and the Academy of Integrated Health & Medicine, said that this meeting has given her a sense of optimism because it shows a new way of synthesizing and bringing together material, which can be very helpful for creating change. She said that education and continuing education are key resources for disseminating information so that more health care teams will begin to share information with each other. She said there are huge barriers around turf and economics. Interprofessional education and collaborative practice

for both the complementary and integrative health disciplines and integrative health practitioners are needed. Reaching out to the Inter-Professional Education Collaborative (IPEC) and the National Academies of Sciences, Engineering, and Medicine's (NASEM) Global Forum on Innovation in Health Professional Education could be useful. Both are intensely discussing the issue of health and well-being and health professional burnout and stress. The latter held an entire workshop on that subject and a second workshop on nonpharmacologic treatment of pain that included the VA and complementary and integrative health disciplines, which worked collaboratively. As whole health begins to expand, including these two organizations could strengthen the whole person health partnership. There is a strong consensus in NASEM to support all of the ideas being discussed in this meeting, she said, and partnering with institutions that focus on education could bring a new level of inspiration. She recommended that participants review a 2010 report in *The Lancet* on health professionals for the 21st century.

In the chat, Ms. Kester shared her email address, kesterm@mail.nih.gov, so that people can share additional recommendations about moving whole person health forward.

Dr. Ellen Kamhi, who represented Natural Nurse Health Education, noted the importance of using the term "traditional medicine," which she said refers to indigenous healing practices such as Traditional Chinese Medicine, Ayurveda, Western botanical practices, and Native American healing practices, appropriately. As a board member of the American Herbalist Guild, she noted that this organization does a lot of education. She said that the American Natural Products Association also does a lot of education, especially on cannabis. She said that she has seen many people become healthy using natural medicine therapies over the past five decades, and now, the research is catching up in this area. Reading the title of a study, she said that black elderberry supplementation effectively treats upper respiratory syndrome: a meta-analysis of RCTs. Every doctor should know that, she said. There were 15 studies on PubMed last year specifically about the effect of quercetin on various viral diseases, she added.

In the chat, Ms. Bhatt thanks Dr. Kamhi for honoring "traditional" medicine systems.

Dr. Conboy, who represented the American Society of Acupuncturists, said that her organization intends to collaborate with NIH and supports a developmental framework for determinants of health that encompasses four domains of whole person health—biological, behavioral, social, and environmental—with particular attention to the connections between these levels. They have been worked with the VA and they have seen how veterans have benefitted from a whole person approach. They look forward to advancing basic and clinical research to elucidate or quantify the biological mechanisms of acupuncture as a supportive healing process in the body, including the bidirectional communication mechanisms between health and disease and between complementary and integrative health approaches. As a proven intervention for pain, she said, they hope that the pain research can be used as a mechanism for further integration.

Public Comments From the Policymakers Group

Dr. Crocker, who represented the International Association of Yoga Therapists, said that yoga therapy uses the elements of yoga—movement, breath, mindfulness, and meditation—to address the biopsychosocial approach to health and well-being, aligning to NCCIH's concept of whole person health. Her organization is the largest international organization for yoga therapy, with members from over 50 countries and over 175 schools. They have three pillars of professionalization:

1. Standards and educational competencies for accreditation of education.
2. A code of practice and professional ethics leading to certification as a yoga therapist.
3. Evidence of effective and improved patient outcomes.

The organization publishes a professional journal and a clinical practice magazine. They have two conferences per year, one of which is on yoga research. There is growing interest in the benefits of yoga therapy in a therapeutic setting and a need for empirical research on the effectiveness in improvement of patient outcomes with the integration of yoga in the therapeutic plan. Yoga therapists work in a variety of settings, including in-patient care, and there is an ICD-10 code for in-patient yoga therapy. They also work with cardiac, rehabilitation, and chronic pain management teams and in integrative mental health. Yoga is an integral part of the VA whole health initiative.

Ms. Taylor Hooker, who attended the meeting as an interested individual from the VA, said that she will be beginning a fellowship within the health administration later this month. Her statement pertains to the inclusion of recreational therapy as a modality to be considered for whole person health research, as it aligns with the additional needs of recreational therapy (RT) research and those of NCCIH. The fellowship will target the development of a national RT-focused research program, continuing education, and clinical research translation program. She will be announcing this project at the annual meeting of the Society of Federal Health Professionals, known as AMSUS, in February 2023. Future collaboration across Federal entities is desirable. As a nonpharmacologic and whole health intervention, the use of RT within the veteran population is well documented. However, its reach is limited by a dearth of outcome research in many avenues. Lifestyle and behavior are key needs in enhancing veterans' lives and well-being in larger communities. She is happy to collaborate, share results of future studies, and find opportunities for cross-governmental collaboration, where available.

Public Comments From the Researchers Group

Dr. Bell said that she represents the American Institute of Homeopathy (AIH), which aims to promote the science and use of homeopathic medicine. They have found large areas of overlap between homeopathic philosophy and practice theory and various other traditional healing systems. AIH provides a certification in the specialty of homeotherapeutics for licensed physicians. It also publishes a peer reviewed journal, the *American Journal of Homeopathic Medicine*. AIH fully supports the vision and research on whole person health, and they support the development of funding pipelines for academics to do work in this and related fields. When opportunities do not exist for researchers to advance academically, they tend not to choose to do research in these fields.

Professor Brady, who represented the University of Denver and Colorado School of Traditional Chinese Medicine (TCM), said that research has shown that people pursue traditional medicine approaches not because they do not agree with Western medicine but rather because the traditional approaches better align with people's values, beliefs, and philosophical orientation. Whole person health has so many different modalities and dimensions, and he believes that a common philosophical set of concepts that everyone can agree on is essential. If the aim is to make whole person health a single entity in the overall medical system, a philosophical framework is needed. For example, patients, clinicians, and medical doctors can all agree that prevention is important. In TCM and other traditional medicine systems, prevention was the focus because surgeries and drugs

largely did not exist in ancient times. Prevention is a common philosophical underpinning behind all complementary and integrative health approaches. Another common philosophical point is empowerment, with patients actively engaged in their own healing. The consumer mentality that currently exists has only been developed in recent decades. The model of having people buy something in a pharmacy or from a doctor instead of taking active responsibility for their own health is not a sustainable model. This model currently costs $4.1 trillion per year, and the cost keeps increasing exponentially, which is not sustainable. The third philosophical pillar he proposes including is that movement and physical activity be part of whole person health. It would be very useful if NCCIH could work with mobile phone and other technology companies to create a research application that could be used in acupuncture and chiropractic clinics to follow up on patients' health.

In the chat, Dr. Sudarsky agreed with Professor Brady, adding that it is hard to get patients on board without a common language. Ms. Cotroneo said that she would be interested to know which of the organizations present focus on movement, posture, or other mind-body systems.

Dr. Chen said in the chat that NCCIH has an active FOA to solicit the building of an acupoint database repository. The deadline is November 30, and the next technical assistance webinar is this Friday, with Dr. Langevin as the speaker to facilitate networking, she added. The link to the FOA is grants.nih.gov/grants/guide/rfa-files/RFA-AT-23-005.html. Those interested in the webinar may register at acupoints2.eventbrite.com.

Dr. Cherkin, who represented Kaiser Permanente and the University of Washington's Osher Center for Integrative Health, said that 10 Osher Centers around the United States are based in academic institutions. These centers can help educate medical students who are being trained in these institutions in complementary and integrative health modalities and medicine through research literacy courses that include both acupuncturists and family medicine residents, for example. The Whole Health in the States activity is another place this can be done, and the Osher Center at the University of Vermont had developed an integrative health clinic and is now looking to do formal evaluations of the effect of the clinic's interventions on people with chronic pain. Evidence from these types of innovative organizations can help to reach those who have not yet heard the messages about the value of complementary and integrative health approaches in treating difficult health problems that are not responding well to conventional medicine. The idea of studying cost effectiveness is very important.

Dr. Freysteinson, who represented the American Holistic Nurses Association, shared her organization's philosophical foundations for research. Holistic nursing research provides a window into the unique aspects of human healing, nurses ways of being, and interventions to optimize human health, she said. Its goal is to advance person-centered philosophical, theoretical, and practice knowledge that positively transform human health. The organization's reach extends to minorities and diverse communities, all disciplines, and all health care and policy settings. They use all modes of research inquiry, from RCTs to phenomenology and hermeneutics, and they strive to use research methods that are limitless in their ability to describe the human condition better than we are doing today. Their focus for the next 3 to 5 years is on enhancing the well-being of nurses because due to the COVID-19 pandemic, up to 50 percent of nurses have said they intend to leave the workforce. They intend to encourage innovative, holistic nursing interventions, which have long used complementary and integrative health approaches. However, these nursing interventions require research that is nursing oriented. They also intend to use research

insights to treat all forms of pain—psychological, spiritual, and physical. They aim to better understand and reduce health inequities. Finally, they intend to increase research on nature-based approaches and environmental studies.

Dr. Fritz, who represented the American Physical Therapy Association (APTA), said her organization represents many physical therapists (PTs) who practice in a wide variety of settings in the United States. Although PT is not usually considered a complementary and integrative health approach, the whole heath framework is synergistic with how PTs are trained and how they practice. Both the biopsychosocial model and the holistic approach to prevention and chronic disease management is compatible with the profession and the many populations with whom PTs work. She thinks the whole health framework is an excellent organizing framework for rehabilitation populations and providers, more broadly. Along with prevention and chronic disease management, those who are recovering from injuries, surgeries, or neurologic insults who are typically managed in a rehabilitation setting could benefit from the whole person health framework.

Dr. Gooding, who represented the American Music Therapy Association (AMTA), said the organization's purpose is to increase awareness of and access to music therapy services. Engaging in music is a whole person experience, and research is showing the effectiveness of music-based interventions provided by credentialed music therapists within a therapeutic relationship. AMTA promotes advocacy for and education about music therapy services, supports research, and aims to empower music therapists to provide high-quality, evidence-based services. Because music therapies integrate the whole person in ways that other therapies do not, they view the whole person approach as vital to health and well-being. Whole person approaches can make a meaningful difference in the lives of the people they serve. To move whole person health forward, they put forward the following strategies:

— Inclusion of complementary and integrative health approaches like music therapy in the development of policy, protocols, and initiatives

— Increased access of individuals to complementary and integrative health approaches and minimized barriers to services, especially in minoritized communities

— More opportunities for transdisciplinary research, including the development of research infrastructure often unavailable to complementary and integrative health researchers and practitioners

— Integration of a diverse range of research methodologies needed to answer whole person health research questions

— Increased education and training opportunities for those who want to do research

— Increased opportunities for interprofessional education so that future practitioners understand complementary and integrative health practices like music therapy and have the information needed to advocate for these services for their patients

— Education around advocacy with funders, policymakers, and other decision makers about complementary and integrative health practices, their value, and positive impacts on health and well-being

CDR Hudson, who represented the U.S. Centers for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH), said that the Total Worker Health (TWH) approach is an integrative systems-based approach that builds on decades of research on occupational safety and health, with the overall aim of

enhancing worker well-being. The TWH program considers work a social determinant of health, and the dramatic shift in employment, demographics, globalization, technological innovation, and economic and political transformations have been driving disruptions in what is considered work and how it is accomplished, affecting the health and well-being of the 157 million U.S. workers who are currently employed. New and ongoing determinants and outcomes in the workplace, work, and the workforce that exists for workers on and off the job are complex and novel. NIOSH encourages NCCIH to consider the positive and negative aspects of the workplace, work, and the workforce that contribute to the well-being of workers, their families, and communities, beyond just considering work as a venue for interventions. The quality of the job and the demands of work are critical to consider, not just focusing on personal risk factors outside of work. Worker well-being is the overall intended outcome for TWH. In 2018, NIOSH and Rand published an article that defines worker well-being as an integrative concept that characterizes quality of life (QOL), respect for individuals' health, and work-related environmental, organizational, and psychosocial factors. Well-being is the experience of positive perceptions and the presence of constructive conditions at work and beyond that enable workers to thrive and achieve their full potential. This work provided a foundation for measuring worker well-being and draws from five domains that influence a worker's QOL: work evaluation and experience; workplace policies and culture; workplace physical environment and safety climate; health status; and home, community, and society. NIOSH developed a questionnaire that provides an integrative assessment for worker well-being across multiple spheres, including QOL, work life, circumstances outside of work, and physical and mental health status. Pilot testing of the instrument found meaningful correlations for criterion per convergent and discriminatory validity of questionnaire measures. It can help researchers, employers, workers, practitioners, and policymakers understand the well-being of workers and target interventions to improve worker well-being, among other applications. NIOSH looks forward to collaborating with NCCIH on future research and capacity building.

In the chat, CDR Hudson shared the link to the questionnaire: cdc.gov/niosh/twh/wellbq/. Dr. Pitcher said that one of the current priorities of the U.S. Surgeon General is health worker burnout. He shared a link to more information: hhs.gov/surgeongeneral/priorities/health-worker-burnout/index.html.

Dr. Harris, who represented the Society for Acupuncture Research (SAR), said that SAR promotes high-quality research within acupuncture and traditional East Asian practices. They have an annual conference where current research on these areas is shared. East Asian medicine centers around whole person health, and SAR is interested in high-quality research to address the roll of the whole person in East Asian medicine. SAR is interested in participating in RFAs and disseminating research as well as advocating with policymakers. They have been involved in influencing Medicaid and Medicare regarding acupuncture reimbursement for low-back pain. This occurred because of the high-quality science underpinning acupuncture's efficacy for that condition.

Mr. Sunil Iyengar, who represented the National Endowment for the Arts (NEA), said that often, when seeking to advance knowledge about a distinct health program or intervention, the complex interplay of cognitive, physiological, emotional, social, and economic variables tends to be skated over or ignored. The same thing tends to happen when studying effective arts programs, which are also multimodal and have divergent effects on different population groups. Also, trying to replicate arts research can be very difficult, when trying to obtain the same clinical or nonclinical outcome. Research into the arts aims to

determine which demographic and factors, such as cultural-behavioral factors, correspond with better outcomes for arts participants. He encourages NCCIH to account for these factors in whole person health research, as well, considering the rich cultural contexts to better understand how the arts and cultural variables correspond to the outcomes of any specific whole person intervention for health. He saluted NCCIH's and NIH's efforts in developing a music and health toolkit that consolidates data elements for music-based interventions in support of health. Such efforts are also needed in other artistic areas, such as dance, drama, and visual arts. The NEA is a willing partner in obtaining standardization for better rigor and reproducibility.

In the chat, Ms. Cotroneo said that it was exciting to hear Mr. Iyengar's words about potential research collaborations between NEA and NCCIH and asked where participants might find information about these opportunities. Mr. Iyengar said that the NEA cosponsors FOAs with NCCIH and other NIH Institutes, Centers, and Offices on awards in music and health. He said that NEA also operates the Sound Health Network, which brings together musicians, neuroscientists, and music therapists to promote knowledge and awareness of music's impact on health and wellness. The link is: soundhealth.ucsf.edu/.

Dr. Milicevic, who represented the Center for Contemplative Research, said that this center provides a space for people who contemplate or meditate for 6 to 13 hours per day. It works with scientists and philosophers to further consciousness and envision global health flourishing. It empirically challenges unquestioned assumptions about measurements and methodologies. It seeks to discover the deepest resources of mental health, well-being, and environment that allow for people to flourish, based on ancient principles of nonviolence and compassion. They do pilot studies with first-, second-, and third-person methodologies and methods, and they share this research publicly. For example, a study may explore the subjective experience of a participant while observing changes in spectral amplitudes and microstates of electroencephalogram (EEG) recordings. They have a data collection with measurements, first-person subjective experiences, and observations of medical personnel, including teachers and mentors. They also study emotional and attentional development. They are developing curricula for youth and children that focus on whole person health and mental balance. She noted that in the current meeting, not much emphasis has been placed on the integration of the whole person health methods and psychological knowledge, which must extend beyond cognition and affect to also include the three pillars in Western psychology of incentives, motivation, and values.

Dr. Roberto, who represented Virginia Tech (VT), said that VT has a new initiative that looks at its own health research program from a whole health perspective, which requires integrating the intersection of animal, human, environmental, and societal health, and aims to help build communities and systems to empower multifaceted well-being. VT has faculty who work in many of the areas discussed in today's meeting, and they have strengths in the human lifespan, disparities and inequities in various aspects of life (professional, personal, and health), and the influence of rural and urban environments on health and community well-being. A lot of their work involves health behaviors and engagement, including expertise in almost every area of the VA's circle of health. The range of research at VT spans the gamut from eating behaviors and weight management to exercise and movement to mindfulness, yoga, dance, mental health issues such as decision making when people are participating in interventions and treatment, and relationships. VT is new to whole person health, and they are looking for collaborators in whole health research to

work with the areas mentioned above as well as with faculty in engineering, business, technology, and others.

Dr. Ray, who represented Open Health Systems Laboratory, said that she works with Ayurveda in her organization's Developmental Ayurveda Therapeutics Program, which is a personalized, precision whole person health system. They are interested in large-scale collaborations, digital knowledge resource creation, and development of a scientific evidence base to mainstream and integrate Ayurveda with conventional medicine. The collaborations they seek to build also will include systems biologists, computer science experts, policymakers, and more disciplines. The data still needs to be created in digital form, and they are working with Ayurveda texts as well as practitioner knowledge and detailed cases to gather the existing knowledge for this effort. To build these digital resources, they need observational studies that aim to understand biological principles and mechanisms at the systems biology level, including how body systems interact with whole person treatment. They seek funding that is open to multimodal treatment studies.

Dr. Salas-Prato, who represented the Hans Selye Foundation, said that the founder of her organization researched stress and biology. They are interested in collaboration and participation in a whole person health network and a stress network. They also have an interest in Pan-American collaborations as well as basic and clinical research. She said that we all experience stress, and this is not bad. There are the stressors or nonspecific agents and the specific biological effects, such as lymphatic/thymic atrophy, adrenal hypertrophy, and gastrointestinal ulceration. Chronic stress has been described as leading to general adaptation syndrome. Looking at the whole person, including effects of stress on mothers and their children's fetal and postnatal development, is a key interest. She invited participants to contact her to further the discussion.

Public Comments From Others

Mr. Goldstrom, who represented GetMotivatedBuddies, said that his company provides a social behavioral change platform that improved well-being through scalable behavioral interventions, positive reinforcement, and meaningful relationships. The power of the meeting lies in that it has brought together all the stakeholders. Providing a way to continue the conversation will allow this movement to grow. He encourages NCCIH to provide the contact information of participants who would like to stay in touch and to create an ongoing community where participant relationships can be developed, and partnerships and initiatives can be created. Millions of people are searching for alternative medicines online and on social media. However, many of the interventions they find are not evidence based. Because of the battle going on in the marketplace currently around complementary and integrative health approaches, developing trust is crucial. His platform aims to build this trust through intimate relationships among people who do what they say they will do. Retention is the greatest challenge for implementing nonpharmaceutical interventions. Over 80 percent of people who join a gym drop out because of loneliness or lack of structure or meaning; therefore, just giving people phones that measure movement will not work overtime. The main way to help people sustain major change is to build intrinsic motivation through social modeling, peer support, and clear measures of competency building. His platform meets people where they are and makes interventions social through peer partnerships and cohort-based challenges that place interventions in a whole person–based health context. They collect psychological and behavioral data and aim to use machine learning to recommend behavioral plans, partnerships, and groups to optimize outcomes. They are interested in finding measures that can serve as proxies for biological

processes, and they seek organizations and researchers to partner with for commercial and academic initiatives to develop measures that can be used with real-life populations.

Dr. Kennedy, who represented the American Massage Therapy Association, said her association represents the massage therapy industry in the United States and has approximately 95,000 members. The American Massage Therapy Association promotes the massage therapy field through the promotion of fair, consistent licensing of massage therapists in all U.S. states., public education about the benefits of massage therapy, and support of research to advance knowledge about massage therapy. The whole person health framework speaks to the fundamental aspects of both massage therapy research and practice, as massage therapy can affect multiple individual- and population-level outcomes, including in pain management. The literature has also suggested that massage therapy is effective in other areas, including sleep improvements, lifestyle health behaviors, behavioral health outcomes, and rehabilitation and physical training interventions. Massage therapy is one of the most requested interventions for pain, according to a recent survey conducted by the U.S. Pain Foundation. However, many patients have difficulties with access because massage therapy is not included under main health insurance plans, which creates a barrier because of costs. Massage therapy is an important element in future governmental guidelines for applicable populations. Further research from a whole person perspective is needed to support greater integration of massage therapy into future guidelines and to increase patient access to treatment.

Ms. Kathryn Schubert, who represented the Society for Women's Health Research (SWHR), said that SWHR is a national nonprofit that promotes research on biological sex differences in disease and improving women's health through science, policy, and education. They work to identify gaps and opportunities in women's health across the lifespan and to drive policy change. It is important to consider women not just as patients but also as caregivers and chief medical officers of the family. Regarding health equity, outreach, and education, women's role in health and well-being is critical. It is important to consider health conditions, pregnancy, and menopause not in isolation; they should be measured in terms of a person's health over time. Well-being should be defined not only by clinicians and providers but also by the patients themselves, considering the connections among stress management, nutrition, sleep, management of chronic conditions, and management of symptoms across life stages, such as menopause. It is important to consider what outcomes are of value to patients themselves, not only those that are identified by experts. Steps are also needed regarding data collection and improving our ability to connect the dots across the lifespan. This includes finding a way to overlay data sets on social determinants of health with records on maternal and baby/child health, primary and specialty care, and lifespan-related data. Beginning the discussion and education around living well early is necessary to ensure that physical and mental health are looked at from a whole person health perspective. SWHR looks forward to working with others on whole person health in the future.

Dr. Shah, who represented her MyAyurved.org Ayurveda practice, said she was the chief medical officer of the Ayush Ministry in India for 13 years. In addition to her work as a practitioner, faculty member, and consultant, she has founded two nonprofits—Wholistic Health Alliance (WHA) and Global Council for Ayurveda Research (GCAR). The WHA is a national nonprofit that works with a youth brigade, which has launched a teen mental health initiative about 18 months ago and has founded about 20 teen mental health clubs for high school-age youth in four or five states. Two weeks ago, they launched what is

known as the Fooditude Project, which helps to involve young people in well-being early. GCAR is a binary organization that aims to promote and establish Ayurveda in evidence-based health science globally.

In the chat, Dr. Shah said GCAR promotes Ayurveda globally as an evidence-based health science. One of its core goals is to create a platform for the exchange, interaction, and integration of information, competencies, expertise, and resources between apex academic institutions, researchers, practitioners, and students in the United States and in other countries to facilitate Ayurvedic research at the highest global standards. Its long-term goal is to become the nodal agency for Indo–United States collaboration and initiatives on Ayurveda research, with the ultimate aim of establishing Ayurveda globally as a credible healing science. Headquartered in the United States, GCAR is expanding its vision to other countries. The GCAR team invites volunteers and collaboration. She said that participants can contact GCAR at:

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Ms. Simmons, who represented the Academic Consortium of Integrative Medicine and Health (ACIMH), said ACIMH is a nonprofit comprised of 75 academic health centers and health systems, where a significant amount of research occurs as well as efforts to operationalize whole person models of care in these settings. They are interested in supporting the continual growth of the evidence base along with dissemination and integrative health literacy. They also aim to use data and best practices to drive advocacy. They are interested in bringing together interdisciplinary teams and a collection of stakeholders to facilitate the shift from siloed research to a whole person research approach. They are interested in mobilizing their community to help with the priorities that have been identified for whole person health research and to partner with other stakeholders in this regard.

Ms. Monbouquette, who represented BUILD Health Challenge, said her organization is a national network of over 70 communities who work together to build health equity. Patients, residents, and community members must all participate in building whole person health through community-based participatory research standards. This is critical for increasing understanding of whole person health and its benefits and for building stakeholder engagement and trust among community members, who are the experts in what wellness means to them. Trust requires that community members know that whole person health stakeholders respect their needs and goals and that our institutions act in service to support them in meeting those goals. We must ensure access to effective care and treatment and focus on reducing need. Interactions with the health care system involve financial costs; taking time away from loved ones, school, work, or play; and additional stress. Evidence shows that emphasizing primary prevention leads to lower health care costs and needs, but this requires shifts in how we approach health care in the United States. Whole person health cannot be separated from health-promoting conditions of the community and the context in which people live, work, and play. Community collaborations with those who have excelled in bridging these gaps should be studied, learned from, and supported with long-term, unsiloed research investments.

Dr. Yanez, who represented the Association of Accredited Naturopathic Medical Colleges (AANMC), said that she is also on the board of directors of the Academy of Integrative Health & Medicine and the American Association of Naturopathic Physicians. Naturopathic medicine embodies whole person and individualized care to patients across the health

care spectrum. Currently, payment infrastructure does not support this model well, if at all, in the United States. A transformative research agenda would deliver strong data that could move the payment infrastructure framework so that a whole person and individualized care approach is prioritized and supported. A strong research agenda would be distributed equitably across respective complementary and integrative health disciplines, patient populations, and health care delivery models. Research and capacity building are essential. Whole-person, prevention-focused health is integral to a sustainable health care model that delivers return on investment and return on our ethical treatment of patients and speaks to our potential as a health care leader among developed countries. We must support inclusivity and equity across research.

Dr. Hannah Gordon, who represented the Naturopathic Academy of Primary Care Physicians (NAPCP), said that naturopathic doctors are interested in being part of the whole person health team who provide primary care. “Naturopathic doctor” and “naturopathic physician” are protected terms, unlike the term “naturopath,” and she encourages participants to inquire about people’s training if they use the latter term.

In the chat, Dr. Gordon said that NAPCP provides evidence-informed, cost-effective naturopathic primary care based on rigor, science, knowledge, and philosophy through ongoing education, interprofessional dialogue, and mentorship. The doctorate of naturopathic medicine curriculum is built on the foundations of whole health medicine, which has been ongoing for decades. NAPCP provides continuing education to naturopathic physicians and the medical community at large. It recognizes the benefits of integration with a wide variety of provider types to provide primary care.

Closing Remarks and Next Steps

After Ms. Law and Ms. Kester thanked the participants for all their comments, Dr. Langevin said that NCCIH has two questions to ask the participants via polling. The questions are:

1. Is whole person health a unifying concept that can successfully coalesce the organizations represented here?
2. Although each organization has its own special interests, does advancing the cause of whole person health rise above the special interests of individual groups?

Dr. Langevin said that 95 percent of the participants answered “yes” to both questions, and 5 percent answered “no.” She thanked the participants for taking the poll and said that NCCIH is very pleased that the majority agree with the two statements posed via the questions.

Other Institutes at NIH have coalitions. Today’s meeting is for whole person health stakeholders, and one thought that NCCIH has had is that the participants in the group could become a coalition. A coalition needs to be self-assembled. NIH cannot coordinate a coalition; it needs to be self-managed and independent. However, NCCIH can share participant names and the names of the organizations represented at the meeting with everyone. NCCIH can create a liaison with the coalition through its external working group, if the stakeholders choose to self-organize a coalition. The members of the external working group are the people who led the breakout sessions and were involved in planning the meeting.

In the chat, Dr. Conboy said that she could help organize a coalition. She said that she would send an email out to the participants once she received the list. Ms. Cotroneo also

volunteered to help organize the coalition. Dr. Shah and Ms. Harrasser said that they would like to be part of the group, as well.

Dr. Langevin said that she could share most of the slides she presented at the start of the meeting once they had been reviewed and were edited to ensure compliance with various regulations. She said that NCCIH would release a transcript of the sessions and a summary of the breakouts.

Dr. Langevin said that several items arose during the meeting that may become action items, based on participant response and input. One of these was Dr. Herman's proposal of forming a group to create a CONSORT-like statement of reporting requirements for whole systems of medicine. She said that NCCIH would follow up on this idea, and that the concept is already in NCCIH's strategic plan objectives regarding developing methods and standards for studying multicomponent systems of medicine, which is a synonym for whole health systems.

Dr. Langevin said that another interesting idea that was mentioned was the idea of a whole person index. Many people supported this idea in the meeting chat. NCCIH's whole person health framework is gearing up to the creation of such an outcome, as the framework consists of a set of factors that were put together through collaboration and stakeholder input. The idea is to translate the framework into a tool that can be used. It could use PROMIS measures along with other types of data beyond questionnaires, such as from the devices and wearables that people use. NCCIH has already been thinking along these lines, and Dr. Langevin expects more ideas to emerge that can be used to develop such a tool.

Several participants asked what kind of evidence is needed to change policy and insurance coverage. This is a crucial question, Dr. Langevin said. Dr. Harris made a comment that she said merits consideration, which is that SAR has already done some work in this area. SAR has done a lot over the past 25 years to influence policy and acupuncture reimbursement by promoting high standards of research on methods and reporting and disseminating information about acupuncture. This shows what one organized group can accomplish, and it is a good example to follow, she said.

Dr. Langevin noted that there was a lot of discussion about dissemination and implementation in the sense that just looking at efficacy is insufficient; the gap between developing evidence of efficacy and studies of barriers to implementation in real world heath care systems needs to be closed. Both NCCIH and all of NIH are very actively engaged in this area right now, she said, particularly through the HEAL Initiative, pain research, and opioid use disorder. Dr. Langevin invited participants to continue to follow developments at NIH and to pay attention to funding opportunities that arise from these efforts.

In the chat, Dr. Horgusluoglu said that another funding opportunity is available to build REACH Virtual Resource Centers. The link is grants.nih.gov/grants/guide/rfa-files/RFA-AT-23-007.html.

Looking at the market forces that are at play in changing health care is another item that was discussed extensively in the meeting, Dr. Langevin said. Although it is easy to be pessimistic when considering the enormity of the task at hand, we know that the United States is a very dynamic country, where changes are possible and can happen quickly. Smoking is an example of one of these changes. Using a multipronged

approach to decrease smoking not only changed smoking behaviors rapidly but also decreased deaths from lung cancer. This happened due to a concerted effort by researchers, government agencies, industry, and many others. The U.S. Surgeon General has been very active in communicating this kind of message, also, which shows that a society-wide effort can change our course if we really put our heads together and work together, she said.

Dr. Langevin said that she was encouraged by how participants interacted during the meeting, and she looks forward to seeing what comes next.

Dr. Shurtleff thanked the participants for their thoughtful suggestions. He said that NCCIH can contribute to the whole person health effort, but the next step will require an all-hands-on-deck approach. A coalition can help in these efforts to move the concept forward. He looks forward to working with all the participants in seeing whole person health to fruition.

Dr. Edwards said that there is much work to do, but NCCIH has a capable staff. She is confident that NCCIH will work together with the community to move the whole person health effort forward.

Dr. Langevin closed by saying that the meeting met and exceeded NCCIH's expectations. She thanked the participants and said that they will be hearing from NCCIH via Ms. Kester, who will follow up with them after the meeting.

In the chat, Ms. Kester said that participants can send comments to kesterm@mail.nih.gov.