

## THE POWER OF NURSING INNOVATION IN PLANETARY HEALTH

Kasey Bellegarde, MPH, RN  
Linda Koh, PhD, MS, RN, PHN  
Carol Ziegler, NP-C, APHN-BC, DNP  
Milagros R. Elia, MA, APRN, ANP-BC  
Rizalina Bonuel, PhD, RN, CCRN-K, ACNS-BC, APRN-BC  
Amy Rose Taylor, AGNP-BC, DNP

### Abstract

We live and work in a time of unprecedented disruptions to our planet's natural systems. Nurses, as frontline workers and stewards of health, care for the health consequences of these environmental changes in emergency rooms, clinics, and homes around the world. The nursing workforce is well-positioned to act as a critical early warning system for detecting and forecasting threats to human and planetary health, and to lead in aligning health and planet co-benefits in research, education, policy, and practice. To respond to these threats, nurses are reimagining roles in which they shepherd the transformative shift in the ways we live with the planet to restore health and balance for all species. With their instincts for creative problem solving and complex systems thinking, as well as their proximity to patients' needs and experiences, nurses are natural innovators and trusted partners in healing. For nurses, the grand innovation challenge of planetary health means taking on the planet as our patient, with more opportunities to partner at scale to achieve better health outcomes. Planetary and global health has been identified as a key area of nursing innovation by the American Nurses Association (ANA), one of the United States' leading national nursing organizations. This article provides a primer on how nurses are using collaborative partnerships and innovations in planetary health. It highlights the work of the ANA Innovation Advisory Committee on Planetary and Global Health as well as nurse leaders advancing planetary health from the community to the global level. Contributing authors explore the space between planetary health, nursing innovation, and partnership, illustrating how nurses are leading work to redesign and amplify their roles in caring for both people and the planet.

Keywords: Nurse-Led Innovation, Planetary Health, Climate Change, Nurse's Role, Nursing Leadership, Movement-Building, Health Promotion, Nursing, Health Equity, Climate Justice

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## **INTRODUCTION**

Nurses are innovating to meet the complex environmental, social, and economic challenges facing health and health care today. By harnessing their unique caring science, nurses are shaping better services, products, and experiences to contend with skyrocketing health-care costs, poor care quality, persistent health inequities, and severe global ecological disruptions that directly impact the health of all species. In 2022, the American Nurses Association (ANA) Enterprise formally launched Innovation Advisory Committees to convene a diverse array of perspectives, skill sets, and experiences across nursing and innovation (ANA Enterprise, n.d.). The committees serve to generate knowledge, resources, and networks of learning and action that equip nurses with both the inspiration and the tools to take their innovations forward (ANA Enterprise, n.d.). Seven emerging areas of nursing innovation were identified as critical foci: (1) business, entrepreneurship, and intrapreneurship; (2) data science and augmented and artificial intelligence (AI); (3) education and communication; (4) new care delivery models (nursing and advanced practice registered nurses (APRN)); (5) planetary and global health; (6) policy and determinants of health equity; and (7) medical technology and devices (ANA Enterprise, n.d.).

The inaugural Planetary and Global Health Committee is composed of six nurse members, from early career to seasoned professionals, with roles spanning nursing research, education, policy, and practice. The committee's diverse expertise across sustainable food systems research, teaching, advanced practice nursing care, oncology, public health innovation, and executive nursing leadership exemplifies the necessary partnerships within and across specialties to advance planetary health work. Its members see planetary health as an umbrella term that includes and expands upon global health frameworks to consider the health of global populations together with the

health of the planet. This article makes the case for nursing innovation and partnership in planetary health, provides an overview of key concepts and opportunities, and highlights the innovative work of nurses in this space, including this committee's accomplishments to date.

## WHAT IS PLANETARY HEALTH?

The Rockefeller Foundation-Lancet Commission on Planetary Health defines planetary health as:

[...]the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity *and* the Earth's natural systems that define the safe environmental limits within which humanity can flourish. (Whitmee et al., 2015, p. 1978)

Simplified, planetary health is “the interconnections between the health of person and place at all scales,” (Prescott & Logan, 2018, p. 98). The term has emerged in recent years as a field of study and a social movement to recognize and address the ways human activity has disrupted the Earth's natural systems, and the impact this disruption has had on the health and survival of all living species on the planet (Planetary Health Alliance, n.d.). Although planetary health is a relatively new term, Indigenous Peoples have long recognized the interdependence of humans, animals, and the environment, and possess a depth of place-based knowledge and leadership for stewarding this interdependence in health and balance (Redvers et al., 2022).

Health professionals have been identified as critical to the attainment of planetary health through several key actions: reducing health inequities, addressing the environmental impact of health systems, strengthening health and health systems in the face of environmental change, and shaping policy that is good for people and the planet through cross-sectoral collaboration (Whitmee et al., 2015; Veidis et al., 2019). For nurses and other disciplines looking to build competencies in planetary health, the Planetary Health Education Framework (Faerron Guzman & Potter, 2021) offers a useful

starting point. Through literature review and subject matter expert consensus, the framework’s authors identified five domains that exemplify the key values, perspectives, and concepts of planetary health. Table 1 displays the five domains, providing examples of their underlying concepts as well as how each domain invites critical shifts in human values and behaviors for achieving planetary health.

**Table 1**  
*The Planetary Health Education Framework Domains, Concepts, & Value Shifts*

Domain	Key Concepts	Shifts in Human Behavior
Interconnection with Nature	We are part of, not separate from Nature. Cultivating a sense of belonging with Nature is restorative to health. We value multiple ways of knowing to deepen our connection with Nature.	From separation to interdependence From domination to partnership From extraction to reciprocity
The Anthropocene and Health	Human activity is the dominant force shaping life on the planet. This dominance is threatening the health and survival of all species. Through stewardship of the Earth’s natural systems, we can bring forth the Great Transition.	From oversized to rightsized ecological footprint From unconscious impact to deep awareness From mismanagement to stewardship
Equity and Social Justice	All people and all species have the right to attain full health and well-being. Those most impacted by harms receive fair reparations for such harms (across species). Justice is multispecies and intergenerational.	From disparities to equity From harm to justice From disenfranchisement to liberation From justice for people alone to justice for all species and future generations
Movement-Building and Systems Change	Planetary health solutions require transdisciplinary partnerships. Defining a shared vision and sense of purpose charts the future course for meaningful change. Hope in one another and in our shared future is necessary.	From individuals to networks From disorganized chaos to strategic action From silos to collectives From apathy to advocacy
Systems Thinking and Complexity	Our natural, social, and economic systems are interrelated. Studying these relationships can support a holistic understanding of leverage points and interventions.	From arrogance to humility From certainty to uncertainty From isolated parts to interconnected whole

Note: Table content adapted from Faerron Guzman & Potter (2021). Used with permission.

As Table 1 illustrates, planetary health is about problems *and* solutions. It is important for learners and practitioners to develop an understanding of the root causes or diagnoses of local and global environmental changes, as well as the available interventions to treat and restore our natural systems back to health. This is critical in delivering a message of hope to our global community that there are solutions to the problems we face. Increasingly, we are learning how planetary health solutions such as climate action double as human health interventions (Mailloux et al., 2021).

Table 1 also references the Great Transition, a future time of transformative change that realizes the health and equity gains of a planet in balance, made possible through our collective efforts (Faerron Guzman & Potter, 2021). A transition from our current ways of thinking grounded in extraction, consumption, and domination to a vision of an ecologically healthy, a just, and a thriving civilization will require significant innovation and movement-building in local communities and at the global level. Nurses have an important role to play in partnering within and outside their disciplines to catalyze such change.

## **AN URGENT AND EMERGENT SPACE FOR NURSING**

The time has never been more critical for nurses to join this work. Human activity is causing disruptions to the planet's natural systems at an unprecedented rate and scale (Rockström et al., 2023). In recent years, we have seen how record-breaking heat waves, wildfires, severe flooding, drought, and other climate change-related disasters impact communities and entire countries around the world. These are just a few indicators of illness in Earth's critical life support systems (Rockström et al., 2023). Other disrupted planetary vital signs include widespread and rapid loss of biodiversity, ocean acidification, environmental pollution, and shrinking fresh- and ground-water sources (Rockström et al., 2023; Planetary Health Alliance, n.d.). This multisystem failure has profound implications for human health, driving acute injuries, infectious disease, and long-term sequelae for chronic disease, mental health, and nutrition (Rockström et al., 2023; Planetary Health Alliance, n.d.).

While scientists predict a hotter and more uncertain world in the future, many people are experiencing the devastating impacts of environmental changes to their health and livelihoods in the present. Nurses caring for these populations have a growing voice in alerting the global community to the suffering and inequities experienced by patients at the frontlines of these colliding planetary crises. This space needs nurses who deeply understand the interconnection of humans with the environment and who can shepherd the Great Transition. This requires a reimagining of nursing through a planetary health lens, in alignment with Rosa and Upvall's (2019) paradigm shift beyond global health to a framework more inclusive of the complex interrelated web of life on Earth.

## **NURSING INNOVATION AND PARTNERSHIP IN PLANETARY HEALTH**

### **Innovations in Caring for the Planet**

To achieve the transformative change necessary for planetary health and the Great Transition, innovation is a prerequisite. Definitions of innovation describe generating new ideas or applying existing ideas in new ways (van Niekerk et al., 2021; Cianelli et al., 2016). Transforming our extractive, inequitable economic and social systems into just, sustainable forms in healthy balance with our natural systems requires new ways of thinking and being. It calls for rapid and large-scale decarbonization, divestment from the visible and hidden harms of fossil fuels, and redistribution of wealth towards a wellbeing economy where all people have what they need in ways that promote the survival and flourishing of the planet. In doing so, we are unlearning harmful ideologies about Nature as a commodity existing to serve humans. In fact, a growing movement seeks to legally recognize the Rights of Nature, granting legal rights to ecosystems such as mountains, lakes, and rivers (Challe, 2021). These laws are intended to protect ecosystems from human disruption and promote their right to exist, change, and thrive in alignment with their natural cycles (Challe, 2021). Countries including Ecuador, India, New Zealand, and Colombia, as well as several U.S. cities, are innovating to codify the Rights of Nature into law (Challe, 2021), shifting from an egocentric to an ecocentric paradigm necessary for species equity and the achievement of planetary health.

In addition to putting new ideas into practice, planetary health innovation also calls for adapting existing ideas or practices in new, creative ways (van Niekerk et al., 2021; Cianelli et al., 2016). The emerging practice of Nature prescriptions pairs the familiar prescription pad used by health-care professionals with a new concept: prescribing Nature to treat disease and promote health (Kondo et al., 2020). This innovative practice can build an essential awareness of the interconnection of human health and Nature, one of the five domains of planetary health.

As natural innovators and creative problem solvers, nurses are well suited to lead and support the urgent, profound changes to our economic and social systems in pursuit of planetary health (O'Hara et al., 2022; Leary, 2021; Cusson et al., 2020; Spader, 2020; Bratton, 2017; Johnson and Johnson, n.d.). Known for their community-based roles close to peoples' needs, challenges, and barriers, nurses are a key force in ensuring that innovations in planetary health are responsive to community voices and solutions. Change is futile if we do not interrogate and liberate ourselves and our systems from the forces of capitalism, white supremacy, racism, settler colonialism, and patriarchy and from the injustices that actively create circumstances that force populations to unfairly bear the burden of social, economic, and environmental harms (Faerron Guzman & Potter, 2021). Without prioritizing the needs of populations most impacted, nurses who are committed to social justice understand that we will continue to perpetuate injustices to our fellow humans, other species, and the planet. Too often, innovations in policy designed to upend these power structures can languish, stuck behind hidden barriers before they reach the people for whom they were designed. Nurses must use their advocacy skills, connections, and public trust to shepherd ideas for action through to their desired impacts.

As designers and promoters of healing environments for patients, nurses play an essential role in leading the innovative redesign of our systems to allow for health and healing to occur, replacing the current systems that breed disease, inequity, and suffering. To achieve this, nurses must engage in partnerships that can spark new innovations in health and healing for all of Earth's inhabitants.

## **Nurses as Partners in Planetary Health**

Nurses understand that health is not achieved in isolation but through coordinated interaction between patients, families, care teams, economic, political, and social systems, and the environment. At scale for planetary health, this means seeking out diverse partnerships, from engineers, farmers, and teachers to policymakers and business leaders, to co-create solutions to shared problems and achieve better health for all species.

Partnerships are particularly critical in planetary health because they allow for collaboration among organizations and individuals with different areas of expertise “to develop evidence-based solutions that promote health, environmental stewardship, and social impact,” (Stanford Center for Innovation in Global Health, n.d., para. 10). A core facet of nursing practice is the capacity to build and cultivate collaborative partnerships within the care team and therapeutic relationships with patients and families. In its most direct form, this is best exemplified through the nurse and patient relationship in the clinical setting. The nurse partners with a patient around the patient’s goals for care, and skillfully works together with the patient on actionable items to holistically achieve the best possible health outcomes. Negotiating relationships and bridging communication between patients, families, and other health and social service professionals are all integral aspects that are inherent in the nursing process and allow for successful partnership with patients.

By expanding this vision of nurses as partners in care to a more global view, these core components of partnership build the foundation for planetary health work. Eisler and Potter (2014) identify components such as empathic and caring relationships; respect and trust building; and democratic, nonviolent social bonds that form the basis of partnership systems and cultures. These are core nursing skills, and necessary changes in our ways of living and being with one another and the land that the movement of planetary health embodies. In contrast to partnership, domination systems and cultures are characterized by violence, abuse, subordination of more ‘feminine’ values such as caregiving, and inequitable authoritarian relationships and structures (Eisler & Potter,



2014). These practices play out on bodies and land, through racism, discrimination, and violence among people, as well as extraction and pollution of the Earth. The Great Transition will be achieved only through cultures oriented toward partnerships - towards collaborative, inclusive, caring, just relations. Nurses can lead the way.

The potential value of nurses in building bridges across silos and transforming hierarchies of domination to those of actualization is evident. It is important to note that this formation of cross-sectoral, equitable collaborations is only possible by inviting nurses to contribute and lead in spaces where they have not traditionally been included. Reimagining nursing in this planetary health context allows us to envision nursing's input, for example, in urban settings centered on any number of projects that impact communities and their infrastructures, such as combating indoor air-pollution with building electrification and the greening of historically disinvested and polluted neighborhoods. Beyond the local setting, there is great value in including nursing's voice in partnerships focused on advancing regional and national legislation that protects human rights and the just distribution of equitable resources, as well as population health as a whole.

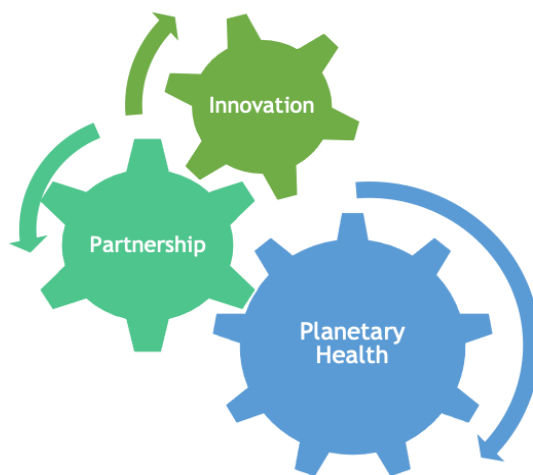
While the value of nursing in brokering collaborative partnerships for planetary health is clear, one barrier for many nurses is a gap in knowledge and lack of astuteness about political and economic forces both within and outside their health-care systems. This knowledge and astuteness could offer powerful pairing with nursing science and leverage nurses' ability to form cooperative relationships among multiple stakeholders. The responsibility for acquiring knowledge in these areas should not lie solely with nursing professionals but rather should be supported by systems and structures such as elective courses on the policy and political determinants of health in programs of nursing at all levels, and professional development offerings within institutions, by state boards of nursing and national professional organizations of nursing specialties.

As Figure 1 illustrates, the achievement of planetary health is not possible without innovation, and to innovate in planetary health requires partnerships across scale,

place, time, and species. To better visualize this in practice, the following section will explore examples of how nurses are exploring the relationship between partnership and innovation to advance planetary health.

**Figure 1**

*Innovation and Partnership Move Planetary Health Forward*



**INNOVATION ADVISORY COMMITTEE ON PLANETARY AND GLOBAL HEALTH:  
ACCOMPLISHMENTS TO DATE**

The ANA Innovation Advisory Committee on Planetary and Global Health is a group of nurses with expertise in and passion for the health of humans and the planet who are exploring how to diffuse the planetary health movement across (and beyond) the nursing profession. Here is what the committee has accomplished so far:

**Environmental Scan**

As used in innovation, the term environmental scanning is an approach to surveying the landscape of an organization, project, or issue in the context of its internal and external environment. The authors gathered, analyzed, and interpreted information about how planetary health impacts and is impacted by nurses and the nursing profession, and then prioritized key focus areas to identify trends, opportunities, risks, and potential disruptions that may shape the future landscape of nursing and our planet. After

brainstorming and discussing the identified areas for focus, committee members prioritized them based on relevance for nursing:

1. Carbon mitigation, climate action, and clean affordable energy
2. Decolonizing nursing and elevating Indigenous leadership and power
3. Air quality
4. Food security and sustainable food systems
5. Integrating planetary health frameworks into nursing practice, education, research, and policy
6. Promoting racial justice, gender equity, and peace
7. Access to clean water and sanitation.

The committee's priorities aligned with the United Nations' Sustainable Development Goals (SDGs) (United Nations, 2023), as well as the policy agendas of leaders such as the Lancet Commission Working Group on Climate and Health (The Lancet, 2023), and Nurses Drawdown (Huffling, 2021). They serve as a critical lens and guiding framework for our subsequent committee activities.

### **Innovation Resource Guide**

After taking the pulse of planetary health within and outside the nursing profession, the authors applied what they learned to create an Innovation Resource Guide on Planetary and Global Health (Ziegler et al., 2022). This guide was designed as a starter kit to help nurses learn about and take an active role in planetary and global health. It provides resources for nurses to visualize the current landscape of planetary health across nursing and health care as well as other sectors such as government, business, philanthropy, academia, policy, and non-profit organizations. Such an approach allows newcomers to orient themselves to the current ecosystem of planetary health, as well as potentially sparking inspiration for innovative work and partnerships. The guide also offers a diverse array of literature and visual and written media from individual and organizational thought leaders on planetary health and related topics. In alignment with many of the priorities identified in the authors' environmental scan as well as

teachings from the Planetary Health Education Framework (Farraeon Guzman & Potter, 2021), the guide offers many opportunities to learn about the ways in which forces such as racism, oppression, and settler colonialism undermine planetary health and how solutions by and for marginalized groups to transform systems toward justice and liberation are critical to our collective health and survival. The guide is available on the ANA Innovation website at <https://www.nursingworld.org/practice-policy/innovation/innovation-guide>

### **Frequently Asked Questions and Data Infographic**

To continue building nursing's foundational knowledge in planetary health nursing, the authors are developing a resource containing frequently asked questions about planetary and global health as well as an infographic highlighting key data indicators of our planet's failing vital signs, from profound environmental changes to stalled progress on the SDGs and on universal health coverage, and the global nursing shortage. Such metrics support nurses in visualizing the complex interactions between the environmental, social, and economic systems necessary for competency in planetary health.

### **Looking Ahead**

The Planetary and Global Health Committee continues exploring levers of influence to center planetary health values in nursing practice (including education, research, and policy/advocacy), while highlighting opportunities for nursing collaboration with patients, communities, and other disciplines to advance planetary health.

## **CASE STUDIES: PLANETARY HEALTH NURSING IN ACTION**

The following cases lift up stories of nurses and nurse-led organizations working to bring about the Great Transition toward planetary health.

### **Community Level: Dr. Roxana Chicas and Farmworker Health**

One example of nursing innovation comes from Roxana Chicas, an Assistant Professor in the School of Nursing at Emory University (in Johnson & Johnson, 2023). Dr. Chicas' expertise in occupational health, environmental health, and nephrology, combined with being bilingual and bicultural, demonstrates how nurses with diverse backgrounds bring unique skills to addressing complex public health issues, which can drive innovation. Dr. Chicas conducted the first field-based intervention study examining methods to improve farmworkers' health by reducing core body temperature using real-time biomonitoring equipment (Chicas et al., 2020). She explored the efficacy of simple measures such as donning a basic bandana or a cooling vest, in combination with hydration strategies involving electrolyte-enriched water (Chicas et al., 2020). Her work in the critical realm of workplace safety concentrates on interventions aimed at safeguarding laborers from escalating core body temperatures, dehydration, and kidney damage (Chicas et al., 2020; Chicas et al., 2021; Houser et al., 2021). With a resolute commitment to enhancing the well-being of workers, Chicas is currently pursuing a grant to enable her to expand the scope of her studies to formulating evidence-based solutions that can elevate working conditions across various industries and inform federal policies and protective standards to benefit workers worldwide. This nurse leader exemplifies how nursing innovation, advocacy, and partnership with communities can be applied to protect human health and reduce health disparities in a warming world.

### **State Level: Climate, Health, and Energy Equity Lab**

Nurses are in a powerful position to support people and communities in mitigating climate change (International Council of Nurses, 2018) through policy, practice, research, and education. One example, the Climate, Health, and Energy Equity Lab (CHEEL), co-founded and directed by nursing professors Carol Ziegler and James Muchira and sociology professor Zdravka Tzankova at Vanderbilt University, combines research, practice, and teaching to advance just approaches to climate mitigation and renewable transitions (Flick, 2022). Together with teams of immersion students, the CHEEL staff works with community partners to design prototypes to leverage carbon

offset dollars with social impact, incentivizing companies to invest in initiatives that lower carbon emissions and promote economic, physical, and mental health for low-income families in Nashville (Vanderbilt University, 2023). One of CHEEL's first projects included development of a social carbon offset to fund weatherization of affordable housing units to improve health and reduce energy costs for low-income renters and subsidize and incentivize home energy retrofits for landlords providing affordable housing in a rapidly gentrifying community. Additionally, CHEEL is working with a local developer to create a model for low-carbon, healthy, affordable housing and is creating incentives for companies to support breastfeeding mothers, encouraging them to continue for longer periods of time. This initiative was featured on an episode of the Alliance of Nurses for Healthy Environments (ANHE) podcast (Demorest, 2022). CHEEL exemplifies a groundbreaking innovation in how action for health, justice, and energy can be aligned through creative partnership models that prioritize care for both people and the planet.

### **Global Level: Alliance of Nurses for Healthy Environments**

ANHE is a global leader at the intersection of health and the environment, and an exemplar of nurses harnessing the power of partnership and innovation to promote meaningful action in climate change and planetary health. ANHE has cultivated boundary-spanning relationships with non-nursing partners such as Project Drawdown, a leading climate science organization, and Health Care Without Harm, a global health-care sustainability organization, to maximize collective efforts and mobilize nurses in taking evidence-based action on climate and health (ANHE, n.d.). As a convener of and network-builder for nurses, ANHE has various forums and committees for nurses to become involved with, driving innovative work on health and the environment across nursing research, education, policy, and practice, and across topical areas of climate change and food and agriculture. ANHE also plays a vital role in raising the voice and visibility of nurses in global climate and planetary health policy, and in developing guidelines for embedding climate and environmental health awareness into nursing education. This exemplifies the kind of innovative movement-building necessary to advance planetary health.

## CONCLUSION

Life on Earth today means massive disruptions to our natural systems, with implications for the health and survival of all species and ecosystems. Nurses are rising to meet these challenges through reimagining their roles as healers of both people and the planet. Centering planetary health in their practice, education, research, and policy work, and leveraging their knowledge, skills, and public trust, nurses can lead this movement to bring hope and healing to our shared planet. As caring partners and creative innovators, nursing professionals have much to offer in the advancement of planetary health. We invite others along to realize a vision of health, justice, and sustainability for all.

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Kasey Bellegarde, MPH, RN, is a nurse and Design Specialist with the Innovation Platform at Ariadne Labs, where she works to address health care's grand challenges with effective, human-centered solutions that meet people's needs and improve their lives. When she's not at her day job, Kasey is a student in the Doctorate of Nursing Practice in Health Innovation and Leadership program at the University of Minnesota School of Nursing, focusing her studies on how we can shift health care and other systems towards healthier relationship with the planet. She has been involved in local, national, and international climate action and advocacy efforts, including attending the annual UN climate summit, COP 27, as a delegate, and producing a guide inviting nurses to help get carbon out of healthcare. She is a 2023-2024 ICN Global

Nursing Leadership Institute Program Scholar focused on planetary health policy, and holds leadership positions as Co-Chair of the American Nurses Association Innovations Advisory Committee on Planetary and Global Health as well as a Governing Councilor with the American Public Health Association Public Health Nursing Section.

Linda Koh, PhD, MS, RN, PHN, is a Postdoctoral Research Scholar at Stanford University, School of Medicine. Dr. Koh's research focuses on community-based nutrition interventions, health promotion, disease prevention, and sustainable food systems.

Carol Ziegler, APRN, APHN-BC, FNP-C, DNP, is a Professor of Nursing at Vanderbilt University and a dually certified Family Nurse Practitioner and Advanced Practice Holistic Nurse. She is co-founder of CHEEL, the Climate, Health and Energy Equity Lab at the W'ondry, serves as the lead for the Southeast Region representative for the Lancet Commission on Climate and Health, and was inaugural chair of the American Nurse Association's Planetary and Global Health Innovation Committee in 2022. Her clinical practice, Thrive Holistic Care, provides restorative, home-based, holistic primary care, healthy home assessments and remediation, and health coaching for low-income families in Nashville. In addition to her primary care practice and role as a nurse educator, she works on identifying and mitigating local health impacts related to climate change, educating healthcare providers and community members about climate change and climate solutions, decreasing the contribution of the health-care sector to carbon emissions, and promoting climate justice and health sovereignty for at-risk communities.

Milagros R. Elia, MA, APRN, ANP-BC, is an Advanced Practice Registered Nurse, an early-stage researcher in the environmental impact of climate change on patient care, and the Program Manager of Climate and Clean Energy at the Alliance of Nurses for Healthy Environments. She co-chairs the national ANA Innovation Advisory Committee on Planetary and Global Health as well as the ANA-NY state chapter's Climate & Health SIG. Milagros is also a Fellow of the American Nurses Advocacy Institute in which she is focused on building awareness and developing educational toolkits on the impact of climate change on patient care and outcomes. Milagros also owns and operates "M. Elia Nature-Based Healthcare Solutions" which offers clinician-facing professional development services to health-care organizations on climate and health impacts on patient outcomes.

Rizalina (Nena) Bonuel, PhD, RN, CCRN-K, ACNS-BC, APRN-BC, graduated cum laude with a Bachelor's Degree from Far Eastern University, Manila, Philippines, and received her Master's Degree from the University of Texas School of Nursing and Doctorate at Texas Woman's University. She is currently the Director of Nursing Practice at Harris Health System. She held various roles in the practice setting ranging from critical care nurse, flight nurse, house supervisor, administrator on duty, director of education, and nurse innovation specialist, to nurse educator and nurse scientist. She contributed to academia as

adjunct faculty in four local universities. She is also engaged as co-investigator in health service research(s) in her current employment. Nena received several awards, has published and shared many scholarly works through poster presentations, and is an invited speaker by many professional nursing organizations. The Far Eastern University Alumni Association gave her the Excellence in Nursing Administration award in 2020 and the Excellence in Nursing Research in 2023. She was inducted as a 2023 Fellow of the National Academies of Practice.

Amy Rose Taylor, AGNP-BC, DNP, is currently the Executive Director at the Commission for Nurse Reimbursement as well as board member of the Society of Nurse Scientists, Innovators, Entrepreneurs and Leaders (SONSIEL), the Gerontological Advanced Practice Nurses Association (GAPNA), and Angels in Africa.

Correspondence about this article should be addressed to Kasey Bellegarde at [belle194@umn.edu](mailto:belle194@umn.edu)