GI Multisociety Strategic Plan on Environmental Sustainability

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It is clear that the evolving climate crisis, with its deleterious effects on planetary ecosystems, also poses harm to the health of humankind.(1-5) Human activity has brought about changes that not only affect the climate but also other earth systems, including biodiversity, freshwater use, land use, and nitrogen flows, which already compromise the well-being of our generation and may have negative ramifications for future generations.(6) It is imperative that we prevent further destruction of our ecosystems and modify detrimental behaviors to prevent escalation. This is true for the practice of medicine in general and our field of gastroenterology and hepatology in particular. With this in mind, the leadership of 4 major GI (see Table 1 for glossary of terms) societies in the United States—American College of Gastroenterology (ACG), American Association for the Study of Liver Diseases (AASLD), American Gastroenterological Association (AGA), and American Society for Gastrointestinal Endoscopy (ASGE)—came together and established a task force to develop a joint strategic plan that our societies can adopt to mitigate the effects of climate change on digestive health and healthcare systems and to decrease the environmental impact of GI practice.

Several recent position statements and detailed information from the National Academies of Sciences, Engineering and Medicine,(7) National Institutes of Health,(8) World Health Organization,(9) and Centers for Disease Control and Prevention(10) have highlighted the importance and impact of climate change on health and healthcare systems. In October 2021, the World Health Organization 26th United Nations Climate Change Conference special report on climate change and health identified climate change as "the single biggest health threat facing humanity."(11) The British Society of Gastroenterology has developed a strategic document,(12) whereas the World Gastroenterology Organization has established a climate change working group that highlighted the importance of climate change to our discipline.(13) The results of a recent World Gastroenterology Organization global survey of GI societies' leaderships strongly support the need for a climate change strategic plan with actionable measures, such as targeted education and the establishment of working groups.(14) Furthermore, recommendations for endoscopy practice have recently been released by the European Society of Gastrointestinal Endoscopy and the European Society of Gastroenterology and Endoscopy Nurses and Associates,(15) and several GI and non-GI medical organizations have released climate change position statements.(14-20)

Climate change affects many social and environmental determinants of health, including water and food security, shelter, physical activity, and accessible health care(1,2,5,7) (Figure 1), with a disproportionate impact on marginalized populations, including those of lower socioeconomic status, the uninsured, the elderly, and those with chronic medical conditions.(1,2,5,7,9) The downstream effects of climate change on health may affect GI practice in a variety of ways. Food insecurity and malnutrition can contribute to obesity and fatty liver disease, for example,(3,21,22) which in turn may further derange the microbiome and impair gut immune function.(23-25) Climate change has led to a changing pattern of infectious diseases with an increased risk for diarrheal diseases and hepatitis,(1) with morbidity and mortality often exacerbated by the unsanitary conditions of forced migration and limited access to clean water.(7,10) The shifting epidemiology of enteric infections may also carry with it an increased burden of functional GI disorders.(26) Finally, climate change affects mental health.(4) Stress, anxiety, and depression can predispose to substance abuse, which in turn may increase the prevalence of alcohol-related liver disease and pancreatitis.(27)

Although the central goal of health care is to promote health, healthcare delivery itself contributes to climate change, which may paradoxically lead to population-level harm. The healthcare sector accounts for 4.4% of greenhouse gas emissions worldwide and 8.5% in the United States.(28,29) If health care were a country, it would be the fifth largest emitter globally.(29) Digestive health care is a major contributor to healthcare's carbon footprint.(30) As a procedure-intensive specialty, GI procedures use an abundance of single-use supplies and generate more waste

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Table 1. Glossary of terms

Carbon footprint	Measure for greenhouse gas emissions representing the total amount of greenhouse gases generated directly or indirectly by an individual, organization, product, or event and their activities. Carbon footprint is the representative unit for measuring global warming.[1]
Circular economy	A model of economy that involves activities that are restorative or regenerative by design and aims for the elimination of waste through the superior design of materials, products, and systems.[2]
Climate change	Shifts in weather and climate patterns that occur over long periods of time, acknowledging that the current warming temperature is caused primarily by human activity.[1,3]
Ecosystem	A geographic unit of living organisms and their interaction with the physical environment in which they live.[1]
Greenhouse gases	Gases (primarily CO2 but including CH4, N2O, and others) that absorb, trap, and re-emit heat and radiant energy back into the earth's atmosphere.[1]
GI	All disciplines of the field of digestive health and disease including adult and pediatric gastroenterology, hepatology, neurogastroenterology, and pancreatology.
Planetary health	An emerging concept that prioritizes solutions that simultaneously benefit human health and advance environmental sustainability.[4]
Resilience	Capacity of a system (individual or organization) to use available resources (eg, energy, food, transportation, communication) to respond to, withstand, and recover from adverse situations and conditions.[5,6]
Sustainability	Meeting the needs of the present without compromising the ability of future generations to meet their own (UN Brundtland Commission).[5,7]
Sustainable health care	Provides high-quality health care for all that includes patient empowerment and self-care, prevention, lean-care pathways, and low-carbon alternatives.[8]
Sustainable economy	An economy that provides for the greatest amount of general well-being without depleting natural resources and harming the environment.[9]
Sustainable value care	Expanding the traditional value of care definition (patient outcomes relative to cost) to include benefits of care for the patient and larger population against environmental, social, and economic cost.[8]

Table references are listed in Appendix 2 (Supplemental Digital Content 2, http://links.lww.com/AJG/C714).

than other fields of medicine. Site analyses have suggested that endoscopy is the third greatest source of medical waste within the hospital setting.(31) As is the case for the impact of climate change by and on healthcare systems,(32) there is a vicious cycle whereby climate change negatively impacts individual digestive health, which accelerates specialized healthcare activity, which further contributes to the climate crisis (Figure 1).

Urgent action is needed to help mitigate the effects of climate change and the broader environmental impact of our collective practice. We must transition to a more sustainable model that allows for the provision of high-quality digestive health care with access for all, now and for future generations.(33) This transition will be challenging insofar as it requires modifying habits of current practice. In the long run, however, it will promote health, save cost, and, above all, correspond with a broader shared vision of planetary health. The proposed strategic plan suggests a roadmap toward a sustainable GI practice.

The multisociety task force formulated a vision, mission, and 7 domains that are relevant to digestive health care and societal activities, with each domain coupled to a specific strategic goal (Figure 2). Importantly, the strategic goals highlight not only the traditional society mission areas of clinical care, education, and research, but also emphasize the importance of individual and collaborative society efforts, governmental and nongovernmental advocacy, and industry partnerships.(34,35) Each strategic goal subsumes individual objectives that offer a framework for initiatives and practical solutions for future working groups to pursue.

The strategic plan suggests an outline toward accomplishing the proposed objectives and initiatives (see Appendix 1, Supplementary Digital Content 1, http://links.lww.com/AJG/C713). These are not intended to be prescriptive in any way but rather provide opportunities to pursue a path toward an environmentally sustainable GI practice. All members of the task force unanimously approved the proposed strategic goals, objectives, and initiatives listed herein.

STRATEGIC GOALS AND OBJECTIVES

Clinical setting

Devise and foster sustainable clinical practices to reduce waste and carbon emissions.

Objectives

1. Assess the carbon footprint and generation of waste within all areas of our clinical practice and identify low-carbon and low-waste practice alternatives (immediate, short, and long term).
2. Encourage and support the implementation of environmentally friendly and organization-suited sustainable GI practices by providing a roadmap of possible practice alternatives including "the 3 Rs" of sustainability (reduce, reuse, and recycle) and specifying affordable testing and treatment alternatives with favorable environmental impact.
3. Create a framework for GI practices to develop sustainability metrics, including methods for calculating practice-specific carbon footprints, alongside improvements in quality and access.

Education

Raise awareness and share sustainability practices with society members and patients regarding the interaction between climate change, digestive health, and healthcare services.

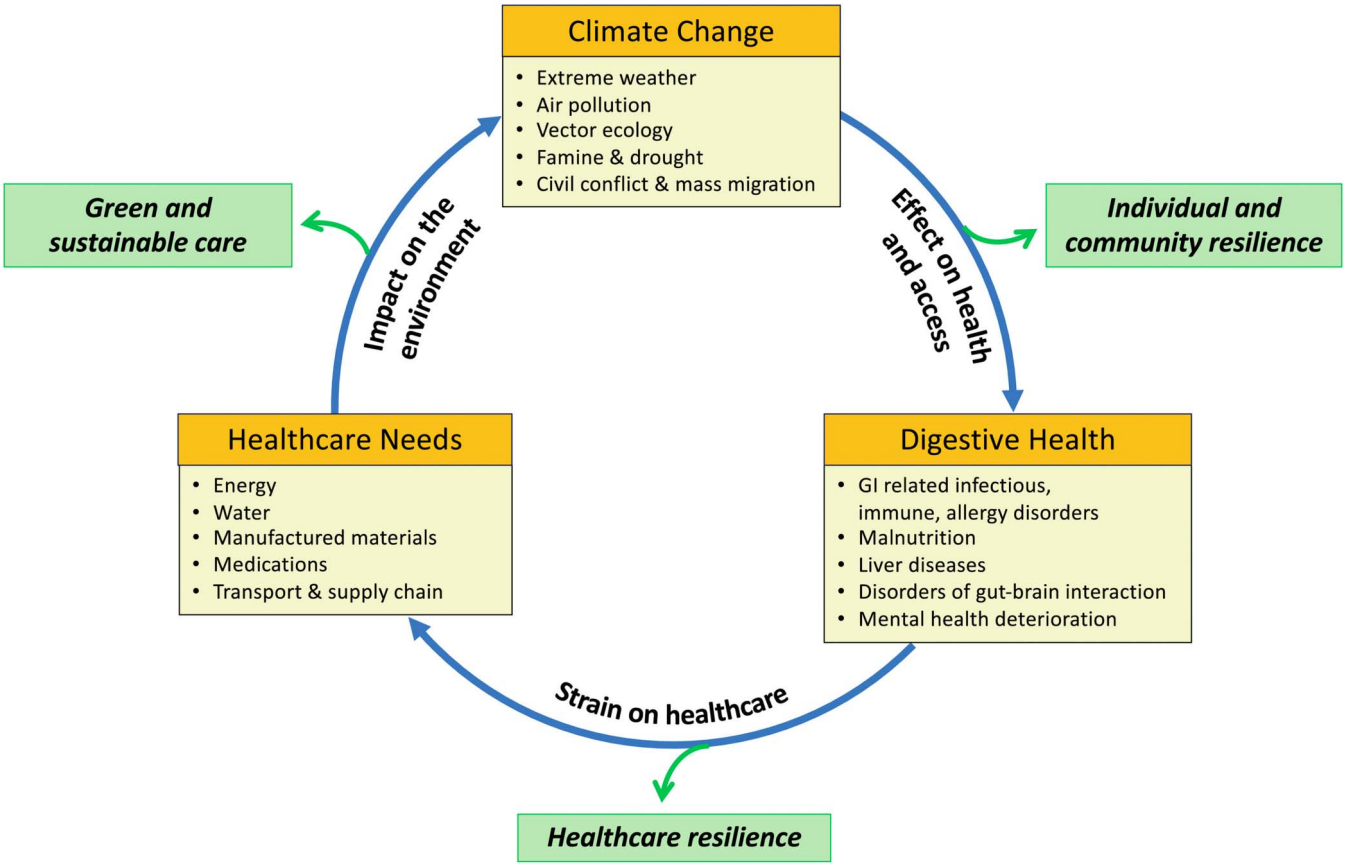

Figure 1. Intersection between health care, climate change, and digestive health and possible intervention areas to affect change and help mitigate the climate crisis.

Objectives

1. Educate healthcare leadership, practitioners, and patients about the adverse effects of climate change on digestive health, the contribution of health care to climate change, and approaches to minimize its negative environmental impact.
2. Educate healthcare leadership, practitioners, and patients about the necessity for change in digestive healthcare delivery without compromising access to care.
3. Promote a discussion on the professional and ethical implications of old and new patterns of shared resource utilization within an environmentally sustainable practice paradigm.
4. Incorporate the principles of sustainable care into all aspects of societies' educational programs.

Research

Raise and allocate resources to support research at the intersection of the environment, climate change, and digestive health.

Objectives

1. Promote and support research related to the effects of climate change on digestive health and health care, with an emphasis on vulnerable populations.
2. Facilitate research that examines the environmental impact of clinical practice and the beneficial effects of implementing sustainable low-carbon, low-waste practices on the overall financial cost and environmental footprint of digestive health care.
3. Promote research that focuses on the implementation of sustainable care and sustainable value as a quality domain in digestive health care.
4. Encourage the inclusion of environmental considerations into research proposals.

Society efforts

Achieve environmentally and organizationally sustainable activities across all society mission areas.

Objectives

1. Assess and monitor the current environmental impact of all activities.
2. Identify, devise, and implement measures to decrease societies' carbon footprint and reduce waste that is generated by societal activities.
3. Track the financial costs, financial savings, and environmental benefits of efforts initiated and undertaken under a sustainability model.

Intersociety efforts

Collaborate with national and international GI and hepatology societies to advocate for and support implementation of sustainable practices.

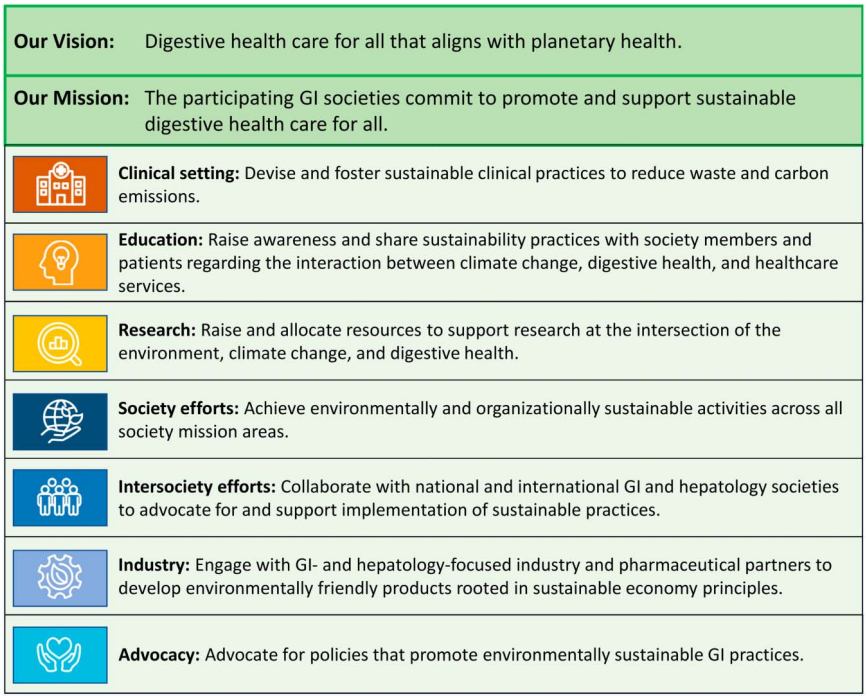

Figure 2. Vision, mission, and strategic goals.

Objectives

1. Collaborate with other GI and hepatology societies to support each other's sustainability efforts.
2. Work with medical and nonmedical climate advocacy organizations on joint advocacy opportunities. This could include organizations such as Healthcare Without Harm and Practice Greenhealth.
3. Support each other on all other activities that underpin shared missions including education, clinical practice, and research.
4. Encourage societies to use validated metrics to evaluate their efforts toward sustainability balanced against meeting their organizational missions.

Industry

Engage with GI- and hepatology-focused industry and pharmaceutical partners to develop environmentally friendly products rooted in sustainable economy principles.

Objectives

1. Partner with industry to provide product information on carbon footprint implications and options for recycling.
2. Work with industry to focus on environmental product design that builds on principles of sustainability (eg, circular economy).
3. Explore opportunities to engage industry to promote and support environmentally sustainable digestive health care.

Advocacy

Advocate for policies that promote environmentally sustainable GI practices.

Objectives

1. Identify and incorporate principles of sustainable health care among the goals of relevant political action committees.
2. Leverage collaborative advocacy efforts, where applicable, to promote sustainable policies with national and international healthcare and research agencies, political leaders, and payors.

Next Steps

The plan presented herein, which we view as a landmark joint effort, provides a framework for each of the 4 involved societies to undertake separately or by working together. The societies view the proposed goals and their associated objectives as an elective call to action with specific suggested initiatives and timelines (see details in Appendix 1, Supplementary Digital Content 1, http://links.lww.com/AJG/C713; summary shown in Figure 3). Each society will prioritize and adapt their initiatives in accordance with their individual societal goals. Some initiatives may be undertaken by a single society, whereas other objectives and initiatives may be approached jointly (e.g., educational programs). Each society may establish their own committee or working group, which we recommend, or do so jointly. We are grateful that several other GI organizations have endorsed our plan (Table 2), which reflects the importance and timeliness of the opportunity to work together and share best practices to overcome the burden of climate change on digestive health and help mitigate the environmental impact of GI practice (Figure 1). As Desmond Tutu stated, "Twenty-five years ago, people could be excused for not knowing much, or doing much, about climate change. Today we have no excuse."

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Year 1 (2023)	Years 2-5 (2024-2027)
• Establish and agree on a multisociety strategic plan toward a sustainable practice • Establish policies and working groups within and across societies that align with individual societies' interests • Devise research and education strategies • Collaborate with organizations that align with the GI societies' missions • Engage with GI-focused industry to explore opportunities to promote planetary health	• Annual progress report • Measure the environmental impact of digestive health care in practice settings • Identify and work toward implementing sustainable practice alternatives • Analyze sustainability of society activities • Raise awareness and educate members and society stakeholders • Support research efforts related to sustainable digestive health care • Integrate sustainable value as a care quality domain • Adjust and modify the strategic plan, based on new findings • Review accomplished goals and modify and update the strategic plan toward achieving sustainable digestive health care

Figure 3. Summary of the multisociety 5-year strategic plan and proposed initiatives.

the opportunity, privilege, and support to work together to draft this joint plan. We thank Eden Essex for her essential administrative support and coordination and Drs Desmond Leddin, Geoffrey Metz, and Andy Veitch for providing input.

The following authors represent the 4 GI societies: Adrian Reuben and Rohit Kohli (AASLD), Rabia de Latour and Swapna Gayam (ACG), Nitin K. Ahuja and M. Bishr Omary (AGA), and Heiko Pohl and Deepak Agrawal (ASGE).

Table 2. GI and non-GI societies who have endorsed the strategic plan of the U.S. Multi-GI Society Task Force on Climate Change

Society
African Middle East Association for Gastroenterology
American Neurogastroenterology and Motility Association
American Pancreatic Association
Asia Pacific Association of Gastroenterology
Association of Black Gastroenterologists and Hepatologists
British Association for the Study of the Liver
British Society of Gastroenterology
Canadian Association of Gastroenterology
Crohn's & Colitis Foundation
Digestive Health Physicians Association
European Association for the Study of the Liver
Gastroenterology and Hepatology Advanced Practice Providers
Indian Society of Gastroenterology
Iranian Association of Gastroenterology and Hepatology
Israeli Association for the Study of the Liver
Malaysian Society of Gastroenterology and Hepatology
North American Society for Pediatric Gastroenterology, Hepatology & Nutrition
Norwegian Gastroenterology Society
Pan American Organization of Gastroenterology
Society of Gastroenterology Nurses and Associates
Women in Endoscopy
World Endoscopy Organization
World Gastroenterology Organisation

Entries are listed in alphabetical order. Endorsement indicates support for the AASLD, ACG, AGA, and ASGE multisociety climate change strategic plan. It does not obligate the endorsers to carry out any of the proposed strategic goals or to interfere with an existing climate change–related strategic plan currently undertaken by the endorser or prevent the endorsers from developing an independent strategic plan that has similar or identical goals or objectives. GI, gastroenterology.

CONFLICTS OF INTEREST

Guarantors of the article: Heiko Pohl, MD and Bishr Omary, MD, PhD.

Potential competing interests: The following authors disclosed financial relationships as a cosultant or from research funding: Heiko Pohl: Cosmo Pharmaceuticals and Steris; Rabia de Latour: Ambu and Boston Scientific; Nitin K. Ahuja: GI Supply, GlaxoSmithKline Consumer Healthcare, Nestle, Takeda, and Vanda Pharmaceuticals; Rohit Kohli: Albireo, Epigen, Intercept, Mirum, Sanofi, and Takeda. All other authors disclosed no financial relationships.

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