

Climate change: a survey of global gastroenterology society leadership

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Climate change is a threat to both public¹ and digestive health.²⁻⁴ Ironically the delivery of healthcare contributes to global warming by generating waste and emissions. If the global healthcare sector was a country, it would be the fifth highest emitter of greenhouse gases on the planet.⁵ Healthcare providers⁶ and the global gastroenterology (GI) community recognise the need to break this cycle. For example, several GI societies have started climate focused action groups or committees, and the British Society of Gastroenterology has produced a first-of-its-kind GI society sustainability blueprint.⁷ Although promising, these initiatives are recent, geographically piecemeal and possibly limited in their impact since they require buy-in and then implementation of measures to directly address the carbon footprint and waste-related challenges, in addition to the need for goal-directed efforts by healthcare systems and providers.⁸ The climate crisis requires global, comprehensive, coordinated and urgent action if the GI community is to respond effectively.

Professional societies could make an important contribution to meeting this challenge. The World Gastroenterology Organisation (WGO) is a non-governmental organisation with 117-member GI societies from 108 countries representing over 65 000 gastroenterologists worldwide. The WGO Climate Change Working Group conducted a survey of global GI society leadership to understand their views on climate change, their society's status, perceived barriers to action, support that might be useful and plans regarding the climate crisis. In this commentary, we

provide the results and implications of the survey.

Global surveys of physicians on the issue of climate change have had variably low response rates.⁹⁻¹⁰ This raises a concern whether the respondents, and responses, are representative. We surveyed the leadership, rather than the membership, of the 117 GI societies who are members of the WGO. Leaders are well positioned to provide insights into their society's attitudes, are familiar with society structures in place and are likely to have an informed view on what actions might be feasible in the future. The methodology and data from this survey are available as online supplemental file 1. The high response rate in our survey (49%; 57 of 117 societies) supports this approach (see online supplemental information for the methods we used and the survey questions). Given the proportional representation from all geographic areas and economic zones, the results are likely an accurate reflection of senior GI leadership attitudes and beliefs and the structures currently in place in their societies. We cannot exclude the possibility that the respondents are biased towards those who are more concerned about global warming. Another possible limitation of our strategy is that the responses are from a limited number of older, predominantly male, members of the profession whose views may, or may not, represent the attitudes and beliefs of their membership. However, we captured not only the subjective personal beliefs of leadership but also the structures in place in their respective organisations (table 1).

The majority of responders believe that climate change represents a crisis, with 86% appearing knowledgeable regarding the cause, which is almost entirely anthropogenic. The remaining minority believe that the problem is caused equally by human and natural forces, so there is still work to do on educating GI leaders. This finding is similar to previous surveys where level of knowledge was captured.⁹⁻¹² A majority of leaders are personally committed to change, and a significant number have

Table 1 Overview of the survey results of the global gastroenterology leadership

117 GI societies surveyed	108 Countries	49% Global response rate
86 (scale of 100) Level of crisis	36 (scale of 100) Current society priority	89% Absent CC WG
86% Human activity causes CC crisis	80% More pressing society issues	16% Have education programme
26% Will decrease society CE	49% Will decrease own CE	46% Will likely form CC WG

The highlighted numbers summarise the major findings of our survey. Percentages reflect the fraction of respondents who provided the highlighted reply (for additional details, see online supplemental information).

CC, climate change; CE, carbon emissions; WG, working group.

already made changes in their personal (49%) and professional (53%) lives. The level of concern did not vary by geographic or economic group, but these personal beliefs and concerns have not resulted in global warming being prioritised by their national societies. The issue receives a low prioritisation ranking in their GI society. Only 9% have a climate working group or committee in place that provides a planning and administrative structure, which would be able to facilitate change. However, 46% of those surveyed indicated that their GI society will likely form a CC working group.

Obstacles to moving from concern to action could be due to prioritisation of systemic issues, psychological¹³⁻¹⁵ or financial constraints (figure 1). Leadership did provide insights, in both open text and direct questions, into the disconnect between their personal ranking of the crisis and the lack of prioritisation by their society. A lack of awareness and knowledge of the issue and the competing demands of clinical work were the major reasons cited. A smaller number believe that the health sector could not change its practices or was not responsible, that engagement was hindered by lack of organisation and resources, and a lack of advocacy.

Similar themes emerged in direct questioning. Over 80% of the leaders agreed strongly, or partially, that their societies have more pressing problems than climate change. A similar percentage agreed that they do not have the knowledge to engage, and that it is the responsibility of government (69%) to deal

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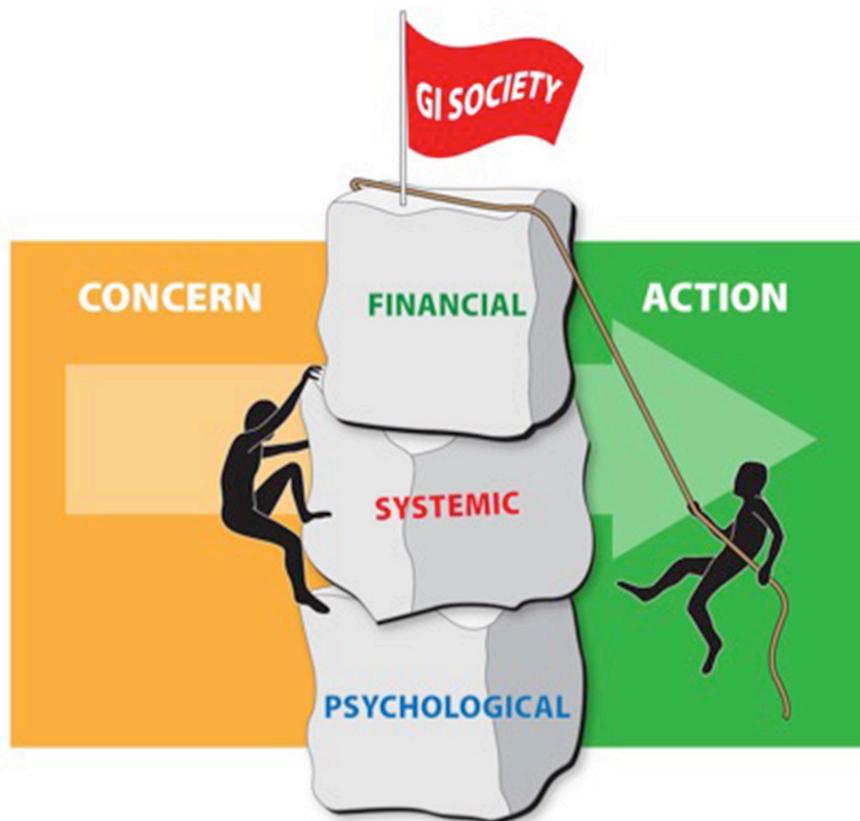


Figure 1 Major barriers for the gastroenterology (GI) societies to move from being concerned to taking action as related to climate change. Three types of obstacles are major impediments to moving from the primary current sentiment of being concerned to take active measures. The three types of barriers are: (1) financial incentives and disincentives, (2) systemic issues such as a lack of knowledge and education on the topic and an absence of an administrative structure and (3) psychological barriers.

with this or that financial sponsorship for work in this area may be difficult to secure.

Several of the systemic or structural blocks, perhaps with the exception of the demands of clinical work, may be readily correctable. For example, awareness and knowledge can be increased through education programmes. There is evidence that healthcare can reduce its impact and that it has a high environmental impact.⁵ The misperception that healthcare cannot change can be corrected by education and raising awareness. The current lack of organisation and advocacy can be addressed by creating climate action groups, or climate committees, in national GI societies. It is understandable that societies feel they have more pressing problems, especially in the current pandemic, and it is likely that if leadership did fully grasp the level of threat, that prioritisation would change. A majority also believe that this is an issue for government; however, most governments have not begun to deal effectively with the

problem and likely will not until they feel that they have public support, for which the medical profession can play leadership and advocacy roles. Clearly a conversation needs to be had with industry partners, who will also increasingly face demands to reduce their carbon footprint, concerning ways in which sponsorship may be secured.¹⁶

A smaller number of leaders identified what may be considered psychological barriers, the lack of an imminent threat, climate change uncertainty (or even denial) and an inability to have an impact on the problem.¹⁵ The perception that climate change is not an imminent threat may be partly due to knowledge but may also be a psychologic block known as temporal discounting¹³ whereby non-imminent threats are not prioritised. Almost equal numbers believe that they can, or cannot, make a difference. Inability to make a difference is a valid reason to not act but it may be a manifestation of what the psychologists term a lack of behavioural control.¹⁵ Not engaging because of concerns that

engagement may not be effective is a circular argument.

In addition to structural and psychological barriers, there are financial incentives and disincentives at play in current practice. For example, many national societies derive income from annual meetings, which helps support key services they provide to their members, but which for many may have the largest proportional carbon impact within their organisations. The meeting attendance generates income from pharmaceutical and device industry support but also increases travel-related emissions, often from air travel, which can be very significant.¹⁷ Notably, over a quarter of GI society leaders in this survey were willing to consider carbon offsets and 70% have plans to move to hybrid models for their annual meeting suggesting that openness to change is already beginning. Some societies might be wary of the financial impact of addressing climate change by total conversion to remote meetings, but anecdotal experience, not captured in our survey, indicates that innovative new models of delivering meetings remotely can be as financially advantageous as traditional meetings. This needs formal study and if the data are validated, might present a compelling argument to consider hybrid meetings as the norm in the future.

Now that these obstacles have been identified, it may be possible to address them. The only action that has already been adopted by a majority is a plan to move to virtual or hybrid meetings. Whether that is due to the pandemic or a response to climate change is unclear. Other strategies, not explored in our survey, have been incorporated into the British Society of Gastroenterology statement on sustainable conferences.¹⁸ These include a competitive tendering process for meeting organisers and venues, which include robust sustainability mitigation measures within their operations. Simple measures, which can be adopted readily include a ‘paperless’ meeting at the venue, including course materials, advertising and posters. Delegates, particularly for local or regional meetings, can be encouraged to travel by the most environmentally sustainable method such as train rather than car or air. Industry sponsors can also be encouraged to adopt sustainable operations for these meetings, and these sustainability measures can be emphasised in the marketing of events. Face-to-face meetings have a role to play in building the community of practice and in professional identity formation, which is achieved in part through socialisation.¹⁹

They should be retained with the least possible environmental impact.

Moving forward, the situation is more positive with a majority or near-majority of leaders believing that a variety of adaptation and mitigation plans may be acceptable to their societies. Leadership is open to a variety of options regarding improving knowledge, awareness and delivery of education on this issue. While we have identified society meetings and conferences as a major contribution to their carbon footprint, we encourage all societies to critically appraise all of their operations to identify and mitigate against the effects of greenhouse gas emissions.

While this survey focused on the role GI societies might play and identifying hurdles they face, there is a wider context. At COP26 in Glasgow, 50 countries committed to sustainable, low emission health systems.²⁰ If planning for that change includes the activities of professional societies, as may be the case, then novel incentives to deliver sustainable, low emission professional societies strategies may emerge. Professional societies may be held, or hold themselves, accountable for their carbon footprint within a national framework striving to decrease environmental impact. That change would radically alter the approach to overcoming obstacles. There will also be opportunities, especially in those countries that have committed, to connect with national government agencies and other medical organisations, to contribute to research and best practice development.

Global GI leadership is deeply concerned about the issue of climate change. While this concern has not yet translated into widespread action, the indications are that the profession is on the cusp of change. That change will be accelerated by increasing the awareness of society members. GI societies can play a critical role in educating their membership, leading by example, reducing the environmental impact of their operations such as travel, increasing advocacy for solutions and related research funding, and by informing and supporting politicians trying to lead change. However, removing barriers and educating membership may not be sufficient. The underlying psychological barriers described above will also need to be addressed.

As concrete next steps, we suggest that all GI societies establish climate action committees, working groups or task forces, and place this topic as a regular feature of their education programmes. At this stage, raising awareness should be the priority. Those who do not feel that they have the expertise can be assured that a

growing global support group is available, which is willing to help. In addition to raising awareness, we also need to urgently explore novel framing of the education message and to remove financial incentives that promote environmental harm.

On a historical note, it was scientist, innovator and women's rights activist, Eunice Newton Foote, who speculated in 1856 that changing the proportion of carbon dioxide in the atmosphere would change its temperature.²¹ Fast forward 166 years later, we in GI are well positioned, should we choose to do so, to build on her work. It is in all our interests to actively cooperate and generate an effective global response to this emerging crisis.

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ONLINE SUPPLEMENTAL MATERIAL

Climate Change: A Survey of Global Gastroenterology Leadership

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Methods

The initial design was based on the survey by Kotcher et al[1]. Multiple revisions and repeated testing of successive versions were carried out by the WGO Climate Change Working Group. The final web-based survey consisted of 12 questions and was designed to be used by countries where English may not be the first language, and to be completed within 10 minutes.

Inclusion: The survey was sent to the presidents of national GI associations which are members of WGO. If the president was unavailable, the survey was directed to the president-elect. Two non-national GI organisations, the Association of West Indian Gastroenterology and the Internal Medicine Organisation of the Pacific, whose President is a Gastroenterologist, were also invited. There are four major adult GI organisations in the United States. The two who are members of the WGO were included (all other countries provided one response).

Exclusion: Replies from more than one member of a society were deleted with the reply of the most senior member of executive being included. Replies where fewer than four questions were answered (N=6) were not included.

Distribution: An individualised pre-survey letter was sent from the President of the WGO to individual member society Presidents outlining the rationale for the survey and asking for their participation. The survey was then distributed by email with a follow up email one week later to non-responders. The survey was conducted using a web-based platform, Qualtrics XM.

Comparison with World Bank (WB) geographic and economic regions: The WB groups countries by seven geographic zones and four economic bands and lists 217 economic zones for the purposes of assembling data on development indicators[2]. A comparison of survey responses was conducted with WB groupings to determine if the results were globally representative. Respondents were classified into geographic and economic zones based on WB classification.

Confidentiality: Personal information such as name, age, and gender were not collected. The names of societies were obtained unless the respondents chose to keep their replies anonymous. Replies were kept confidential, and results shown only as aggregated data by region. The survey was not designed with a specific research question in mind but was carried out by the WGO as an ultimate potential resource for its member societies and to provide information regarding actionable efforts. The survey was deemed by the Dalhousie University, Canada ethics committee to not require formal review as per Tri-Council Policy Statement 2.

Results

Numbers have been rounded to nearest whole number. Percentages may sum to more than 100%.

Response rate and global distribution: The response rate was 49% (57/117). Input was received from all global geographic regions and economic levels as shown in Tables 1 and 2.

Income Level	Survey: Number (%)	World Bank: Number (%)
High	23 (40%)	80 (37%)
Upper middle	18 (32%)	55 (25%)
Lower middle	12 (21%)	55 (25%)
Low	4 (7%)	27 (12%)
Total	57 (100%)	217 (100%)

Table 1. World Bank categories of income level, number and percent of survey respondents and corresponding numbers of countries and percent by World Bank classification.

There was no statistical difference, as measured by one sample Chi square goodness of fit, in the proportion responding to the survey relative to the World Bank global proportions of economies ($p=0.42$).

Geographic Zone	Survey Number (%)	World Bank Number (%)
East Asia and Pacific	11 (20%)	37 (17%)
Europe and Central Asia	19 (33%)	58 (27%)
Middle East North Africa	3 (5%)	21 (10%)
Latin America Caribbean	9 (16%)	42 (20%)
North America	3 (5%)	3 (1%)
South Asia	2 (4%)	8 (4%)
Sub Saharan Africa	10 (18%)	48 (22%)
Total	57 (100%)	217 (100%)

Table 2. WB geographic zones, number and percent of survey respondents, and corresponding number of WB number and percent of countries.

There was no statistical difference as determined by One Sample Chi-Square Goodness-Of-Fit Test, in the proportion responding relative to the World Bank global proportions of economies ($p=0.15$).

Survey Questions and Replies

Below is a listing of the survey questions and the replies. For some of the questions, an analysis of the replies is included:

Q1 Some people have described climate change as a crisis. Can you tell us how you **personally** feel? Please move the slider so that it shows your opinion from 0 (I do not think that climate change is happening at all) to 100 (I think this is a major crisis).

The median crisis score from 48 respondents was 86. There was no statistical difference, as determined by independent sample median test, in crisis level ranking either between regions ($p=0.71$) nor between higher and lower income countries ($p=0.25$).

Q2 Assuming climate change is happening do you think it is caused entirely (100%), mostly (>75%), equally (50:50) by human activities or mostly (>75%), entirely (100%) by natural changes or is it simply not happening?

Of 56 respondents, 86% (48) believe that climate change is caused entirely or mostly by human activity while 14% believes that it is caused equally by natural changes and human

forces. None believe that it is caused mostly, or entirely, by natural changes or that it is not happening.

Q3 Now we would like to know how engaged you personally are on this issue.

Have you made any changes in your personal life, such as decreasing driving or flying, to reduce your carbon footprint?

No 14 (25%) Maybe 10 (18%) Yes 28 (49%) Not feasible 5 (9%) Total 57 (100%)

Have you made any changes in your professional life, such as decreasing energy use in your clinic, to reduce your carbon footprint?

No 13 (23%) Maybe 9 (16%) Yes 30 (53%) Not feasible 5 (9%) Total 57 (100%)

Do you have a plan to cut your personal or professional carbon emissions in the next 12 months?

No 15 (26%) Maybe 20 (35%) Yes 21 (37%) Not feasible 1 (2%) Total 57 (100%)

Q4 Health professionals have not been very engaged on the issue of climate change - why do you think that is so? What do you see as the reasons for not engaging?

Analysis of 52 comments in an open text question on the lack of healthcare engagement to date produced several extractable themes; a lack of awareness and knowledge (N=14), the competing demands of clinical work (N=11), lack of imminent threat (N=6), a belief that the health sector either could not change its practices or was not responsible (N=6), inability to have an impact (N=4), lack of organisation and resources (N=4), lack of advocacy (N=2), and climate denial (N=2).

Q5 How much of a priority, compared to all the other challenges and needs, do you think your professional society sees the issue of climate change? Please move the slider from 0 (Extremely low priority) to 100 (Extremely high priority).

The median priority ranking from 47 replies was 36 on a 0-100 scale. There was no statistical correlation between their personal level of concern and their societies priority ranking by Spearman rank order testing ($p=0.29$, $r=0.11$). There was no statistical difference between income groups ($p=0.72$) or geographical region ($p=0.16$).

Q6 Does your professional society have the following? N= 57 responses.

A climate change committee or working group.

Yes 5 (9%) No 51 (89%) Not sure 1 (2%)

An advocacy or government liaison lead on climate

Yes 9 (16%) No 43 (75%) Not sure 5 (9%)

A plan to build resilience to the effects of climate change on digestive diseases in your country.

Yes 10 (18%) No 45 (79%) Not sure 2 (4%)

Education programs on climate change

Yes 9 (16%) No 44 (77%) Not sure 4 (7%)

A plan to reduce its own carbon footprint

Yes 15 (26%) No 38 (67%) Not sure 4 (7%)

A plan to move to hybrid annual meetings with in- person and on line attendance.

Yes 34 (60%) No 19 (33%) Not sure 4 (7%)

A plan for a symposium on climate change at your upcoming national annual meeting

Yes 16 (28%) No 35 (61%) Not sure 6 (11%)

Q7 How willing do you think your professional society would be to do the following in the next 1-2 years?

Establish a climate change committee or working group. N=57 responses.

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
6 (11%) 6 (11%) 16 (28%) 17 (30%) 9 (16%) 3 (5%)

Engage in advocacy on this issue. N= 56 responses.

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
2 (4%) 6 (11%) 13 (23%) 21 (38%) 13 (23%) 1 (2%)

Develop a climate resilience plan for digestive disease in your country. N= 56

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
3 (5%) 8 (14%) 14 (25%) 21 (38%) 10 (18%) 0 (0%)

Hold education sessions on this topic. N= 56

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
3 (5%) 3 (5%) 7 (13%) 23 (41%) 16 (29%) 4 (7%)

Reduce your organization's carbon footprint including moving to hybrid meetings (i.e. a mix of online and in person events). N= 57

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
0 (0%) 5 (9%) 5 (9%) 23 (40%) 17 (30%) 7 (12%)

Hold a symposium on climate change at an upcoming national annual meeting. N=57

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place
4 (7%) 7 (12%) 12 (21%) 19 (33%) 11 (19%) 4 (7%)

Offset travel related emissions to your national meeting by increasing the registration fee. N=57

Extremely unlikely Somewhat unlikely Not sure Somewhat likely Extremely likely In place.
12 (21%) 15 (26%) 15 (26%) 12 (21%) 3 (5%) 0 (0%)

Q8 What do you think the barriers are to your professional society engaging on this issue?

We have more pressing priorities, and this topic is somewhat outside our focus. N= 57 responses.

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
22 (39%) 24 (42%) 7 (12%) 1 (2%) 3 (5%)

We do not have the knowledge base to engage.

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
15 (26%) 27 (47%) 4 (7%) 8 (14%) 3 (5%)

This is an issue which government needs to handle.

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
17 (30%) 22 (39%) 6 (11%) 11 (19%) 1 (2%)

Unlikely we can make a difference. (N=55 responses)

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
6 (11%) 16 (29%) 9 (16%) 15 (27%) 9 (16%)

Unlikely to get sponsorship.

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
16 (28%) 16 (28%) 10 (18%) 12 (21%) 3 (5%)

No barriers, we are moving ahead.

Strongly agree Partly agree Neither agree nor disagree Somewhat disagree Strongly disagree
5 (9%) 15 (26%) 16 (28%) 14 (25%) 7 (12%)

Q9 How useful might these actions be to your society if your group was thinking of getting more engaged in this issue of climate and health? N=57 responses.

Training for a member of your society to take the lead on climate issues.

Useless	Neither useful nor useless	Useful
11 (19%)	6 (11%)	40 (70%)

Information on how to advocate for change.

Useless	Neither useful nor useless	Useful
10 (18%)	5 (9%)	42 (73%)

Slide decks and speakers to help with continuing education.

Useless	Neither useful nor useless	Useful
10 (17%)	7 (12%)	40 (71%)

Guidance on how to reduce your organizations carbon footprint and how to move to hybrid meetings.

Useless	Neither useful nor useless	Useful
11 (19%)	3 (5%)	43 (75%)

Q10 Can you tell us the name of your professional society?

Q11 What position do you hold in your professional society?

Q12 Finally, do you have any thoughts, comments, suggestions you would like to share with us? Is there anything else we can do to help? Are there other barriers we have not touched on?

Thirty-two comments were recorded in an open text question which allowed free input on other suggestions for what WGO might be able to do. Several themes emerged; Need for education materials, sessions and training (N=13), need to collaborate between groups (N=3), need to strategize and prioritise (N=2), and a need for increased advocacy (N=2).

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