



Knowledge, Attitude, and Practice of Physicians in Japan on Climate Change and Health

Niaya Harper Igarashi

D2 – International Cooperation for Medical Education

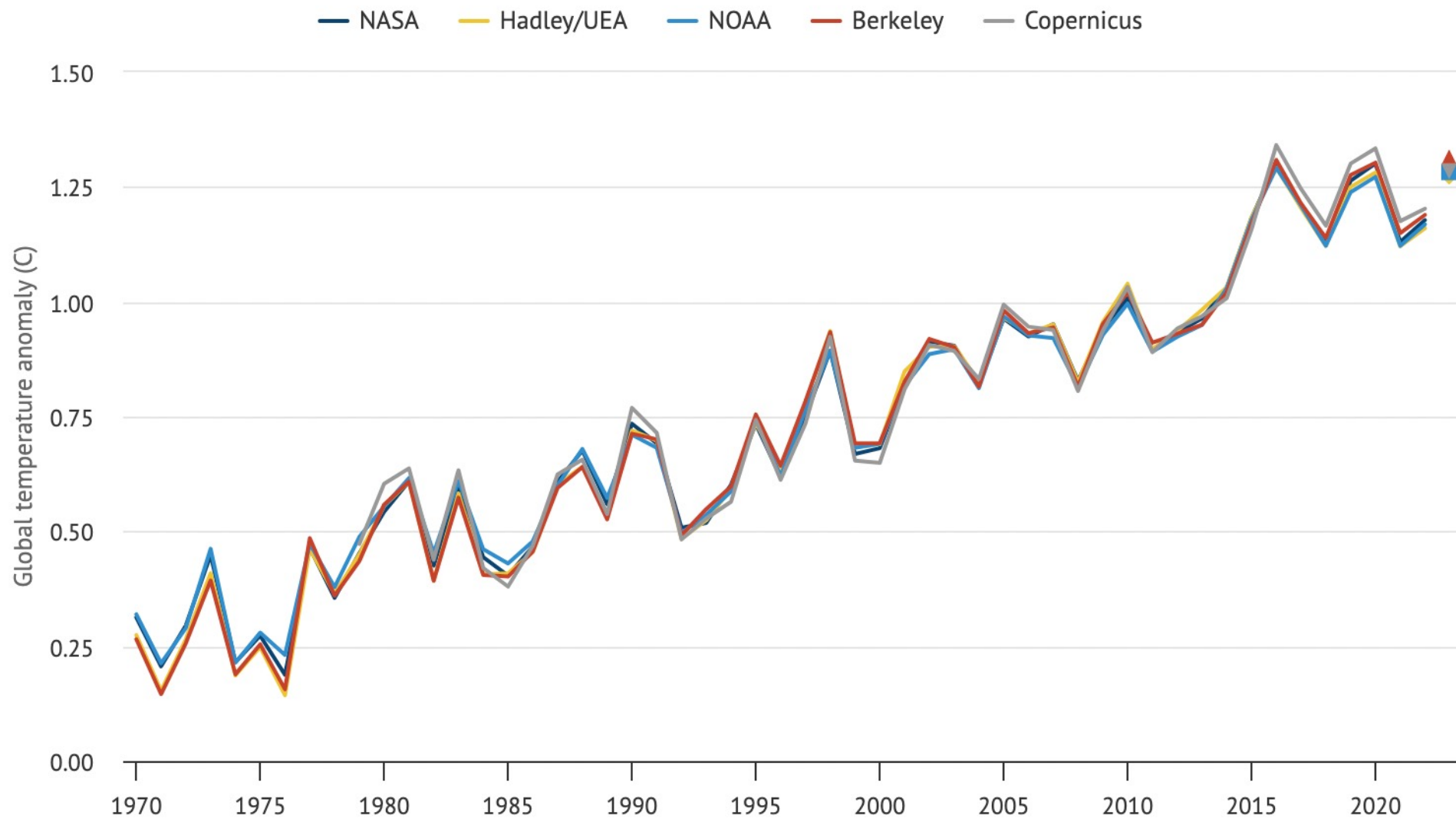
February 14, 2023



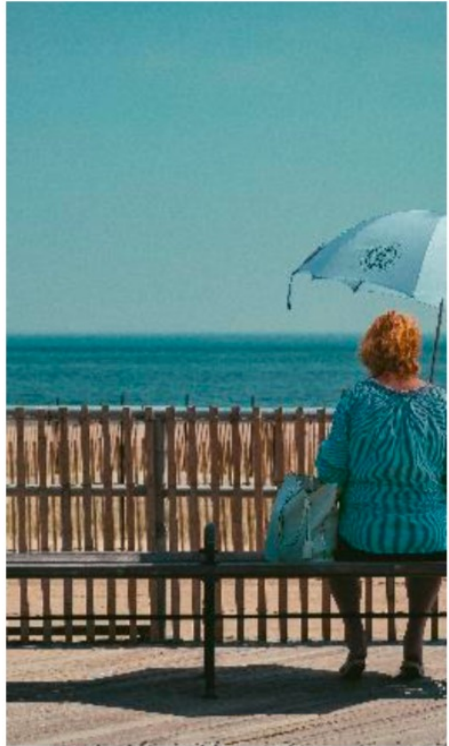
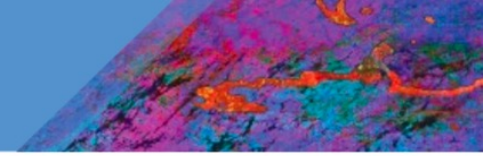
BACKGROUND

Five global surface temperature series

Coloured lines show 1970-2022, shapes show the year so far in 2023



Source: NASA GISTEMP, NOAA GlobalTemp, Hadley/UEA HadCRUT5, Berkeley Earth and Copernicus/ECMWF



Extreme heat

More frequent

More intense



Heavy rainfall

More frequent

More intense



Drought

Increase in some regions



Fire weather

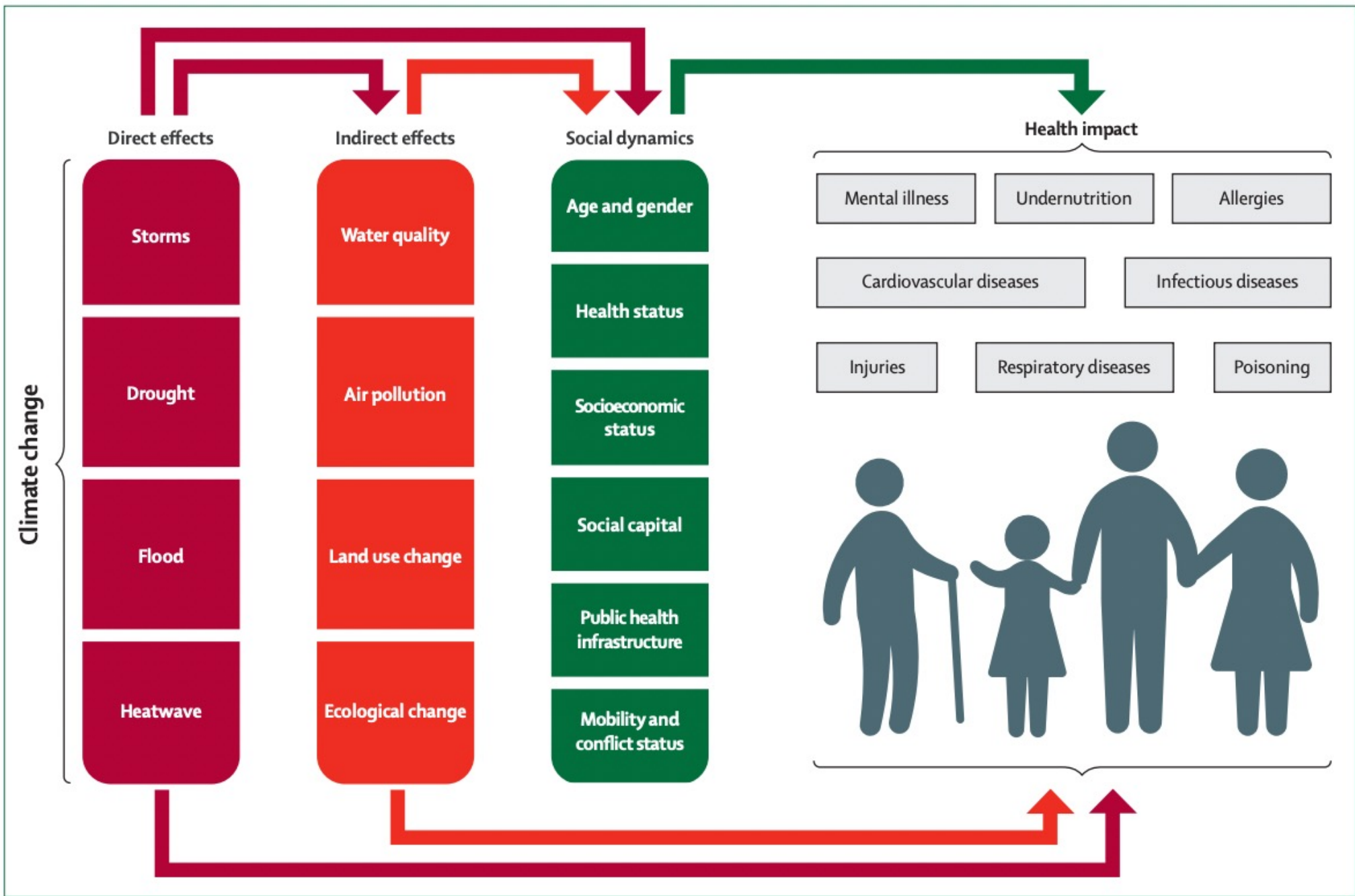
More frequent



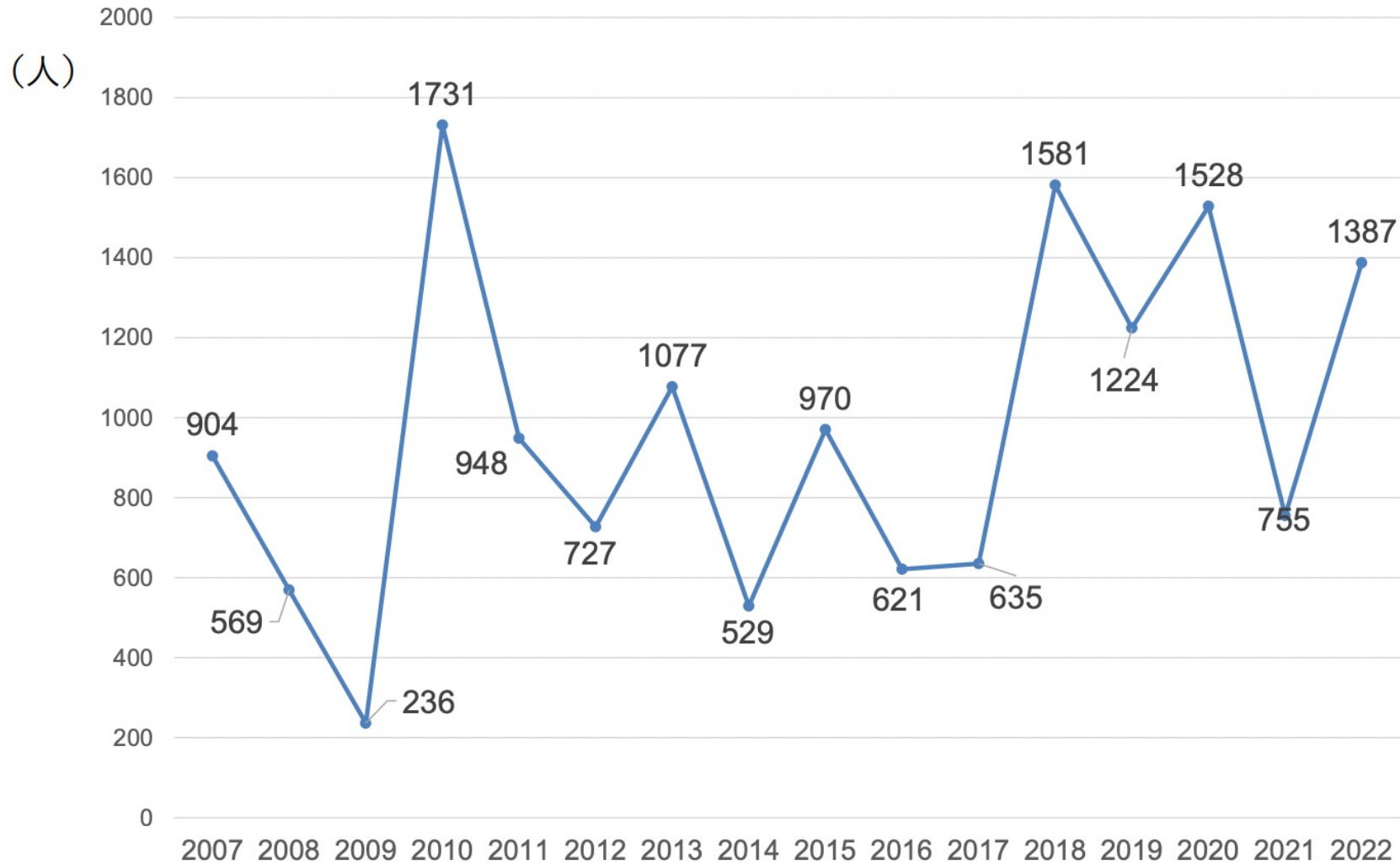
Ocean

Warming
Acidifying
Losing oxygen

(IPCC 6th Assessment Report, 2021)



Number of heat stroke deaths in Japan



※2022年は6月～9月の合計

厚生労働省「人口動態統計」より作成

The World Health Organization (WHO) named climate change the biggest health threat facing humanity.

The consequences of climate change directly affect human health, the practice of medicine, and the stability of healthcare systems.

Climate change disproportionately impacts vulnerable populations (i.e., elderly, children, LMICs, etc.)



LANCET COUNTDOWN

Literature Review

Views of health professionals on climate change and health: a multinational survey study

John Kotcher, Edward Maibach, Jeni Miller, Eryn Campbell, Lujain Alqodmani, Marina Maiero, Arthur Wyns

Climate change arguably represents one of the greatest global health threats of our time. Health professionals can advocate for global efforts to reduce emissions and protect people from climate change; however, evidence of their willingness to do so remains scarce. In this Viewpoint, we report findings from a large, multinational survey of health professionals (n=4654) that examined their views of climate change as a human health issue. Consistent with previous research, participants in this survey largely understood that climate change is happening and is caused by humans, viewed climate change as an important and growing cause of health harm in their country, and felt a responsibility to educate the public and policymakers about the problem. Despite their high levels of commitment to engaging in education and advocacy on the issue, many survey participants indicated that a range of personal, professional, and societal barriers impede them from doing so, with time constraints being the most widely reported barrier. However, participants say various resources—continuing professional education, communication training, patient education materials, policy statements, action alerts, and guidance on how to make health-care workplaces sustainable—can help to address those barriers. We offer recommendations on how to strengthen and support health professional education and advocacy activities to address the human health challenges of climate change.

Literature Review

Climate-specific health literacy and medical advice: The potential for health co-benefits and climate change mitigation. An exploratory study



Lydia Reismann*, Andrea Weber, Michael Leitzmann, Carmen Jochem

Department of Epidemiology and Preventive Medicine, University of Regensburg, Franz-Josef-Strauss-Allee 11, 93053 Regensburg, Germany

ARTICLE INFO

ABSTRACT

Research article

Patients value climate change counseling provided by their pediatrician: The experience in one Wisconsin pediatric clinic

Andrew A Lewandowski ^a   , Perry E Sheffield ^b , Samantha Ahdoot ^c ,

ensus about the risks of climate change on human health, patients' knowledge about health risks is largely unexplored. The current study aimed to investigate the impact of climate-specific medical advice on patients' health literacy and the impact of climate-specific medical advice on health co-benefits.

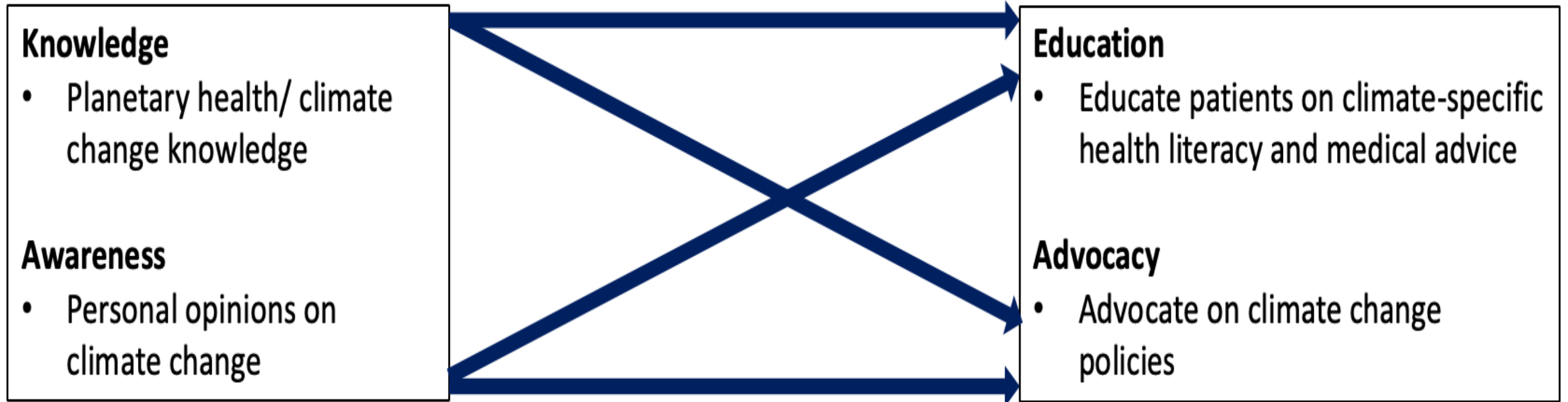
In February 2021, a total of 449 questionnaires comprising 23 items were completed by patients (GPs) and gynecologists.

consultations by physicians (86.6% patients from GPs, 84.5% from gynecologists) about climate change or planetary health. Results indicated that climate-specific health threat (84.3%) rather than a concern for patients' own health related health risks ($p = 0.002$) as well as emotional concern for their health who did not receive advice. Climate-friendly behavior was associated with climate related health-risks ($p < 0.0001$).

Health literacy may play an important role for health co-benefits and climate change mitigation and protect both individual and planetary health, it is crucial to improve health literacy.

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What are the views of physicians in Japan?



Objective: assess the **knowledge, attitude, and practice (KAP)** of physicians in Japan toward climate change and health, their willingness to provide climate-specific advice to patients, and their advocacy for more sustainable healthcare practices and climate change policy.

Methods

A cross-sectional study using a web-based self-administered questionnaire (32 items).

- Licensed physicians who are actively engaged in clinical practice in Japan
- Data collected through PLAMED a medical research platform (Nov. 21-27, 2023)
- An incentive of 100 PLAMED pts (1pt = 1 JPY) was provided

Variables of interest

- Knowledge of climate change
- Awareness of climate change and its impact on human health
- Participation in delivering climate-specific advice to patients
- Advocacy on sustainable healthcare and climate change policy
- Demographic characteristics

RESULTS

Sociodemographic characteristics of the physicians

There were **1,100 physicians** included and analyzed in this study.

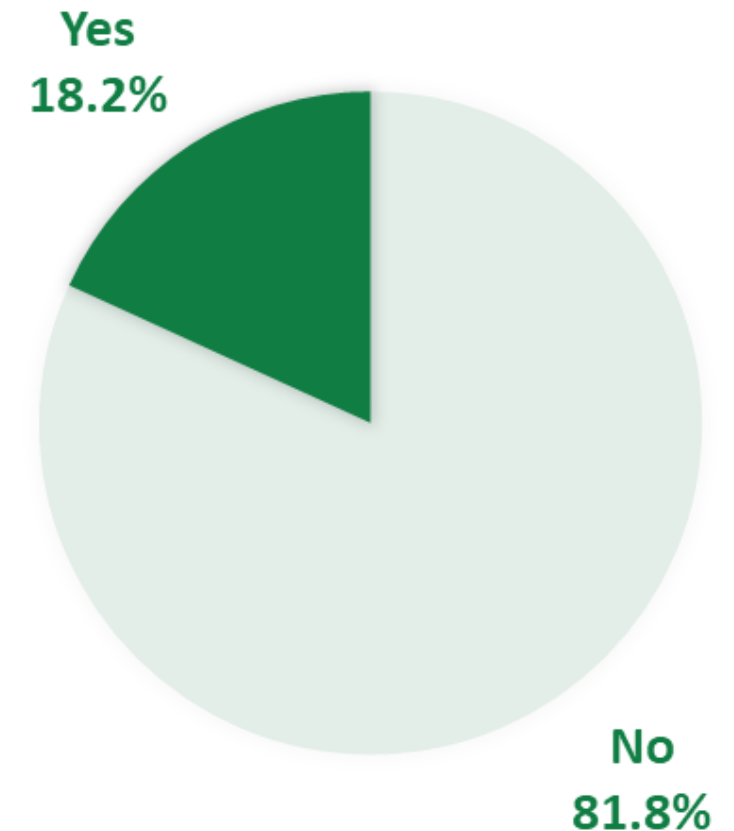
- Mean age 51.2
- 86.5% male
- 53.7% practice in hospitals
- Most represented field was internal medicine (16.1%)
- 64.9% working 20yrs +

Characteristics	Total (n=1,100)	
	n	%
Age mean (SD)	51.2 (SD11.9)	
20-30s	212	19.3
40-50s	571	51.9
60-70s	313	28.5
80-90s	4	0.4
Gender		
Female	133	12.1
Male	952	86.5
Non-binary	14	1.3
Declined to respond	1	0.1
Field of practice (top 6 out of 42)		
Internal medicine	177	16.1
Gastroenterology	88	8.0
Psychiatry	88	8.0
Orthopedics/Plastic Surgery	71	6.5
Pediatrics	58	5.3
Cardiology	57	5.2
Facility where practicing		
Medical clinic	385	35.0
Hospital (excluding hospitals affiliated with medical schools)	591	53.7
Other facility type	124	11.3
Years working as a physician		
1 to 9 years	107	9.7
10 to 19 years	279	25.4
20 years or more	714	64.9

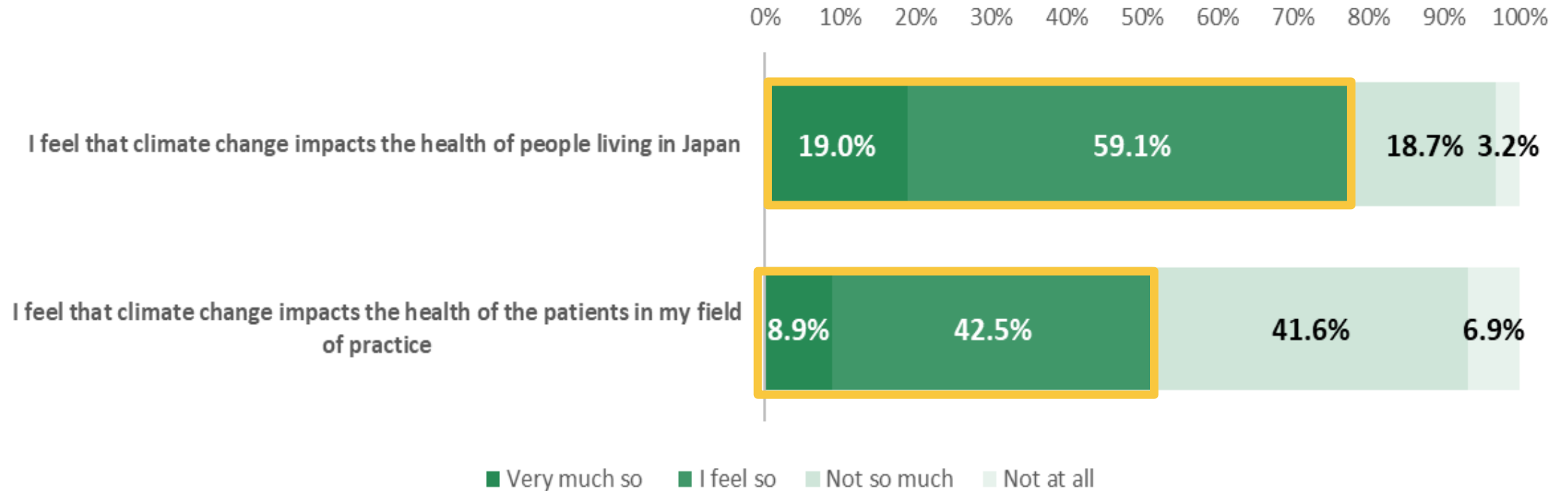
Knowledge of climate change

Knowledge items	Number of correct answers	Percent (%)
How do you think climate change is mainly caused?	521	47.4
Without any intervention to reduce GHG emissions, over the next 20 years the global temperature is expected to reach or exceed how many degrees of warming?	374	34.0
Which health outcome in Japan was classified as high importance due to the impact from climate change?	306	27.8
What percentage is Japan's healthcare sector's climate footprint?	272	24.7

ARE YOU FAMILIAR WITH THE TERM "PLANETARY HEALTH"?



Awareness of climate change and its impact on human health



- **78.1%** of physicians perceive climate change is impacting people's health in Japan, with **51.4%** recognizing this impact among their patients.

Health issues that has already adversely affected by climate change, and predicted to be affected in ten year

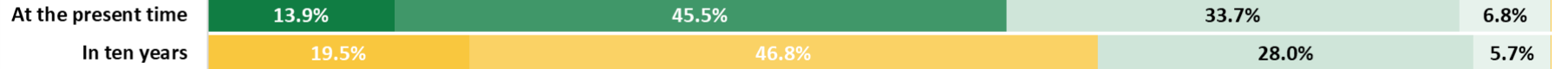
Heat-related illness



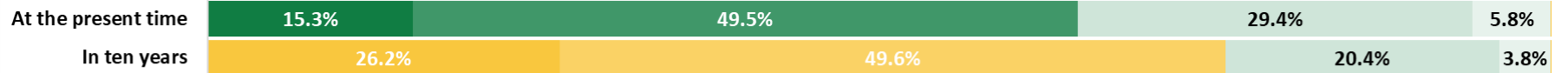
Cold-related illness



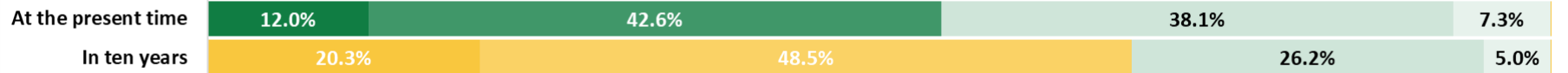
Respiratory illness



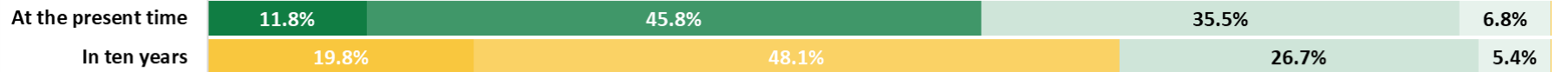
Arthropod-borne diseases



Water-borne infectious disease



Food-borne infectious disease



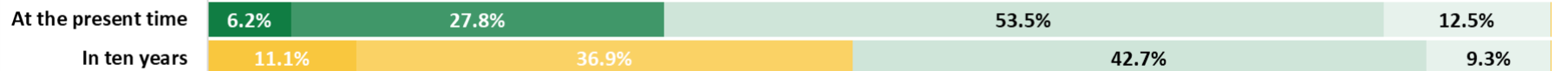
Anxiety, depression, or other mental health conditions



Physical harm and/or injury from extreme weather events



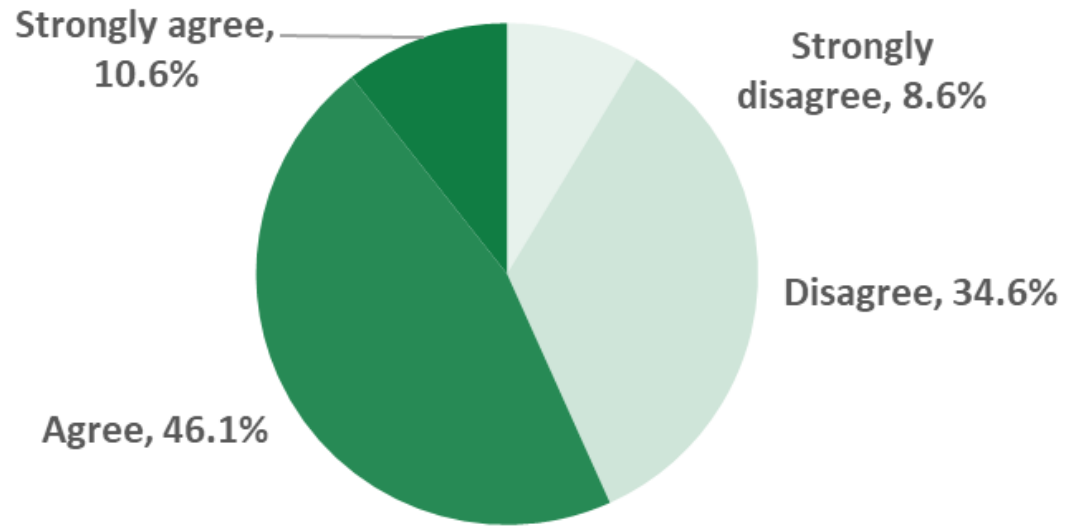
Undernutrition



■ Strongly agree
 ■ Agree
 ■ Disagree
 ■ Strongly disagree
 ■ Strongly agree
 ■ Agree
 ■ Disagree
 ■ Strongly disagree

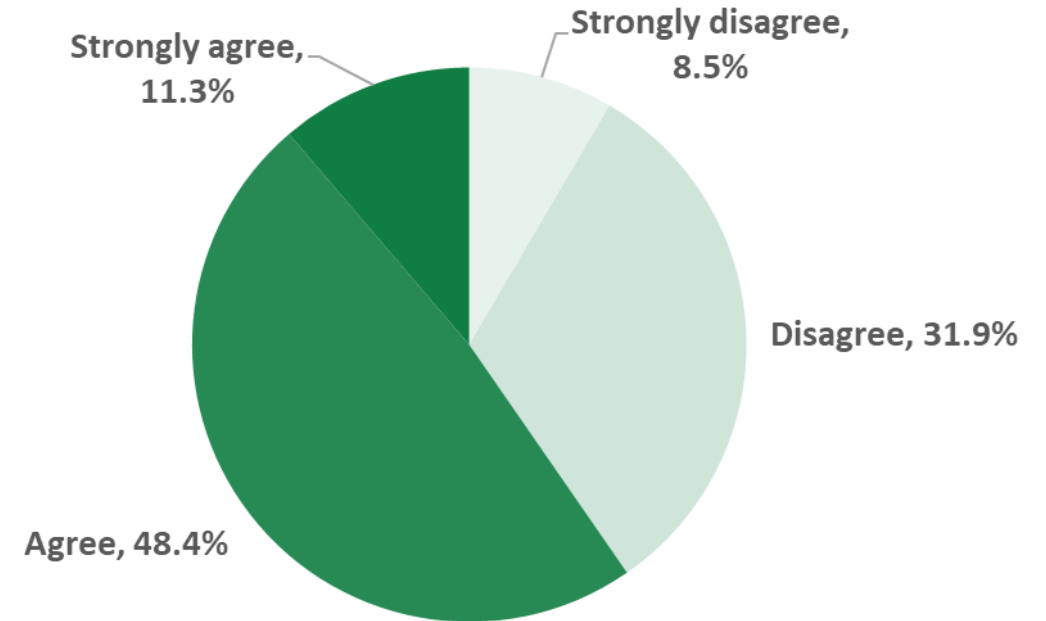
Participation in delivering climate-specific advice to patients

Physicians should advise their patients on the links climate change has on their health



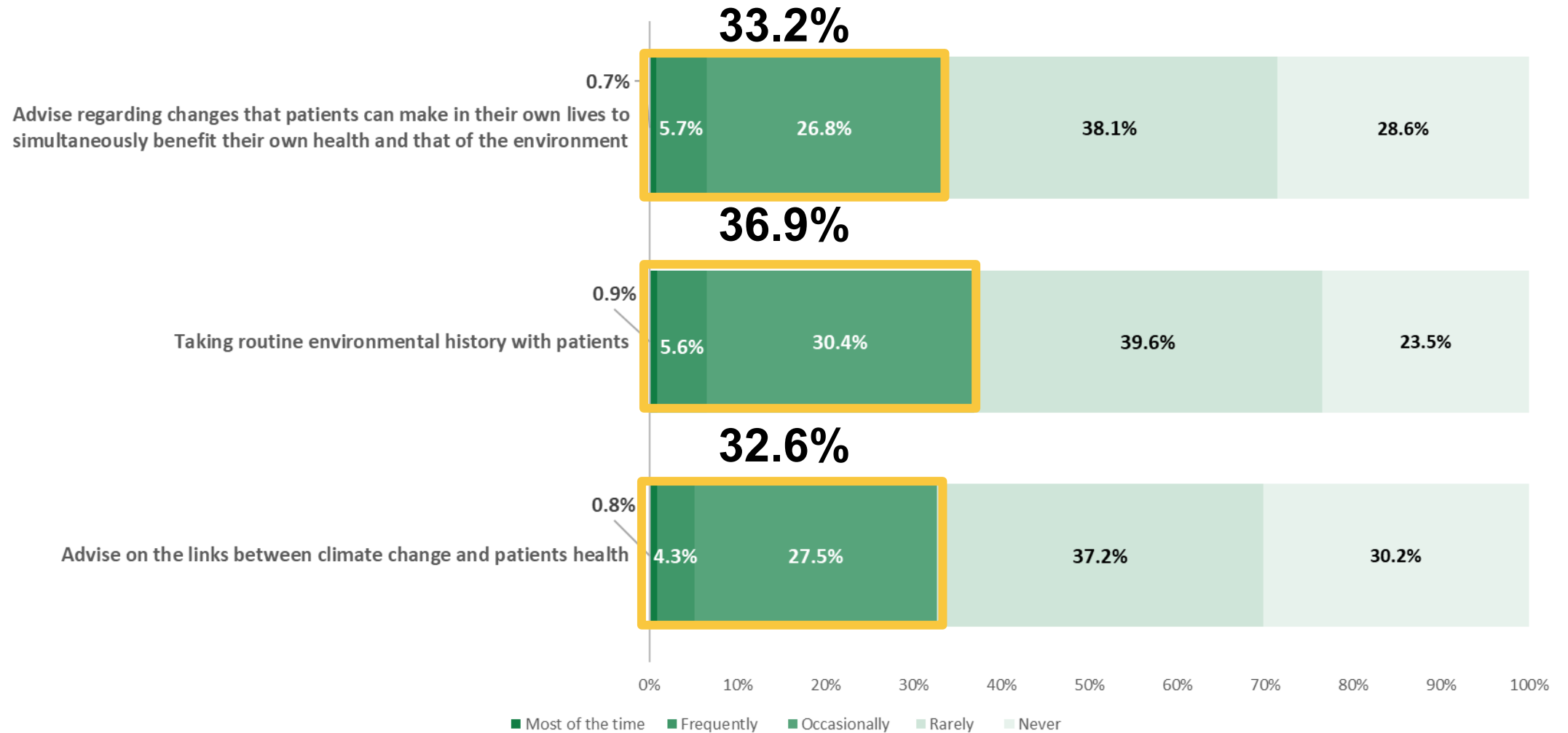
Agree
56.7%

Physicians could play a role in changing the attitude and behaviors of their patients/the public regarding their willingness to engage in more environmentally sustainable lifestyle choices

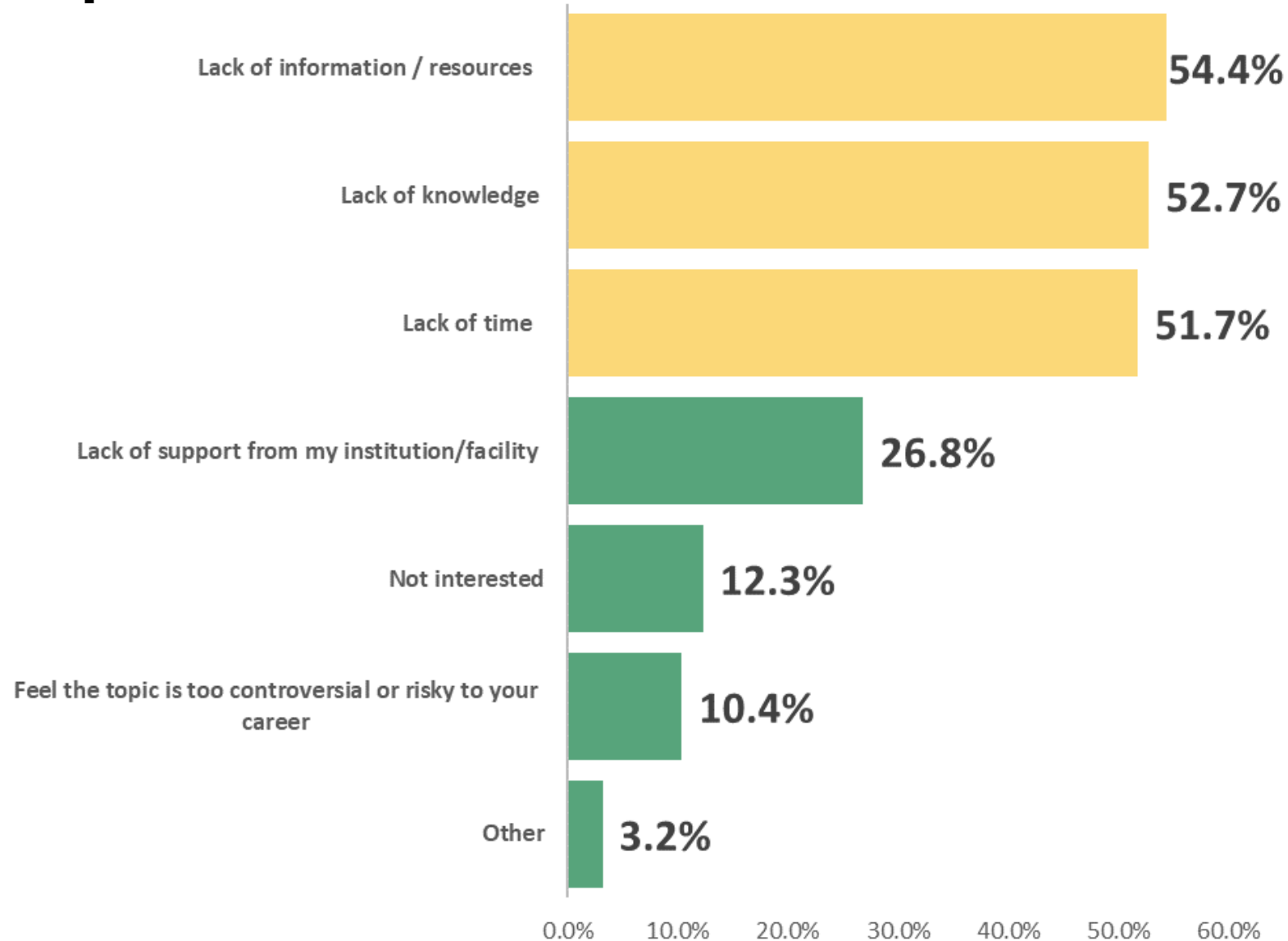


Agree
59.7%

Participation in delivering climate-specific advice to patients

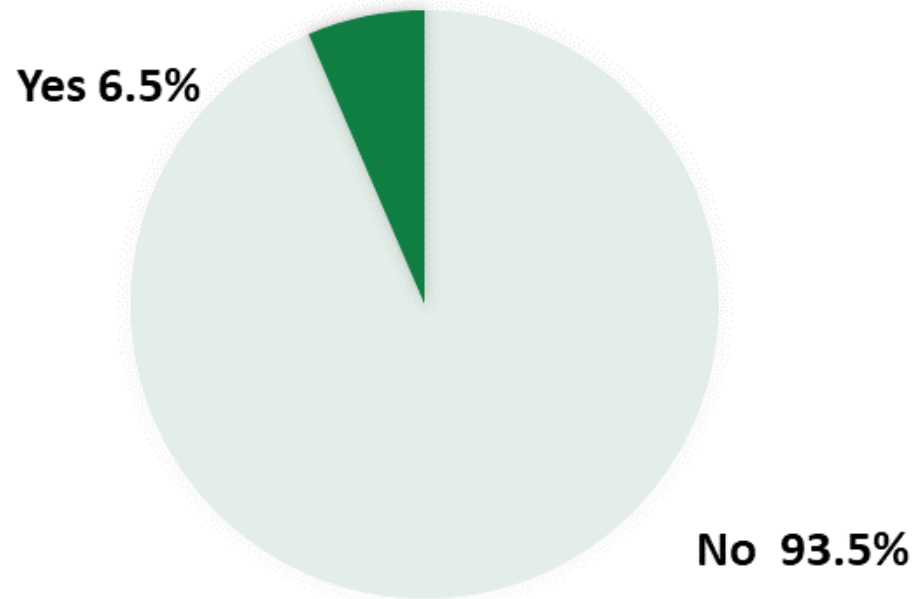


Barriers to engagement in delivering climate-specific advice to patients

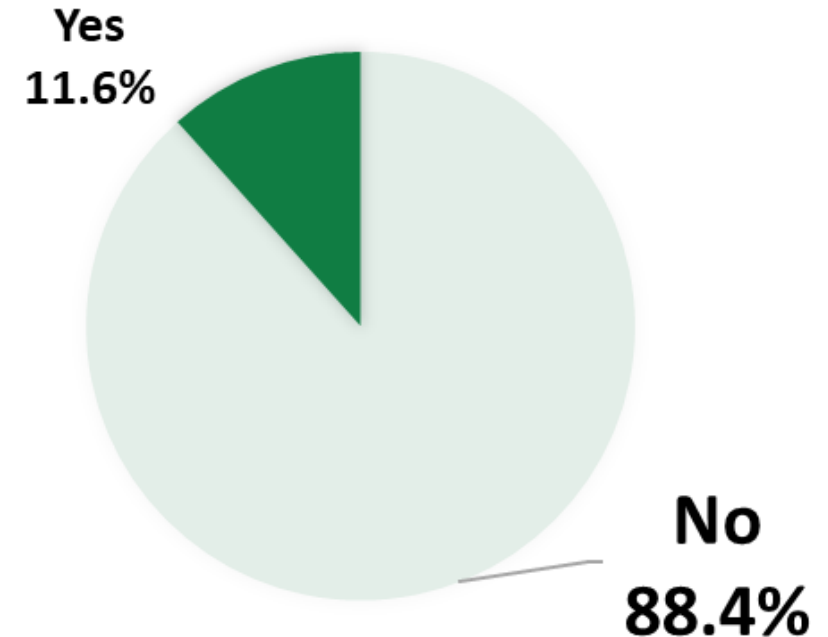


Barriers to engagement in delivering climate-specific advice to patients

ATTENDED COURSES DURING MEDICAL SCHOOL ON PLANETARY HEALTH AND OR CLIMATE CHANGE AND HEALTH

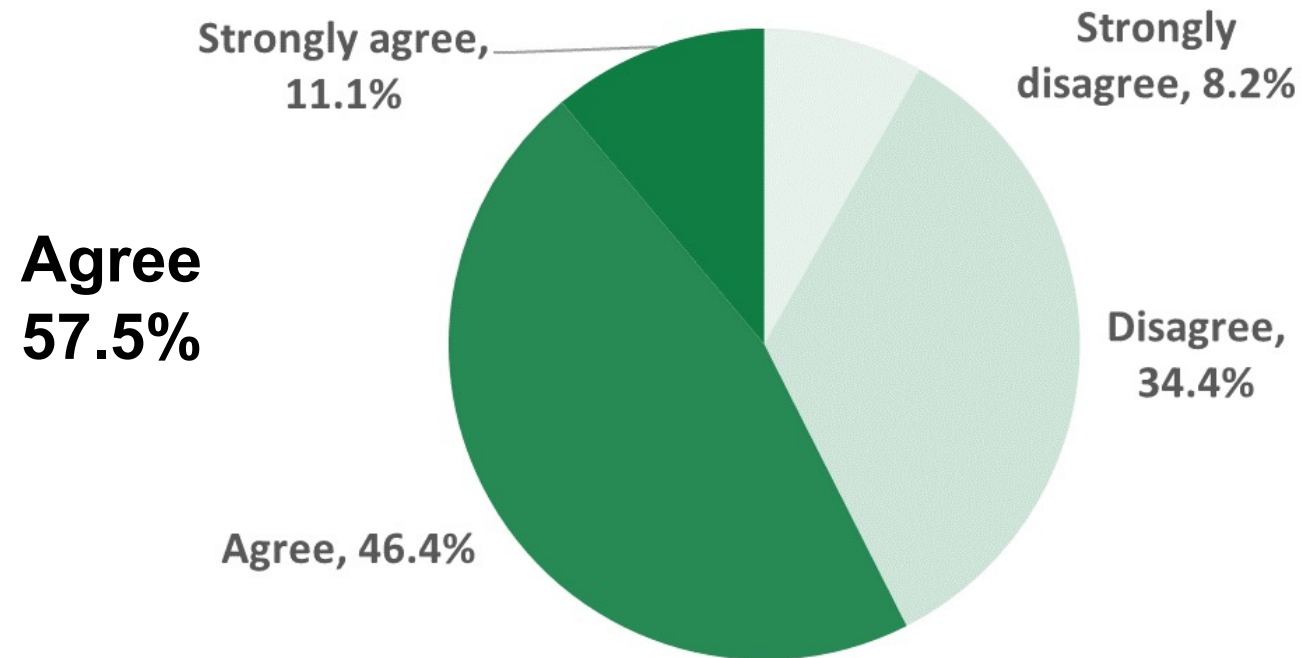


ATTENDED PROFESSIONAL DEVELOPMENT TRAINING ON PLANETARY HEALTH AND OR CLIMATE CHANGE AND HEALTH



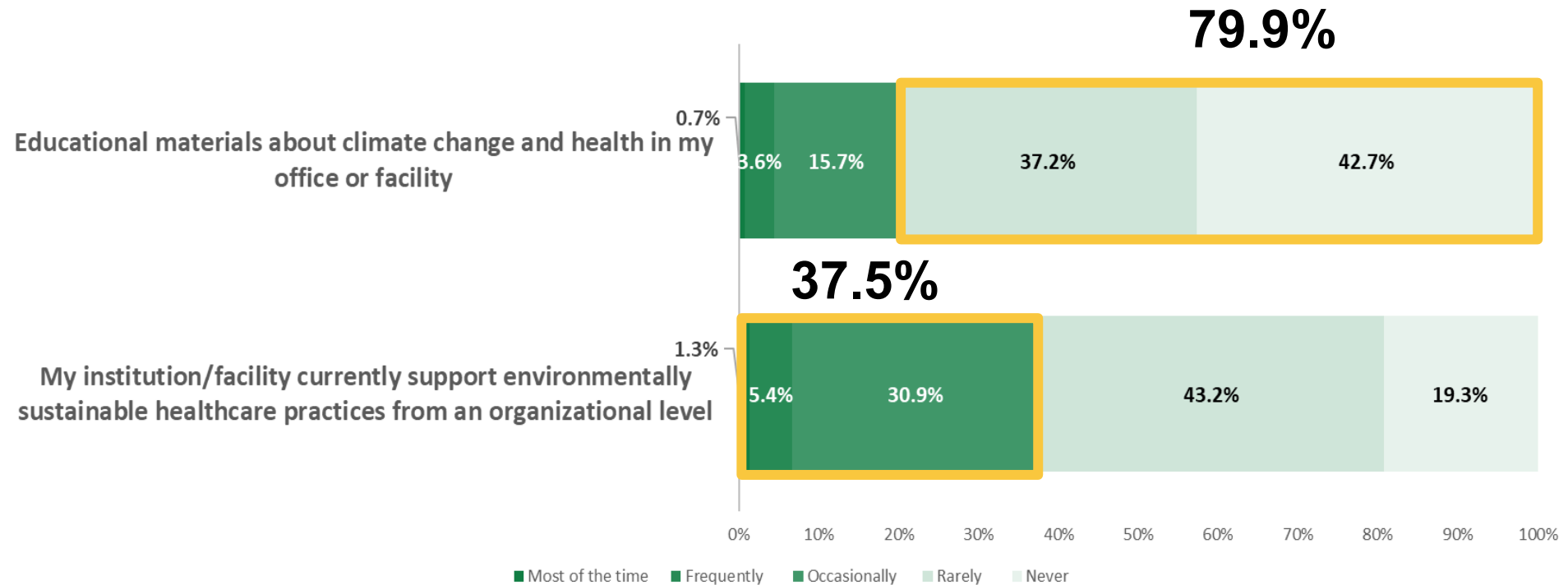
Advocacy on sustainable healthcare and climate change policy

Physicians should advocate within their institution/facility for implementing mitigation measures for more environmentally sustainable healthcare



- **73.9% would personally consider participating in advocacy**
- **68.8% of physicians want more environmentally sustainable options**

Advocacy on sustainable healthcare and climate change policy



- **96.6% are unaware of any climate change-related initiatives or advocacy within the medical associations they are a part of.**

DISCUSSION

Physicians have insufficient knowledge about climate change

- The data suggests that physicians have insufficient knowledge of climate change, previous studies conducted among physicians in other countries had similar findings, that lack of knowledge impeded physicians from engaging in more climate-related initiatives. (Kotcher et al.,2021)

Although physicians recognize the need to advise patients on the links between climate change and their health, they may feel averse to doing so due to insufficient knowledge.

- A study conducted in Thailand showed that physicians' knowledge of the links between the ecosystem and health is significantly associated with whether or not physicians give advice to their patients on how to reduce environmental health risks and increase exposure to more positive environmental factors. (Volker et al., 2022)

There is limited access to education on climate change and health

As adverse health impacts of climate change are expected to become more severe over the coming years, physicians must be sufficiently knowledgeable to assume greater responsibility for patients and public education.

- A German study showed that patients who were informed by physicians about the links between climate change and health had a higher awareness of climate-related health risks and were more willing to engage in more environmentally sustainable lifestyle choices. (Reismann et al., 2021)

Healthcare facilities lack environmentally sustainable healthcare practices

- According to a policy paper by Health Care Without Harm, the climate footprint of Japan's healthcare sector as a percentage of national emissions is 6.4%, placing the nation among the top major emitters by healthcare sector.

More than half of the physicians in this study responded that the facilities where they work, do not support sustainable healthcare practices.

- Greening the healthcare sector has been a growing trend; for example, in England, the NHS England's 2020 strategy outlines a plan for "Delivering a Net Zero National Health Service".

Physicians are willing to engage in advocating for climate-specific policy changes

- More than half of the physicians feel they should advocate within their facilities to promote mitigation measures for more sustainable healthcare practices, but less than half actively engage in any advocacy.

Despite the physicians' high level of interest in engaging in advocacy on climate-specific issues, only 3.4% responded that they were aware of any climate-related initiatives or advocacy opportunities within the professional associations they are a part of.

- A multinational study showed that affective issue involvement has a strong positive association with the perception that climate advocacy is the responsibility of health professionals, which in turn has a strong positive association with willingness to advocate. (Lee et al., 2021)

CONCLUSION

Conclusion

- The climate crisis must be aggressively and quickly addressed at all societal levels to mitigate its effects.
- Physicians are uniquely positioned and committed to participating at various levels in efforts to combat climate change, but they will need to be better equipped with the knowledge, materials, and support to do so.
- Future research could look at longitudinal studies of sustainable behavior change in patients in Japan who have been given climate-specific advice by their physicians.

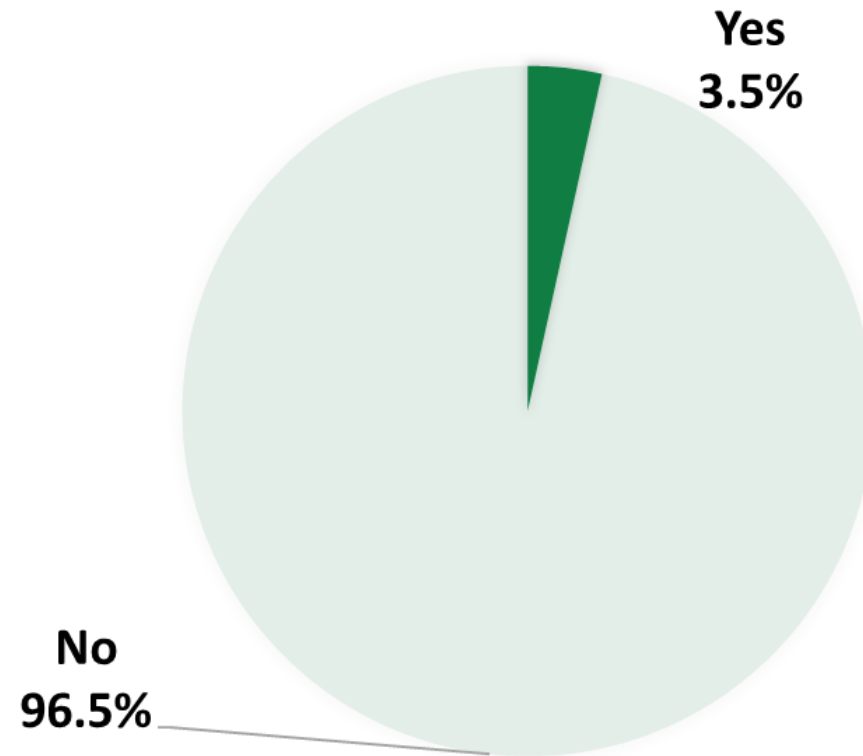


THANK YOU!

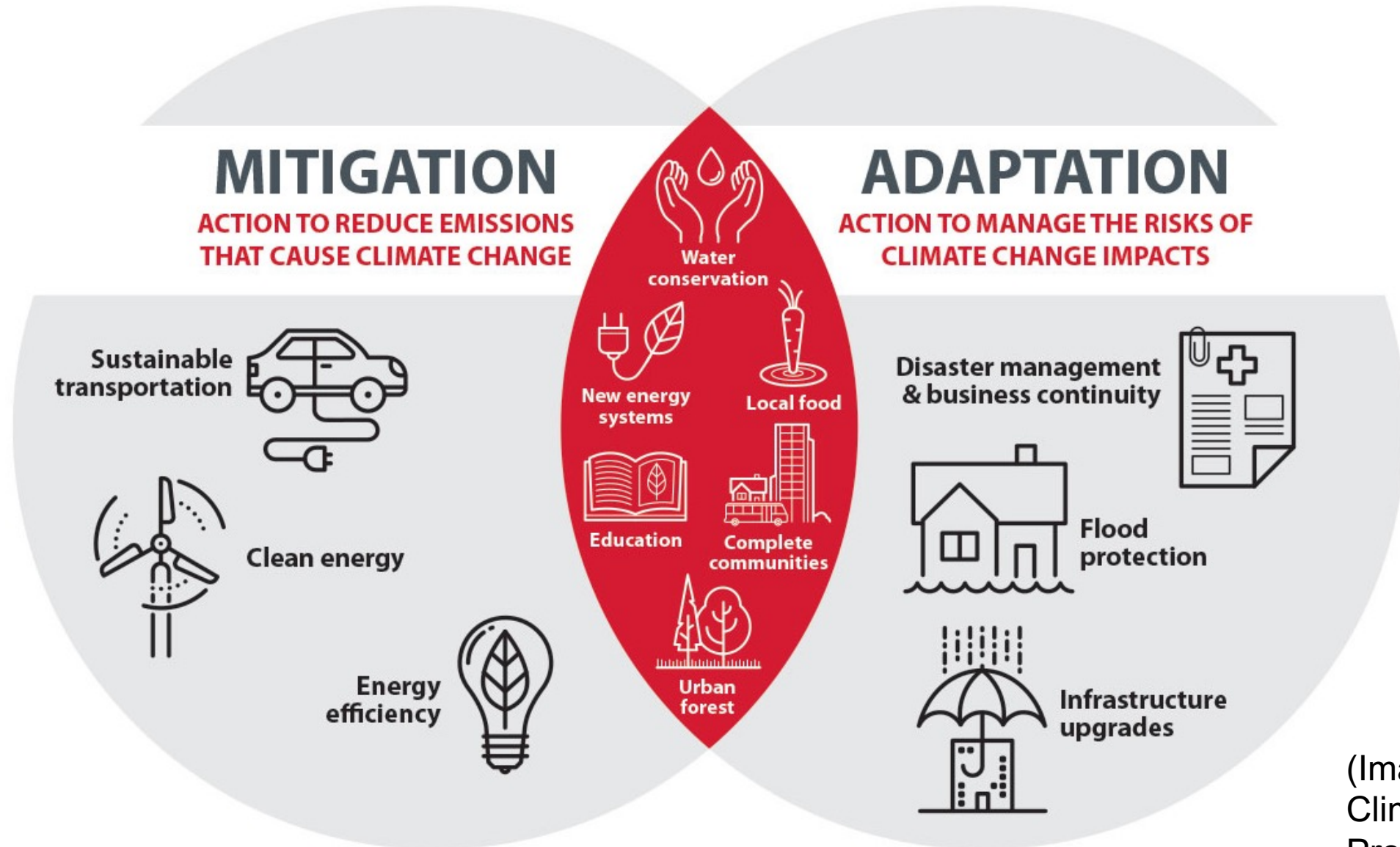
APPENDIX

Medical associations

MEMBERS OF ORGANIZATIONS THAT EDUCATE AND RAISE AWARENESS ABOUT THE RISKS OF CLIMATE CHANGE AND ADVOCATE FOR CLIMATE CHANGE POLICIES



How do we address climate change?



(Image: Calgary Climate Change Program)

Potential health co-benefits through mitigation

Transportation



Shorter travel distances, reduced car use and more active travel through better urban planning, and electrification of the remaining vehicles can benefit health through reducing air pollution, noise pollution, traffic injuries, and physical inactivity.

Agriculture, forestry, and food



Prevention of biodiversity losses can protect human health and global critical ecological systems. Climate change mitigation would also prevent losses in nutritional value in crops from climate change. Reduction in red meat intake would reduce cardiovascular disease and corresponding methane emissions.

Energy



Across different scenarios, depending on the scale and context, shifting to renewables and bioenergy have quantified co-health benefits that exceed mitigation costs. Insufficient evidence exists on the scalability of carbon capture and storage technology.

Industry



Changes in material flows, improved efficiency, and changes in production methods and technologies are associated with health economic co-benefits.

Lifestyle



Individual's lifestyle choices such as investing in insulation, divesting from fossil fuels, and making overall choices in line with strong sustainable principles can provide health and ecosystem co-benefits. These choices are strongly influenced by policy settings.

Interview with Dr. Renee Salas on the effects of climate change on human health and health systems.

Supplement to the N Engl J Med 2019; 381:e13

Renee Salas is an affiliated faculty member at the Harvard Global Health Institute and an emergency medicine physician at Massachusetts General Hospital. Stephen Morrissey, the interviewer, is the Executive Managing Editor of the *Journal*.

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The intersection of health and the climate crisis

with Renee Salas, MD, MPH, MS

Jan. 20, 2022

AMA
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