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GLOBAL VIEWS OF THORACIC SPECIALISTS ON THE HEALTH EFFECTS OF CLIMATE CHANGE

**AN INTERNATIONAL SURVEY OF ATS MEMBERS
EXCLUDING THE UNITED STATES**

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KEY FINDINGS

Overview

Nearly 500 (N=489) ATS members from 68 countries participated in the survey. Half report working in countries in Asia (25%) or Europe (25%), with the remainder in South America (18%), North America (18%), Australia or New Zealand (9%), and Africa (6%). Nearly three-quarters are physicians (70%) and 34% have PhDs. Approximately half work in clinical settings (45% in hospitals, 11% in outpatient clinics), and one-third (38%) work primarily in academic settings. The majority of respondents are male (73%). American members of ATS were not surveyed, because they were the focus of a separate survey reported elsewhere.

There is nearly unanimous agreement among international ATS members that climate change is happening and that it is human-caused.

The vast majority (96%) of ATS members surveyed outside the United States indicated that climate change is happening. Nearly three-quarters indicated that it is caused mostly or entirely by human activities (70%), and an additional 24% indicated that it is caused equally by human activities *and* natural changes in the environment.

The majority of international ATS members believe that climate change is relevant to direct patient care.

Eighty percent (80%) of respondents indicated that climate change is “moderately” or “greatly” relevant to direct patient care. Sixty-nine percent indicated that it is “moderately” (41%) or “greatly” (28%) affecting the health of the patients that they provide care for.

Global ATS members attribute a variety of health issues affecting their patients to climate change.

A large majority of respondents reported currently observing the health impacts of climate change in their patients, and even more anticipated these impacts

would affect their patients in the next 10 to 20 years. The specific results are reported below.

Clinicians provided numerous examples of patients they have seen in their own practices. Examples below illustrate the descriptions they provided of patients with illnesses in categories they associated with climate change. The category, the percentage of physicians that have seen patients with this category of climate change related illness, and a specific quote appear below.

Impact category: "Air pollution-related increases in severity of illness, such as asthma, COPD, pneumonia, and cardiovascular disease." A large majority of respondents had seen patients with this type of climate-related illness currently (88%) or judged they would within 10-20 years (89%).

Mostly, I see severe asthma and COPD exacerbations during periods with very moist and hot weather and during periods of sandstorms. These I see frequently, as I work in Cyprus (Middle East). Many patients without pre-existent lung disease see me with breathlessness, cough and wheeze during sand storms and periods of hot, moist weather. These are increasing in frequency over the past 10 years.

– ATS member from Georgia

Impact category: "Increased care for allergic sensitization and symptoms of exposure to plants and mold." Large proportions of respondents indicated that they see patients in this category currently (72%) or that they expect to within 10-20 years (76%).

[I have a] patient with new onset asthma due to mold in her workplace. The concrete building she works in sits on a mountaintop where extreme rain events and other storms seem to be increasing. The building is now leaking. Maybe not only related to climate change, but our built environment faces new stressors due to climate change.

– ATS member from Canada

Impact category: "Heat-related effects, such as heatstroke, heat exhaustion, and cardio-respiratory illness." Respondents indicated that this category of illness is a problem for their patients currently (69%) or that it will be within 10-20 years (79%).

In the very hot summer 2015 we treated 3 patients with heat stroke, a disease formerly virtually unknown in our region.

– ATS member from Switzerland

Impact category: "Injuries due to severe storms, floods, droughts, and fires." Respondents indicated that this category of illness is a problem currently (69%) or that it will be within 10-20 years (77%), both related to climate change.

There are increasing episodes of flooding and displaced populations in Nigeria over the past few years.

– ATS member from Nigeria

Impact category: "Vector-borne infection, such as Lyme disease, West Nile virus, dengue fever, or malaria." A majority of respondents indicated that this category of illness is a problem for their patients currently (59%) or that it is likely to be within 10-20 years (68%).

We suffered a Chikungunya epidemic in our area.

-- ATS member from Ecuador

Impact category: "Diarrhea from food or waterborne illnesses following downpours or floods, such as Salmonella, Giardia, Cryptosporidium." The proportion that indicated that this is a problem currently was 55%, and 65% within 10-20 years.

I also see quite a few adults with Salmonella or viral diarrhea.

-- ATS member from Cyprus

International ATS members feel somewhat knowledgeable about the association between climate change and health, yet they express a desire for more information.

Only 16% of respondents felt "very knowledgeable" about the health impacts of climate change, while 39% felt "moderately" knowledgeable. Another 39% felt "modestly" knowledgeable, and 6% felt "not at all knowledgeable." A large majority (84%) indicated that continuing medical education (CME) would be helpful to increase their understanding of the issues; a similar proportion (82%) requested patient education materials. Most ATS members outside the United States indicated their support for policy statements regarding climate change by their professional associations.

METHODOLOGY

ATS members outside of the United States were surveyed using an online platform. Recruitment emails were sent to 5,013 individuals, and 1,576 opened the email. The response rate was 9.8%. (It was 31.0% among recipients who opened the recruitment emails). The number of respondents to each question (n) and unweighted proportions of valid responses are presented for closed-ended questions. Confidence intervals (95%) were calculated using the total number of valid responses per question (n) and the observed proportion for each item. Responses to open-ended items were reviewed by two researchers per question. A representative selection of open-ended comments were selected for inclusion in the formal report; priority for selection was placed on relevance to the question posed. All open-ended responses (including tangential comments) are found in the appendix.

This survey is designed with the presumption that climate change is occurring, based on scientific consensus across multiple disciplines.^{1,2,3} (Although respondents were given the option to indicate that they think climate change is not happening in several questions and these results are also included here.) The survey bases its working definition on that of the Intergovernmental Panel on Climate Change (IPCC), which refers to climate change as “a change in the state of the climate that can be identified (e.g., using statistical changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer).”⁴

¹ Anderegg, WRL. Expert credibility on climate change. *Proceedings of the National Academy of Sciences*, 2010; 107(27): 12107-12109.

² Doran, PT & Zimmerman, MK. Examining the scientific consensus on climate change. *Eos Transactions American Geophysical Union*, 2009; 90(3): 22.

³ Oreskes, N. Beyond the ivory tower: the scientific consensus on climate change. *Science*, 2004; 306(5702):1686.

⁴ Intergovernmental Panel on Climate Change. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Field, CB, Barros VR, Dokken DJ et al. (eds). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2014.

RESULTS

Climate change refers to the idea that the world’s average temperature has been increasing over the past 150 years, may be increasing more in the future, and that the world’s climate is changing as a result.

1. What do you think: Do you think that climate change is happening?

(95% CI: +/- 2 or less)

	n	%
Yes	456	96
Extremely sure	7	2
Very sure	92	20
Somewhat sure	204	45
Not at all sure	149	33
No	9	2
Extremely sure	2	22
Very sure	1	11
Somewhat sure	3	33
Not at all sure	3	33
Don't Know	11	2
Total	476	100

2. Do you think climate change over the past 150 years was...

(95% CI: +/- 4 or less)

	n	%
Caused entirely by human activities	51	11
Caused mostly by human activities	280	59
Caused about equally by human activities and natural changes in the environment	114	24
Caused mostly by natural changes in the environment	19	4
Caused entirely by natural changes in the environment	5	1
None of the above because climate change isn't happening	2	1
Total	471	100

3. How knowledgeable do you feel about the association between climate change and health impacts?

<i>(95% CI: +/- 4 or less)</i>	n	%
Not at all knowledgeable	30	6
Modestly knowledgeable	183	39
Moderately knowledgeable	183	39
Very knowledgeable	74	16
Total	470	100

4. How much, if at all, do you think climate change is relevant to direct patient care?

<i>(95% CI: +/- 4 or less)</i>	n	%
Not at all	9	2
Only a little	64	14
A moderate amount	191	41
A great deal	189	40
Don't know	17	4
Total	470	100

5. How much, if at all, do you think climate change is affecting the health of your patients?

<i>(95% CI: +/- 4 or less)</i>	n	%
Not at all	14	3
Only a little	67	14
A moderate amount	192	41
A great deal	133	28
Don't know	22	5
I don't currently see patients	40	9
Total	468	100

6. How much, if at all, do you think climate change is affecting the health of your patients currently?

(95% CI: +/- 5 or less)

	Yes	No	Don't know	Total Responses
	n (row %)	n (row %)	n (row %)	
1. Heat-related effects (e.g., heatstroke, heat exhaustion, cardio-respiratory illness)	283 (70%)	77 (19%)	48 (12%)	408
2. Vectorborne infection (e.g. Lyme, West Nile, Dengue Fever, Malaria)	283 (59%)	93 (23%)	75 (19%)	406
3. Diarrhea from food/waterborne illnesses (e.g. Salmonella, Giardia, Cryptosporidia) following downpours or floods	223 (55%)	105 (26%)	77 (19%)	405
4. Injuries due to severe storms, floods, droughts, fires	282 (69%)	87 (21%)	38 (9%)	407
5. Air pollution related increases in severity of illness (e.g., asthma, COPD, pneumonia, cardiovascular disease)	358 (88%)	28 (7%)	23 (6%)	409
6. Increased care for allergic sensitization and symptoms of exposure to plants or mold (visits to office/ER for asthma/allergic symptoms)	291 (72%)	39 (10%)	75 (19%)	405

7. How much, if at all, do you think climate change will affecting the health of your patients in the next 10-20 years?

(95% CI: +/- 5 or less)

	Yes	No	Don't know	Total Responses
	n (row %)	n (row %)	n (row %)	
1. Heat-related effects (e.g., heatstroke, heat exhaustion, cardio-respiratory illness)	292 (79%)	28 (8%)	51 (14%)	371
2. Vectorborne infection (e.g. Lyme, West Nile, Dengue Fever, Malaria)	250 (68%)	27 (7%)	91 (25%)	368
3. Diarrhea from food/waterborne illnesses (e.g. Salmonella, Giardia, Cryptosporidia) following downpours or floods	240 (65%)	42 (11%)	90 (24%)	372
4. Injuries due to severe storms, floods, droughts, fires	285 (77%)	31 (8%)	54 (15%)	370
5. Air pollution related increases in severity of illness (e.g., asthma, COPD, pneumonia, cardiovascular disease)	330 (89%)	16 (4%)	23 (6%)	369
6. Increased care for allergic sensitization and symptoms of exposure to plants or mold (visits to office/ER for asthma/allergic symptoms)	278 (76%)	16 (4%)	74 (20%)	368

8. Please describe if you have a relevant anecdote about a patient who has experienced one of these impacts.

Selection of representative responses. The country where the respondent works follows the quote. See Appendix for all responses (n=43).

Europe

In my pediatric hospital in the last 5 years there have been increases in gastroenteric diseases during the whole year. – Italy

In the very hot summer 2015 we treated 3 patients with heat stroke, a disease formerly virtually unknown in our region. – Switzerland

Asia

I see about 5 patients per year with heat stroke. I also see quite a few adults with Salmonella or viral diarrhea. Mostly, I see severe asthma and COPD exacerbations during periods with very moist and hot weather and during periods of sandstorms. These I see frequently, as I work in Cyprus (Middle East). Many patients without pre-existent lung disease see me with breathlessness, cough and wheeze during sand storms and periods of hot, moist weather. These are increasing in frequency over the past 10 years. – Georgia

On one of dusty days due to desert dust storm in Gaziantep, the Southeast Turkey, I saw a patient with COPD exacerbation at outpatients' clinics, and asked what the reason he thought about his symptoms. He said that his symptoms started with dust storm, and he stated that there were more dust storms comparing the old days, when he was young. I asked what he thought about the cause of more dust storms. He said that he believed this was due to global climate change and temperature increase. I hear these kinds of anecdotes more from my patients comparing to old days when I started as a young physician. – Turkey

More and more COPD acute exacerbation patients came to hospital, climate change caused by air pollution would be an important reason. – China

Air pollution in Jakarta caused by motor vehicles releasing exhaust fumes results in the increase prevalence of asthmatic and bronchitis patients. The illegal burning of forest in the island Sumatra and Kalimantan also has an impact of the increased number of respiratory diseases such as asthma, COPD, pneumonia and upper respiratory tracts infection. – Indonesia

Frequency and severity of Bronchial Asthma, COPD and related cardiovascular diseases are increasing and causing increased hospital bed occupancy as well as health related budget. – Bangladesh

In our area, the patients with sickle cell disease are more affected with climate changes and developing frequent painful VOC (venous occlusive crises) episodes. – Saudi Arabia

Africa

We had about 100 people die from heat stroke this year because of high temperature. I think the land temperature is increasing and it will continue

to increase in the coming years and this will have great impact on humans and also patients' lifestyle as well. -- Egypt

There are increasing episodes of flooding and displaced populations in Nigeria over the past few years. -- Nigeria

South America

Change in the classic characteristic of the seasons, make winters warmer with abrupt change of humidity and temperature which apparently increases the rate of COPD and asthma exacerbations. – Argentina

Respiratory disease: pneumonia, asthma, bronchiolitis and apnea in small infants due to air pollution. – Chile

North America

Cryptococcus gattii in the Pacific Northwest is felt to be due to climate change. – Canada

In our part of Canada (northern), we did not have long summers and therefore most houses (even cars) do not need air conditioning. In the last 2-3 years however, peak summer temperatures have gone up noticeably and stayed up for longer periods of time. As a result, those people who have not installed air conditioning in their houses find it difficult to fall asleep and stay asleep at night in the summer months. In our practice, we have seen an increase in the frequency and intensity of complaints relating to the lack of sleep and poor sleep quality, not just in the summer months, but lingering through subsequent seasons. – Canada

Patient with new onset asthma due to mold in her workplace. The concrete building she works in sit on a mountain top where extreme rain events and other storms seem to be increasing. The building is now leaking. Maybe not only related to climate change, but our built environment faces new stressors due to climate change. – Canada

Australia

Seasonal allergy to grass pollens and to house dust mites is clearly occurring over a much longer period of time for my patients due to increased humidity arising out of climate change. – Australia

Sensation of dyspnoea is increasing for the hot periods that are longer and the degree of humidity is enhancing. – French Polynesia

9. Which of the following, if any, are barriers that prevent you from addressing climate change-related health issues with patients?

<i>(95% CI: +/- 5 or less)</i>	Strongly Agree n (row %)	Agree n (row %)	Neutral n (row %)	Disagree n (row %)	Strongly Disagree n (row %)	Total Responses
Climate change is not occurring	8 (2%)	21 (5%)	31 (8%)	126 (31%)	217 (54%)	403
My patients would not be interested or knowledgeable enough about climate impacts to discuss this issue	20 (5%)	99 (24%)	98 (24%)	155 (38%)	34 (8%)	406
Lack of time	34 (8%)	162 (40%)	105 (26%)	81 (20%)	26 (6%)	408
Lack of knowledge regarding how to approach the issue with my patients	34 (8%)	152 (37%)	96 (24%)	100 (25%)	24 (6%)	406
Addressing these issues with my patient will not make much difference in their overall health	24 (6%)	86 (21%)	103 (26%)	145 (36%)	44 (11%)	402

10. Which of the following, if any, are barriers that prevent you from addressing climate change-related health issues with patients? (Other / open-ended responses)

Selection of representative responses. See Appendix for all responses (n=20)

Health Literacy / Cultural Competency

Appropriate terms to describe it in patient's local dialect. -- Nigeria

Patients' beliefs may complicate the time limitations. -- Canada

Fearing a political discourse. -- Canada

Patients I see have different priorities. Climate change is not usually one of them... -- Canada

Lack of Physician Resources or Interest

Lack of funding, no recognition by insurance companies. -- Canada

No means to alter the situation for my patients. -- New Zealand

Strength of association between climate change and health effects is variable and merits more accuracy. -- India

Relative priority compared to other things I could address with them. -- Australia

Social and Economic Disparities

Economic status. -- Philippines

Poverty. -- Nigeria

Social security awareness. -- Colombia

11. How much do you agree or disagree with the following statements?

<i>(95% CI: +/- 5 or less)</i>	Strongly Agree n (row %)	Agree n (row %)	Neutral n (row %)	Disagree n (row %)	Strongly Disagree n (row %)	Total Responses
The primary hospital that I admit to is well prepared for climate-related events (e.g., disasters/emergencies, extreme weather events, increase in certain diseases, etc.)	18 (5%)	96 (25%)	97 (25%)	117 (30%)	60 (16%)	388
My primary place of work does an effective job minimizing its use of fossil-fuels (e.g., conserving energy/water, recycling equipment, etc.)	29 (7%)	92 (21%)	105 (25%)	133 (31%)	70 (16%)	429
Teaching about environment (e.g., climate change) and its association with health impacts should be integrated into medical education	185 (43%)	201 (46%)	36 (8%)	5 (1%)	6 (1%)	433

Physicians should have a significant advocacy role in relation to climate change and health	174 (40%)	192 (45%)	51 (12%)	6 (1%)	8 (2%)	431
My medical societies should have a significant advocacy role in relation to climate change and health	204 (47%)	182 (42%)	27 (6%)	13 (3%)	7 (2%)	433
I feel that actions I take in my personal and/or professional life can contribute to effective action on climate change	124 (29%)	204 (47%)	73 (17%)	24 (6%)	9 (2%)	434
Physicians have a responsibility to bring the health effects of climate change to the attention of their patients	138 (32%)	209 (48%)	62 (14%)	19 (4%)	5 (1%)	433

Physicians have a responsibility to bring the health effects of climate change to the attention of the public	141 (33%)	201 (46%)	69 (16%)	15 (4%)	8 (2%)	434
Physicians should have a leadership role in encouraging offices, clinics, hospitals to be as environmentally sustainable as possible	169 (39%)	196 (45%)	50 (12%)	12 (3%)	7 (2%)	434

12. Which of the following, if any, would be helpful to you?

(95% CI: +/- 5 or less)	Strongly Agree n (row %)	Agree n (row %)	Neutral n (row %)	Disagree n (row %)	Strongly Disagree n (row %)	Total Responses
Policy statements provided by my professional associations	154 (36%)	213 (49%)	54 (13%)	7 (2%)	5 (1%)	433
Continuing medical education (CME) on climate change and health	147 (34%)	218 (50%)	58 (13%)	6 (1%)	4 (1%)	433
Patient education materials	134 (31%)	221 (51%)	64 (15%)	10 (2%)	4 (1%)	433
Other	16 (29%)	7 (13%)	32 (57%)	0 (0%)	1 (2%)	56

13. Which of the following, if any, would be helpful to you? (Other / open-ended responses)

Selection of representative responses. See Appendix for all responses (n=27).

Europe

Government intervention. – Germany

TV spots to augment public awareness. – Turkey

Asia

Academic society. – China

Mass media for information dissemination. – Philippines

Media. – India

Snippets in various forms: Twitter, video clips, small texts. – India

Community meetings. – India

Africa

Advertorials. – Nigeria

Government policy addressing climate change and health. – Nigeria

Institutional policy statements on climate change and environmental sustainability. – Nigeria

North America

Active lobbying of local and federal politicians. – Canada

Increase research funding into the area. – Canada

Note that reviews of the published science examining the cases and presence of climate change show that 99% attribute this to human activities. – Canada

South America

Government advocacy. – Peru

Section included in respiratory journals. – Colombia

Australia

It is not the organization or the medical / nursing staff that are not taking appropriate actions regarding these issues BUT rather the younger office / support staff who do not recycle their plastics, leave computers on overnight, leave lights on, etc. – New Zealand

Lobbying governments. – Australia

14. Which, if any, of the following groups will disproportionately experience any negative health effects from climate change (N=474)?

(95% CI: +/- 4 or less)

	n	%
None of the below because climate change is not happening	7	1
Young children ages 0 to 4	349	71
Older children ages 5 to 17	177	36
Young adults ages 18 to 39	92	19
Middle aged adults ages 40 to 60	82	17
Older adults ages 60+	340	70
People with chronic diseases	372	76
The poor and the working poor	313	64
People of color	77	16

15. Outside your role as a health professional, to what degree have you personally experienced climate change?

(95% CI: +/- 4 or less)

	n	%
Not at all	25	6
Only a little	133	31
A moderate amount	174	41
A great deal	87	20
Don't know	11	3
Total	430	100

16. How much do you trust each of the following as a source of information about the potential health effects of climate change?

<i>(95% CI: +/- 5 or less)</i>	Strongly Distrust n (row %)	Distrust n (row %)	Neutral n (row %)	Trust n (row %)	Strongly Trust n (row %)	Don't Know n (row %)	Total
American Thoracic Society	10 (2%)	7 (2%)	33 (8%)	154 (36%)	216 (50%)	10 (2%)	430
Swedish Academy of Sciences and National Knowledge Center for Climate Change Adaptation	7 (2%)	7 (2%)	75 (18%)	121 (29%)	113 (27%)	101 (24%)	424
Intergovernmental Panel on Climate Change (IPCC)	8 (2%)	21 (5%)	100 (24%)	122 (29%)	81 (19%)	91 (22%)	423
World Health Organization	11 (3%)	13 (3%)	44 (10%)	161 (38%)	190 (45%)	9 (2%)	428
UN Climate Change Framework Convention and UN Environmental Programme	8 (2%)	13 (3%)	64 (15%)	151 (36%)	139 (33%)	47 (11%)	422

European Climate Change Programme and European Environment Agency	9 (2%)	11 (3%)	67 (16%)	146 (34%)	136 (32%)	57 (13%)	426
National Aeronautic and Space Administration (NASA)	9 (2%)	15 (4%)	70 (17%)	160 (38%)	120 (28%)	50 (12%)	424

17. Which of the following degrees or certifications do you hold? [check all that apply]

	n	%
MD/DO (or equivalent)	342	70
PhD (or equivalent)	167	34
PA or CRNP	2	<1
RN	1	<1

18. What is, or if retired was, your primary work setting?

<i>(95% CI: +/- 3 or less)</i>	n	%
Outpatient (clinical)	47	11
Academic	162	38
Hospital (clinical)	189	45
Non-clinical Administrative	1	<1
Other non-clinical	16	4
Other clinical	8	2
Total	423	100

19. Which best describes your practice or type of work?

(95% CI: +/- 5 or less)

	n	%
Primary Care / Internal Medicine / Family Medicine	10	2
Pulmonary Medicine	223	52
Critical Care or Intensive Care Medicine	44	10
Sleep Medicine	13	3
Pediatrics	20	5
Scientific Research	59	14
Occupational / Environmental Medicine	11	3
Other Specialty of Internal Medicine	17	4
Surgical Specialty / Sub-Specialty	2	<1
Other Practice	7	2
I do not see patients	11	3
Retired	10	2
Total	427	100

20. In which country do you work?

(95% CI: +/- 4 or less)	n	%
Benin	1	0
Bosnia and Herzegovina	1	0
Bulgaria	1	0
Chile	1	0
Croatia	1	0
Curacao	1	0
Cyprus	1	0
Czech Republic	1	0
Ecuador	1	0
Ethiopia	1	0
French Polynesia	1	0
Hong Kong	1	0
Hungary	1	0
Iraq	1	0
Korea	1	0
Mozambique	1	0
Pakistan	1	0
Puerto Rico	1	0
Serbia	1	0
Singapore	1	0
Trinidad and Tobago	1	0
Tunisia	1	0
Bangladesh	2	0
Costa Rica	2	0
El Salvador	2	0
Greece	2	0
Guatemala	2	0
Indonesia	2	0
Lebanon	2	0
Lithuania	2	0
Oman	2	0
Panama	2	0
Russia	2	0
Saudi Arabia	2	0
Spain	2	0
Thailand	2	0
UAE	2	0
Iran	3	0
Ireland	3	0
Israel	3	0
Romania	3	0

Sweden	3	0
Taiwan	3	0
Vietnam	3	0
Norway	4	1
Peru	4	1
Belgium	5	1
Mexico	5	1
Philippines	5	1
Colombia	6	1
Netherlands	6	1
Argentina	7	1
Egypt	7	1
New Zealand	7	1
Switzerland	9	2
Italy	10	2
China	11	2
Nigeria	11	2
France	12	2
Turkey	12	2
Japan	18	4
UK	20	4
Germany	21	4
India	21	4
Australia	27	6
Brazil	40	8
Canada	69	14
No country specified	79	16
TOTAL	489	100

21. What is your gender?

<i>(95% CI: +/- 4 or less)</i>		
	n	%
Female	111	23
Male	312	64
Prefer not to answer	4	1
Total	427	100

22. What is your age?

<i>(95% CI: +/- 5 or less)</i>	n	%
18-30	31	7
31-50	209	49
51-65	145	34
66+	40	9
Prefer not to answer	4	1
Total	429	100

APPENDIX

If you have a relevant anecdote about a patient who has experienced one of these impacts, please describe:	In which country do you work?
In my city, two days ago, a young man died when he was practicing cycling by dehydration in the afternoon because the heat.	Brazil
In my pediatric hospital in the last 5 years there have been increases in gastroenteric diseases during the whole year	Italy
Air pollution in Jakarta caused by motor vehicles releasing exhaust fumes results in the increase prevalence of asthmatic and bronchitis patients. The illegal burning of forest in the island Sumatra and Kalimantan also has an impact of the increased number of respiratory diseases such as asthma, COPD, pneumonia and upper respiratory tracts infection	Indonesia
An increased number of patients suffering from early Atopy, are been consulting in visits to office. They complain of eczema, rhinitis and asthma symptoms in older age. That happens in adult age.	Argentina
Augmentation of dyspnea in exposure to hot climates	Colombia
Change in the classic characteristic of the seasons, make a winters warmer with abrupt change of humidity and temperature which apparently increases the rate of COPD and asthma exacerbations.	Argentina
COPD, heat stroke, asthma, cardiovascular	
Cryptococcus gattii in the pacific northwest is felt to be due to climate change	Canada
Frequency and severity of Bronchial Asthma, COPD and related cardiovascular diseases are increasing and causing increased hospital bed occupancy as well as health related budget.	Bangladesh
Generally: Cities have plans for extreme heat events; more attention than ever is being paid to air quality (thank goodness!); allergies are increasing; smoke from forest fires is affecting the population more than ever...	Canada
I am from Delhi, India. I am 40 years old. My birthday is in month of October and an important festival 'Diwali' is in November. I remember I used to wear sweaters on my birthday and on Diwali when I was young. Now we wear half sleeve shirts till start of December. In my childhood, there were mosquitoes till about September-early October only. Now we have mosquitoes till December. In recent past my wife, son and daughter have caught Dengue, thankfully a no shock, non-hemorrhagic severity.	India
I have become allergic at the age of 50, never being in the past and not having a family history	Italy
I have multiple asthmatic patients who have travelled to areas of China with high PM in the air who have since had difficulty to control asthma.	Canada

I see a lot of patients with naso-bronchial allergy, bronchial asthma due to environmental predisposing factors.	Oman
I see about 5 patients per year with heat stroke. I also see quite a few adults with Salmonella or viral diarrhea. Mostly, I see severe asthma and COPD exacerbations during periods with very moist and hot weather and during periods of sandstorms. These I see frequently, as I work in Cyprus (Middle East). Many patients without pre-existent lung disease see me with breathlessness, cough and wheeze during sand storms and periods of hot, moist weather. These are increasing in frequency over the past 10 years.	Cyprus
In our area, the patients with sickle cell disease are more effected with climate changes and developing frequent painful VOC [vaso-occlusive crises] episodes.	Saudi Arabia
In our part of Canada (northern), we did not have long summers and therefore most houses (even cars) do not need air conditioning. In the last 2-3 years however, peak summer temperatures have gone up noticeably and stayed up for longer periods of time. As a result, those peoples who have not installed air conditioning in their houses find it difficult to fall asleep and stay asleep at night in the summer months. In our practice, we have seen an increase in the frequency and intensity of complaints relating to the lack of sleep and poor sleep quality, not just in the summer months, but lingering through subsequent seasons.	Canada
In the very hot summer 2015 we treated 3 patients with heat stroke, a disease formerly virtually unknown in our region.	Switzerland
Increased COPD exacerbation in my patient who had been stable for several years	Philippines
Lung cancer ranked as third cause of all mortality, not only due to smoking but possibly due to air pollution.	
More and more COPD acute exacerbation patients came to hospital, climate change caused by air pollution would be an important reason.	China
More episode of viral infections and bronchospasm symptoms	Peru
More flooding, more malnutrition and ill-health.	Nigeria
No anecdote, but a remark about the discussion whether or not the human factor exists. If we make the assumption that it is only the natural factor which is driving the climate change, we cannot influence much. If we assume a human factor, we are able to change some factor's, like smog/ air pollution by factories/cars. We can influence where we buy our groceries and clothing and decide whether or not we think it's necessary to transport Kiwi from New Zealand to Europe by large vessels with loads of air pollution. So the focus should be on human behavior.	Netherlands

On one of dusty days due to desert dust storm in Gaziantep, the Southeast Turkey, I saw a patient with COPD exacerbation at outpatients' clinics, and asked what the reason he thought about his symptoms. He said that his symptoms started with dust storm, and he stated that there were more dust storms comparing the old days, when he was young. I asked what he thought about the cause of more dust storms. He said that he believed this was due to global climate change and temperature increase. I hear these kinds of anecdotes more from my patients comparing to old days when I started as a young physician.	Turkey
Patient being stung by a bee in a polar climate	Romania
Patient with new onset asthma due to mold in her workplace. The concrete building she works in sit on a mountain top where extreme rain events and other storms seem to be increasing. The building is now leaking. Maybe not only related to climate change, but our built environment faces new stressors due to climate change.	Canada
Respiratory disease: pneumonia, asthma, bronchiolitis and apnea in small infants due to air pollution	Chile
Seasonal allergy to grass pollens and to house dust mites is clearly occurring over a much longer period of time for my patients due to increased humidity arising out of climate change	Australia
Sensation of dyspnoea is increasing for the hot periods that are longer and the degree of humidity is enhancing	French Polynesia
There are increasing episodes of flooding and displaced populations in Nigeria over the past few years.	Nigeria
We had about 100 people die from heat stroke this year because of high temperature. I think the land temperature is increasing and it will continue to increase in the coming years and this will have great impact on humans and also patients lifestyle as well. We get lot of cases of Dengue and Chickungunya in India, and also number of cases of Asthma is on the increase due to air pollution.	India
We had about 100 people die from heat stroke this year because of high temperature. I think the land temperature is increasing and it will continue to increase in the coming years and this will have great impact on humans and also patients lifestyle as well	Egypt
We suffered a Chikungunya epidemic in our area.	Ecuador
Why is air pollution related increases in severity of illness attributable to climate change?	Australia

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Which of the following, if any, are barriers that prevent you from addressing climate change-related health issues with patients	In which country do you work?
Appropriate terms to describe it in patient's local dialect	Nigeria
Economic status	Philippines
I discuss many issues related to climate change with patients	Canada
Lack of funding, no recognition by insurance companies	Canada
No means to alter the situation for my patients	New Zealand
Patient may not appreciate relevance to them specifically - 'but what can I do about that?'	
Patients' beliefs may complicate the time limitations	Canada
Patients I see have different priorities. Climate change is usually not one of them...	Canada
Poverty	Nigeria
Relative priority compared to other things I could address with them	Australia
Some patients think that most of industrialized countries will gradually encounter more cost of health in near future as if they will continue ignoring climate change	Turkey
Somebody wants to listen	Italy
Strength of association between climate change and health effects is variable and merits more accuracy.	India
This is a natural variation just like in the 14th century!	SWEDEN
We always try to increase awareness for the patient for planting trees to minimize greenhouse effect	
Social security awareness	Colombia
Fearing a political discourse	Canada
Forrest burn	Indonesia

Which of the following resources, if any, would be helpful to you?	In which country do you work?
Academic society	China
Active lobbying of local and federal politicians	Canada
Advertorials	Nigeria
Community meetings	India
Government advocacy	Peru
Government intervention	Germany
Government Policy addressing climate change and health	Nigeria
Increase research funding into the area	Canada
Institutional policy statements on climate change and environmental sustainability	Nigeria
It is not the organization or the medical/nursing staff that are not taking appropriate actions regarding these issues BUT rather the younger office/support staff who do not recycle their plastics, leave computers on overnight, leave lights on, etc.	New Zealand
Lobbying governments	Australia
Mass media for information dissemination	Philippines
Media	India
Note that reviews of the published science examining the cases and presence of climate change show that 99% attribute this to human activities	Canada
OMS	Brazil
Online monitoring and assessment tools	Romania
Public media	Iran
Representation as experts with our country in Paris and on working groups	Canada
Snippets in various forms: twitter, video clips, small texts.	India
Suggest for attending school by all children	
TV spots to augmenting public awareness.	Turkey
More information during TV prime time hours	Philippines
Not relevant now in all countries. Will change though in the next 10-20 years.	Netherlands
Policy statements provided by local and federal authorities.	Argentina
Section included in respiratory journals	Colombia