

Reducing the environmental impact of surgery on a global scale: systematic review, co-prioritisation with healthcare workers in 132 countries

NIHR Global Health Research Unit on Global Surgery

Corresponding Author

Mr Aneel Bhangu NIHR Global Health Research Unit on Global Surgery, Institute of Applied Health Research, University of Birmingham, Birmingham B15 2TH, UK

Orcid ID 0000-0001-5999-4618

Twitter @aneelbhangu

Supplementary Materials – Index

Supplementary tables

Supplementary table index	Page 2
Supplementary tables	Page 3-15

Supplementary Appendixes

Appendix S1 – Authorship	Page 16-35
--------------------------	------------

Supplementary tables

Supplementary table title	Pages
Table S1: Search terms for systematic review	3
Table S2. Summary of included studies from the systematic review in phase 1 and references	4-9
Table S3. Summary of additional interventions identified from systematic review during Phase 1 that were combined into list from Table 2	10
Table S4. Country of origin income group and job role of perioperative professionals and theatre managers from the global consultation surveys	11
Table S5. Additional interventions suggested by perioperative healthcare professionals in first global consultation survey, later combined into the final list of interventions	12-14
Table S6. Global consultation with healthcare professionals (Phase 1)	15
Table S7. Patient perceptions of reducing the carbon and environmental impact of surgery (UK only)	16

Table S1. Search terms for systematic review

	Search terms	Studies, n
1	exp Carbon Footprint/	10917
2	Carbon Footprint.ti,ab.	4966
3	greenhouse gas emissions.ti,ab.	18529
4	exp Climate Change/	210664
5	climate change.ti,ab.	184637
6	exp Global Warming/	44338
7	global warming.ti,ab.	38597
8	life cycle assessment.ti,ab.	14304
9	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8	311741
10	surgery.ti,ab.	3004718
11	exp General Surgery/	57659
12	anaesthesia.ti,ab.	163638
13	operating theatre.ti,ab.	8861
14	exp Operating Rooms/	57907
15	operating room.ti,ab.	69053
16	10 or 11 or 12 or 13 or 14 or 15	3211173
17	9 and 16	356
18	Carbon footprints.ti,ab.	817
19	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 18	311919
20	16 and 19	356
21	net-zero-carbon.ti,ab.	63
22	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 18 or 21	311944
23	16 and 22	360

Table S2. Summary of included studies from the systematic review in phase 1 and references

Study Name	Study Duration	Patients	Country	Hospital Type	Study Setting	Study Type	Surgery Type	Description	Carbon Output
Scope I									
Mehta 1975 ¹	NR	NR	UK	NR	NR	NR	NR	Scavenging systems	No reporting on impact to carbon emissions
Barwise 2011 ²	NR	NR	USA	Academic	Single centre	PCS	All surgery	Scavenging systems	Reduced waste anaesthetic scavenging flows and reduced energy costs
Tay 2013 ³	NR	3675	Australia	District / Community	Single centre	PCS	NR	Automated control of end-tidal gases	Reduced carbon emissions by 44%
Boyle 2018 ⁴	Dec 2017 - Mar 2018	NR	UK	District / Community	Single centre	PCS	NR	Use of sevoflurane over desflurane	81% decrease in carbon emissions from 394,126 kg to 74,004 kg
Belford 2019 ⁵	NR	NR	Australia	Academic	Single centre	PCS	NR	Anaesthetic Gas - reduction in desflurane use	-
van der Griend 2019 ⁶	Dec 2017 - Jan 2018	94	Canada	Community	Single centre	RCS	Paediatric	Use of TIVA	No reporting on impact to carbon emissions
Zuegge 2019 ⁷	NR	NR	USA	Academic	Single centre	PCS	NR	Use of sevoflurane over desflurane	Reduction in carbon emissions by 80% - 90%
Caycedo-Marulanda 2020 ⁸	Jan 2017 - June 2018	63	Canada	Academic	Single centre	RCS	Colorectal	Anaesthetic gas change	Carbon reduction >90% with sevoflurane
Richter 2020 ⁹	Jan 2017 - Dec 2018	20856	Germany	Academic	Multi-centre	PCS	All surgery	Volatile anaesthetics - sevoflurane & desflurane	Reduction of two-thirds of carbon output
Back 2021 ¹⁰	Oct-20	58	UK	Academic	Single centre	PCS	NR	Fresh gas flow rates in TIVA	Cost reduction of more than £8000/year
Carta 2021 ¹¹	NR	NR	UK	District / Community	Single centre	PCS	NR	Anaesthetic Gas - reduction in desflurane use	Reduction in carbon emissions by 74%
Craven 2021 ¹²	NR	280	UK	Academic	Single centre	PCS	NR	Use of TIVA	No reporting of carbon emissions reduction
Herbert 2021 ¹³	Mar 2020 - May 2020	NR	UK	Academic	Single centre	RCS	NR	Anaesthetic Gas - reduction in desflurane use	Reduction in carbon emissions by 229,082 kg
Jameson 2021 ¹⁴	NR	NR	UK	Academic	Single centre	PCS	NR	Low flow rates	No reporting on carbon emissions
Kirkman 2021 ¹⁵	Sep 2020 - Feb 2021	NR	UK	Academic	Single centre	PCS	NR	Anaesthetic Gas - reduction in desflurane use	Reduction in carbon emissions by >34,000kg
Thiel 2018 ¹⁶	Sep 2015 - Dec 2016	17	USA	Academic	Single centre	PCS	Hysterectomy	Use of desflurane, recycling, reusable instruments; HVAC	Reducing N2O reduced carbon emissions by 25%, recycling & reusable materials by 5%
Scope II									
Agrawal 2010 ¹⁷	Dec 2008 - Aug 2009	71	India	Academic	Single centre	PCS	NR	Avoid energized equipment	-
Practice Greenhealth 2018 ¹⁸	Jan 2017 - Dec 2017	NR	USA	NR	Multi-centre	RCS	NR	Reducing air exchange - 20 times-an-hour to 6 times-an-hour when ORs are not in use	Saved \$2 million/year
Practice Greenhealth 2021 ¹⁹	Jan 2021 - Dec 2021	NR	USA	Academic	Single centre	RCS	NR	HVAC occupancy sensors in 2 of their ORs	Reduced energy use by 25,000 kW per hour and savings of \$4000 dollars per year
Practice Greenhealth 2021 ²⁰	Jan 2021 - Dec 2021	NR	USA	NR	Multi-centre	RCS	NR	Replaced fluorescent lamps with LEDs in 10,500 coffer	Reduced electric consumption by 28.6 million kW per year.
Scope III									
Dettenkofer 1999 ²¹	NR	NR	Germany	Academic	Single centre	PCS	NR	Reusable drapes	No reporting of carbon emissions reduction
DeBois 2013 ²²	NR	400	USA	Academic	Single centre	PCS	Transplant Surgery	Diverting bypass circuits from the traditional regulated medical waste	Reduction in waste by 7.5 tons and carbon output
Southorn 2019 ²³	NR	44	UK	NR	Multi-centre	PCS	Orthopaedic	Recycling waste	Reduction in carbon emissions by 75% & savings of £420,000 per year
Wormer 2013 ²⁴	NR	NR	USA	Academic	Single centre	PCS	NR	Recycling waste	Reduction by 234.3 metric tons

Lui 2014 ²⁵	Sep 2012 - April 2013	97	Canada	Academic	Single centre	PCS	Head and Neck	Recycling waste	No reporting on impact to carbon emissions
McGain 2017 ²⁶	NR	NR	Australia	District / Community	Single centre	PCS	NR	Reusable anaesthetic equipment	Increased carbon emissions by 10%
Sadler 2017 ²⁷	NR	NR	UK	District / Community	Single centre	PCS	NR	Recycling waste	Reduction by 1500kg
Nesaratnam 2018 ²⁸	Dec 2017	121	UK	District / Community	Single centre	PCS	NR	Recycling	No reporting of carbon emissions reduction
Connolly 2019 ²⁹	NR	NR	Australia	District / Community	Single centre	PCS	NR	Recycling waste	-
Jandu 2020 ³⁰	NR	NR	UK	Academic	Single centre	PCS	NR	Recycling of waste	Reduction of clinical waste by 19,320 kg/year
Jabouri 2021 ³¹	2019	62	UK	Academic	Single centre	PCS	NR	Reusable surgery packs	Reduction of carbon emissions by 6%
Vozzola 2020 ³²	NR	NR	USA	NR	NR	PCS	NR	Resuable gowns - compared to disposable gowns	Reduced natural resource energy consumption by 64%, greenhouse gas emissions by 66%, blue water consumption by 83%, and solid waste generation by 84% as compared with disposable gowns
Bhatter 2021 ³³	NR	34	USA	Academic	Single centre	PCS	Plastics	Recycling	No reporting on impact to carbon emissions
Putri 2021 ³⁴	NR	NR	UK	NR	NR	RCS	Ophthalmology	Use of non-disposable instruments	No reporting on impact to carbon emissions but cost savings of £27,660 / year
Rizan 2021 ³⁵	Apr 2017 - Mar 2018	NR	United Kingdom	Academic	Single centre	RCS	NR	Steam sterilisation - Packaging reusable surgical instruments	Reduction in carbon emissions by 6% - 12%
Vacharathit 2021 ³⁶	-	NR	USA	Academic	Single centre	PCS	NR	Recycling waste	-

References

1. Mehta S, Cole WJ, Chari J, Lewin K. Operating room air pollution: influence of anaesthetic circuit, vapour concentration, gas flow and ventilation. *Can Anaesth Soc J*. May 1975;22(3):265-74. doi:10.1007/BF03004835
2. Barwise JA, Lancaster LJ, Michaels D, Pope JE, Berry JM. Technical communication: An initial evaluation of a novel anesthetic scavenging interface. *Anesth Analg*. Nov 2011;113(5):1064-7. doi:10.1213/ANE.0b013e31822c9a2c
3. Tay S, Weinberg L, Peyton P, Story D, Briedis J. Financial and environmental costs of manual versus automated control of end-tidal gas concentrations. *Anaesth Intensive Care*. Jan 2013;41(1):95-101. doi:10.1177/0310057X1304100116
4. Boyle A, Coleman A, Barker K. A grassroots approach to the greenhouse effect: implementing recent guidance from the AAGBI and RCoA. presented at: Association of Anaesthetists Annual Congress 2018; Dublin, Ireland. Raigmore Hospital, Inverness
5. Belford I, Hardy J, Rodney G, et al. Bin the blue gas! Should we and why? Abstract presented at: Association of Anaesthetists Annual Congress 2019; Glasgow.
6. van der Griend BF, Vincent AR, Kennedy RR. Observational audit of sevoflurane consumption during paediatric anaesthesia. *Anaesth Intensive Care*. May 2019;47(3):251-254. doi:10.1177/0310057X19841008
7. Zuegge KL, Bunsen SK, Volz LM, et al. Provider Education and Vaporizer Labeling Lead to Reduced Anesthetic Agent Purchasing With Cost Savings and Reduced Greenhouse Gas Emissions. *Anesth Analg*. Jun 2019;128(6):e97-e99. doi:10.1213/ANE.0000000000003771
8. Caycedo-Marulanda A, Caswell J, Mathur S. Comparing the environmental impact of anesthetic gases during transanal total mesorectal excision surgery at a tertiary healthcare centre. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie* 2020;67:607-608. doi:<https://doi.org/10.1007/s12630-019-01527-0>
9. Richter H, Weixler S, Schuster M. The carbon footprint of anaesthesia: How the choice of volatile anaesthetic affects the CO₂ emissions of a department of anaesthesiology. *Anesthesiologie und Intensivmedizin*. 2020;61(5):154-161. doi:10.19224/ai2020.154
10. Back M, Al-Attar A, Sutton R, et al. Fresh gas flow during total intravenous anaesthesia and marginal gains in sustainable healthcare. Comment on Br J Anaesth 2020. *British Journal of Anaesthesia*. 2020;126(4):773-778. doi:<https://doi.org/10.1016/j.bja.2020.12.006>
11. Carta S, Biela C, C B. Cleaning up our act: Volatile anaesthesia post-pandemic. presented at: Association of Anaesthetists Winter Scientific Meeting; 2021; Virtual.
12. Craven T, Dua K, Evans E, et al. Sustainability in general anaesthesia: Attitudes and capability regarding inhalational gas versus total intravenous anaesthesia. presented at: Association of Anaesthetists Trainee Conference 2021; 2021; Newcastle.
13. Herbert E, Watts A. A quality-improvement project investigating the carbon offset, courtesy of a global pandemic. presented at: Association of Anaesthetists Winter Scientific Meeting; 2021; Virtual.

14. Jameson R, Young S. Raising the standard: Lowering the flow. Glasgow Royal Infirmary trainee group collaborative audit. presented at: Association of Anaesthetists Trainee Conference 2021; 2021; Newcastle.
15. Kirkman J, Mathur R, McHugh C. Volatile anaesthesia: Reducing the financial cost and environmental impact by reducing desflurane usage. presented at: Association of Anaesthetists Annual Congress 2021; 2021; Virtual.
16. Thiel CL, Woods NC, Bilec MM. Strategies to Reduce Greenhouse Gas Emissions from Laparoscopic Surgery. *Am J Public Health*. Apr 2018;108(S2):S158-S164. doi:10.2105/AJPH.2018.304397
17. Agrawal B, Tapish A, Mahajan K. Carbon footprint of laparoscopic cholecystectomy performed with or without energized dissection-a case controlled study. 2010;
18. Practice Greenhealth. The value of sustainability initiatives in surgical suites. https://practicegreenhealth.org/sites/default/files/upload-files/2018_gor_report.pdf
19. Practice Greenhealth. Providence St. Peter Hospital, Olympia, WA: Energy Efficiency in the OR - HVAC Setback Program. 2021;
20. Practice Greenhealth. The Business Case for Greening the OR. https://practicegreenhealth.org/sites/default/files/upload-files/caseforgor_r5_web_0.pdf
21. Dettenkofer M, Griesshammer R, Scherrer M, Daschner F. [Life-cycle assessment of single-use versus reusable surgical drapes (cellulose/polyethylene-mixed cotton system)]. *Chirurg*. Apr 1999;70(4):485-91; discussion 491-2. Einweg- versus Mehrweg-Patientenabdeckung im Operationssaal. Okobilanz: Vergleich von Zellstoff-Polyethylen- und Baumwoll-Mischabdeckung. doi:10.1007/s001040050677
22. Debois W, Prata J, Elmer B, et al. Improved environmental impact with diversion of perfusion bypass circuit to municipal solid waste. *J Extra Corpor Technol*. Jun 2013;45(2):143-5.
23. Southorn T, Norrish AR, Gardner K, Baxandall R. Reducing the carbon footprint of the operating theatre: a multicentre quality improvement report. *J Perioper Pract*. Jun 2013;23(6):144-6. doi:10.1177/175045891302300605
24. Wormer B, Augenstein V, Carpenter C, et al. The green operating room: simple changes to reduce cost and our carbon footprint. *The American surgeon*. 2013;79,7:666-71.
25. Lui JT, Rudmik L, Randall DR. Reducing the preoperative ecological footprint in otolaryngology. *Otolaryngol Head Neck Surg*. Nov 2014;151(5):805-10. doi:10.1177/0194599814544449
26. McGain F, Story D, Lim T, McAlister S. Financial and environmental costs of reusable and single-use anaesthetic equipment. *Br J Anaesth*. Jun 1 2017;118(6):862-869. doi:10.1093/bja/aex098
27. Sadler A, Wilde P, Raju P. Metal recycling in healthcare waste management. 2018. https://anaesthetists.org/Portals/0/PDFs/Anaesthesia%20News%20PDFs/2018/Anaesthesia_News_May_2018.pdf?ver=2018-08-02-162542-057

28. Nesaratnam A, Jani K, Follett T. Sustainability in Anaesthesia: A Service Evaluation of Theatre Waste Recycling. presented at: East Anglian Association of Anaesthetists Core Topics 2018 and Harold Youngman Prize Meeting; 2018;
29. Connolly M, Rathi S. A Novel Method of Recycling in Wollongong Operating Theatres. presented at: Australian Society of Anaesthetists Conference 2019; 2019; Sydney.
<http://asa2018.com.au/wp-content/uploads/2018/10/49-A-Novel-Method-of-Recycling-in-Wollongong-Operating-Theatres.pdf>
30. Jandu A. Recycling and greener anaesthesia at Mid Essex Hospital NHS Trust: quality-improvement project. presented at: Association of Anaesthetists Winter Scientific Meeting; 2020; London. Session S2.
31. Jabouri H, Abbott RA. Sustainability in skin cancer surgery. *British Journal of Dermatology*. 2022;186(4):735-736. doi:<https://doi.org/10.1111/bjd.20886>
32. Vozzola E, Overcash M, Griffing E. An Environmental Analysis of Reusable and Disposable Surgical Gowns. *AORN J*. Mar 2020;111(3):315-325. doi:10.1002/aorn.12885
33. Bhattar P, Cypen S, Carter S, et al. Pharmaceutical and Supply Waste in Oculofacial Plastic Surgery at a Hospital-Based Outpatient Surgery Center. *Ophthalmic plastic and reconstructive surgery* 2021;37,5 435-438. doi:10.1097/IOP.0000000000001891
34. Putri CA, Rezai P, Capel J, et al. Money, environment and eyelids. *Eye (Lond)*. Sep 2021;35(9):2653-2654. doi:10.1038/s41433-020-01189-z
35. Rizan C, Lillywhite R, Reed M, et al. Minimising carbon and financial costs of steam sterilisation and packaging of reusable surgical instruments. *Br J Surg*. Feb 1 2022;109(2):200-210. doi:10.1093/bjs/znab406
36. Vacharathit Ve. Action in Healthcare Sustainability is a Surgical Imperative: This is a Novel Way to Do It. *Journal of surgical education*. 2022;79,2:275-278.
doi:10.1016/j.jsurg.2021.09.002

Table S3. Summary of additional interventions identified from systematic review during Phase 1 that were combined into list from Table 2

	Combined into final list of interventions
Scope 1	
Reduce isoflurane*	Reduce the use and wastage of anaesthetic gases
Increase sevoflurane	Reduce the use and wastage of anaesthetic gases
Increase regional anaesthesia	Reduce the use of general anaesthesia
Use of scavenging systems	Reduce the use and wastage of anaesthetic gases
Extended duration of anaesthetics circuit	Reduce the use and wastage of anaesthetic gases
Small canisters for gas cylinders	Reduce the use and wastage of anaesthetic gases
Manual vs automated ET control	Reduce the use and wastage of anaesthetic gases
Turning off excessive gas flows and vaporisers following an anaesthetic	Reduce the use and wastage of anaesthetic gases
Careful filling of vaporisers	Reduce the use and wastage of anaesthetic gases
Judicious checking of all connections along the anaesthesia circuit and at the machine	Reduce the use and wastage of anaesthetic gases
Using properly fitting face masks and inflated endotracheal tube and laryngeal mask airway cuffs	Reduce the use and wastage of anaesthetic gases
Scope 2	
Reducing air exchange when OR not in use	Reduce energy and water use
Scope 3	
Reusable needle/sharp containers	Reduce consumables used
Steam sterilisation	Reduce energy and water use
No routine preoxygenation	Reduce the use and wastage of anaesthetic gases
Donating unused medical equipment and supplies to medical missions	Reduce consumables used
Using prefilled medication syringes	Reduce consumables used
Partnering with industry to promote greener packaging practices	Increase use of consumables that can be easily recycled
Reuse sterile paper for the C-arm	Introduce reusable surgical gowns and drapes

Table S4. Country of origin income group and job role of perioperative professionals and theatre managers from the global consultation surveys

Feature	Round 1		Round 2	
	n=3042		n=5218	
World Bank Country Income classification				
High income countries	1,928	64.00%	2923	56.00%
Low- and middle-income countries	1085	36.00%	2295	44.00%
Low-income countries	84	2.80%	282	5.40%
Lower middle-income countries	512	17.00%	986	18.90%
Upper middle-income countries	489	16.20%	1027	19.70%
Missing	29		0	
Respondent type				
Anaesthetist, consultant	189	6.70%	349	6.80%
Anaesthetist, trainee	71	2.50%	125	2.40%
Nurse	28	1.00%	59	1.10%
Operating department practitioner	18	0.60%	91	1.80%
Physician assistant	57	2.00%	233	4.50%
Surgeon, consultant	1620	57.40%	2704	52.40%
Surgeon, trainee	826	29.20%	1567	30.40%
Theatre manager / stores	15	0.50%	34	0.70%
Missing	218		56	

Table S5. Additional interventions suggested by perioperative healthcare professionals in first global consultation survey, later combined into the final list of interventions

	Interventions
1	Reducing use of printed materials/ paper
2	Reusable theatre hats
3	Reusable masks
4	Ordering restock in bulk
5	Maximising use of available theatres
6	Turning off ventilation systems at night
7	Installation of CO2 pipes instead of refillable cylinders
8	Green champions / education of theatre staff
9	Battery recycling
10	Reducing the number of people in theatre
11	Glass recycling
12	Scavenging of anaesthetic gasses
13	Using battery powered rather than wired instruments
14	Reusing warm-air blankets
15	Switching general to regional or local anaesthesia
16	Increasing day case surgery
17	Turning off ventilation systems at night
18	Installing piped gas supply rather than using cylinders
19	Reducing single use energy devices / reusing devices
20	Reducing single use staplers / reusing devices
21	Reducing use of prepacked gauze
22	Waste audits
23	Automated soap dispensers
24	low-dose protocols for angiography
25	No overshoe covers
26	Use of reusable slippers
27	Using only a single layer of gloves
28	Turning off Suction when not needed
29	Attaching fume suction to Electrocautery etc
30	Reusable, personal visors/goggles
31	Only disposing of what has to go in biohazard bins in those bins
32	Dont open anything until surgeon asks for this
33	Using cell saver
34	Resusable instruments
35	Reducing suture use

36	Reducing operating light use with using headlight
37	Use of reusable laryngoscope and oropharyngeal airways
38	Use of reusable operating light handles
39	Lowering pressure and flow of laparoscopic surgery
40	Shutting down equipment (e.g. computers)
41	Using leftover suture/ equipment for training
42	Reusing sterile clothes
43	Alcohol based hand wash for surgical scrubbing (that does not require running water)
44	Running the forced air warmer on the medium flow settings (same results as high low)
45	Electronic/re-usable chest drain system (e.g. Thopaz)
46	Sharp Recyclings
47	Upcycling device packaging
48	Reusing single-use instruments
49	Reducing use of ventilated whole body suits for orthopaedic surgery
50	Using dissolvable sutures instead of metal staples to close wounds
51	Using single absorbable dressings instead of multiple pressure dressings
52	Use of biodegradable disposables (e.g. syringes)
53	Use of an electronic (rather than paper theatre booking system)
54	Reusable sharps bins
55	Reusable diathermy probes/kit
56	Reusable goggles/eyewear
57	Automatic on/off taps for handwashing
58	Reusable suction devices
59	Reusable instrument packaging
60	Only opening instruments when verified for use by surgeons
61	Reducing ease of access to high impact devices/instruments in OR
62	Reusable bedsheets and gowns for patients
63	Reusable diathermy mat
64	Reusable external fixators
65	Fully digital electronic patient and imaging records
66	Reusable marking pens
67	Powering theatres using solar panels
68	Computers switched off overnight + energy saving in day

69	Use of a smoke evacuation system
70	Electronic/AI driven theatre product inventory
71	Automatic soap/alcohol gel dispensers for handwashing
72	Audit/QA of gas leaks from source to patient
73	Forum for local discussion of sustainability ideas
74	Multi-specialty operating theatres
75	Ventilation with heat rescue functionality
76	Intelligent use of operating theatre capacity to ensure maximal patient throughput
77	Reducing use of in-theatre catheterisation
78	Reuse calf compression devices (VTE prophylaxis)
79	Remove disposal cups/plates/cutlery from theatre coffee rooms
80	Reducing packaging for gowns
81	Resterilisation of single use equipment
82	Use of HEPA filters
83	Having a translucent rooftop that allows in light
84	Reducing use of plastic PPE
85	Reducing hand washing when not required
86	Recycling metal (e.g. metallic intubation blades)
87	Reduce mesh use
88	Hospital should have incinerator

Table S6. Global consultation with healthcare professionals (Phase 1)

	Overall	HIC	LMIC
Sustainability leads in place			
None	61.4%	62.7%	59.3%
Hospital lead only	23.8%	24.5%	22.8%
Theatre lead only	11.6%	10.0%	14.1%
Both Hospital + Theatre leads	3.2%	2.8%	3.8%
Hospital net zero target			
Yes	15.6%	15.6%	15.7%
No	84.4%	84.4%	84.3%
Written green surgery plan			
Yes	15.5%	14.4%	17.0%
No	84.5%	85.6%	83.0%
I care about the environmental impact of the OR			
Agree	95.0%	95.6%	93.9%
Disagree	5.0%	4.4%	6.1%
I am willing to change my practice in the OR to reduce its environmental impact			
Agree	96.5%	97.6%	94.6%
Disagree	3.5%	2.4%	5.4%
I have enough information about the environmental impact of the OR to inform my decisions			
Agree	44.7%	32.7%	66.7%
Disagree	55.3%	67.3%	33.3%

Table S7. Patient perceptions of reducing the carbon and environmental impact of surgery (UK only)

Statement	Agreement	Patient (previous surgery)	Patient (awaiting surgery)	Public	Total
I care both about the carbon footprint of my operation and my care around the time of surgery	Strongly agree	28 (44.4)	1 (33.3)	5 (55.6)	34 (45.3)
	Agree	25 (39.7)	1 (33.3)	4 (44.4)	30 (40.0)
	Neutral	4 (6.3)	1 (33.3)	0 (0.0)	5 (6.7)
	Disagree	1 (1.6)	0 (0.0)	0 (0.0)	1 (1.3)
	Strongly disagree	5 (7.9)	0 (0.0)	0 (0.0)	5 (6.7)
Reducing the carbon footprint of operating theatres is important to my community, family & friends	Strongly agree	18 (28.6)	1 (33.3)	4 (44.4)	23 (30.7)
	Agree	33 (52.4)	1 (33.3)	5 (55.6)	39 (52.0)
	Neutral	7 (11.1)	1 (33.3)	0 (0.0)	8 (10.7)
	Disagree	1 (1.6)	0 (0.0)	0 (0.0)	1 (1.3)
	Strongly disagree	4 (6.3)	0 (0.0)	0 (0.0)	4 (5.3)
I would support changes to reduce the environmental impact of my operation if the safety and effectiveness of surgery was the same or better	Strongly agree	43 (68.3)	2 (66.7)	8 (88.9)	53 (70.7)
	Agree	16 (25.4)	1 (33.3)	1 (11.1)	18 (24.0)
	Neutral	3 (4.8)	0 (0.0)	0 (0.0)	3 (4.0)
	Disagree	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Strongly disagree	1 (1.6)	0 (0.0)	0 (0.0)	1 (1.3)
I would support changes to reduce the environmental impact of my operation if there was a slight increase in minor complications of surgery	Strongly agree	1 (1.6)	0 (0.0)	2 (22.2)	3 (4.0)
	Agree	15 (23.8)	0 (0.0)	1 (11.1)	16 (21.3)
	Neutral	13 (20.6)	1 (33.3)	2 (22.2)	16 (21.3)
	Disagree	22 (34.9)	1 (33.3)	4 (44.4)	27 (36.0)
	Strongly disagree	12 (19.0)	1 (33.3)	0 (0.0)	13 (17.3)
I would support changes to reduce the environmental impact of my operation even if there was an increased cost to the NHS	Strongly agree	6 (9.5)	1 (33.3)	2 (22.2)	9 (12.0)
	Agree	24 (38.1)	1 (33.3)	4 (44.4)	29 (38.7)
	Neutral	13 (20.6)	1 (33.3)	2 (22.2)	16 (21.3)
	Disagree	12 (19.0)	0 (0.0)	1 (11.1)	13 (17.3)
	Strongly disagree	8 (12.7)	0 (0.0)	0 (0.0)	8 (10.7)
Hospitals should publish general information about the measures they are taking to reduce the carbon footprint of surgery	Strongly agree	27 (42.9)	2 (66.7)	7 (77.8)	36 (48.0)
	Agree	18 (28.6)	1 (33.3)	1 (11.1)	20 (26.7)
	Neutral	13 (20.6)	0 (0.0)	0 (0.0)	13 (17.3)
	Disagree	2 (3.2)	0 (0.0)	1 (11.1)	3 (4.0)
	Strongly disagree	3 (4.8)	0 (0.0)	0 (0.0)	3 (4.0)
Patients should be told about the specific measures taken to reduce the carbon footprint of their operation during preoperative preparation	Strongly agree	13 (20.6)	1 (33.3)	5 (55.6)	19 (25.3)
	Agree	23 (36.5)	0 (0.0)	2 (22.2)	25 (33.3)
	Neutral	14 (22.2)	1 (33.3)	0 (0.0)	15 (20.0)
	Disagree	8 (12.7)	1 (33.3)	1 (11.1)	10 (13.3)
	Strongly disagree	5 (7.9)	0 (0.0)	1 (11.1)	6 (8.0)
Patients should be empowered make choices to reduce the carbon footprint of their operation as part of consent	Strongly agree	16 (25.4)	2 (66.7)	6 (66.7)	24 (32.0)
	Agree	19 (30.2)	1 (33.3)	1 (11.1)	21 (28.0)
	Neutral	11 (17.5)	0 (0.0)	1 (11.1)	12 (16.0)
	Disagree	8 (12.7)	0 (0.0)	0 (0.0)	8 (10.7)
	Strongly disagree	9 (14.3)	0 (0.0)	1 (11.1)	10 (13.3)

Supplementary Appendixes

Appendix S1 - Authorship

Writing group

Adewale Adisa¹, Michael Bahrami-Hessari², Aneel Bhangu², Christina George³, Dhruv Ghosh⁴, James Glasbey^{2*}, Parvez Haque⁵, JC Allen Ingabire⁶, Sivesh Kathir Kamarajah², Laura Kudrna⁷, Virginia Ledda², Elizabeth Li^{2*}, Robert Lillywhite⁸, Rohin Mittal⁹, Dmitri Nepogodiev^{2*}, Faustin Ntirenganya¹⁰, Maria Picciochi², Joana Filipa Ferreira Simões²

*Joint first authors

¹ Department of Surgery, Obafemi Awolowo University, Ile-Ife, Nigeria

² NIHR Global Health Research Unit on Global Surgery, Birmingham, UK

³ Department of Anesthesiology and Critical Care, Christian Medical College Ludhiana, India

⁴ Department of Pediatric Surgery, Christian Medical College Ludhiana, India

⁵ Department of Surgery, Christian Medical College Ludhiana, India

⁶ Department of Surgery, University Teaching Hospital of Kigali, University of Rwanda, Kigali, Rwanda

⁷ Institute of Applied Health Research, University of Birmingham, Edgbaston, Birmingham, UK

⁸ School of Life Sciences, University of Warwick, Warwick, UK

⁹ Department of Colorectal Surgery, Christian Medical College, Tamil Nadu, Vellore, India

¹⁰ Department of Surgery, School of Medicine and Pharmacy, College of Medicine and Health Sciences, University of Rwanda, Rwanda

Patient advisory group

M Bahrami-Hessari (PAG Manager), A Bhangu, L Booth (PAG Chair), R Elliot, J Glasbey, AS Kennerton, KL Pettigrove, L Pinney, H Richard, R Tottman, P Wheatstone, John W, D Wolfenden, J Simões, A Smith

Collaborators

A Emad Sayed, Aakansha Giri Goswami, Aamer Malik, Aaron Lawson Mclean, Abbas Hassan, Abd Jabar Nazimi, Abdallah Aladna, Abdalrahman Abdelgawad, Abdel Saed, Abdelfatah Abdelmageed, Abdelilah Ghannam, Abdelrahman Mahmoud, Abdul Alvi, Abdulaziz Ismail, Abdulhafiz Adesunkanmi, Abdulla Ebrahim, Abdullah Al-Mallah, Abdullah Alqallaf, Abdullah Durrani, Abdullah Gabr, Abdullahi Musa Kirfi, Abdulmalik Altaf, Abdulmjeed Almutairi, Abdulrahman J Sabbagh, Abdulrazak Ajiya, Abdurrahman Haddud, Abed Alfattah Mahmoud Alnsour, Abhinav Singh, Abhishek Mittal, Abigail Semple, Abiodun Adeniran, Abraham Negussie, Abraham Oladimeji, Abubakar Bala Muhammad, Abubaker Yassin, Abuzer Gungor, Achille Tarsitano, Aidaiah Soibiharry, Adam Dyas, Adam Frankel, Adam Peckham-Cooper, Adam Truss, Adamu Issaka, Adel Mohamed Ads, Adeleke Akeem Aderogba, Ademola Adeyeye, Adesoji Ademuyiwa, Adham Sleem, Adrian Papa, Adriana Cordova, Adu Appiah-Kubi, Adullah Meead, Aeris Jane D. Nacion, Afieharo Michael, Agustin Albani Forneris, Agustin Duro, Agustin Rodriguez Gonzalez, Ahmad Altouny, Ahmad Ghazal, Ahmad Khalifa, Ahmad Ozair, Ahmad Quzli, Ahmad Haddad, Ahmad Faidzal Othman, Ahmad Shuib Yahaya, Ahmed Elsherbiny, Ahmed Nazer, Ahmed Tarek, Ahmed Abu-Zaid, Ahmed Al-Nusairi, Ahmed Azab, Ahmed Elagili , Ahmed Elkazaz, Ahmed Kedwany, Ahmed Mohammed Nuhu , Ahmed Sakr, Ahmed Shehta, Ahmed Shirazi, Ahmed Mohamed Ibrahim Mohamed , Ahmed Elshawadfy Sherif, Ahmed K. Awad, Ahmed M. Abbas, Ahmed Saber Abdelrahman, Ahmed Siddique Ammar, Ahmed Y Azzam, Ahmet Burak Ciftci, Ahmet Cem Dural, Ahmet Necati Sanli, Aida Cristina Rahy-Martín, Aida Rosita Tantri, Aimal Khan, Aiman Al-Touny, Aiman Tariq , Aimen Gmati, Ainhua Costas-Chavarri, Aino Auerkari, Aitor Landaluce-Olavarria, Ajay Puri, Ajay Radhakrishnan, Akaninyene Esemé Ubom, Akhilesh Pradhan, Akif Turna, Akinfolarin Adepiti, Akira Kuriyama, Al-Faraaz Kassam, Ala Hassouneh , Alaa El-Hussuna, Alaa Habeebullah, Alaa Mohamed Ads, Alaa Mousli, Alan Biloslavo, Alan Hoang, Alan Kirk, Alasdair Santini, Alba Vazquez Melero, Albaro José Nieto Calvache, Albert Baduell, Albert Chan, Alberto Abrate, Alberto Balduzzi, Alberto Cabañero Sánchez, Alberto Navarrete-Peón, Alberto Porcu, Alberto Brolese, Alberto

G Barranquero, Alberto Maria Saibene, Albushra Altayeb Adam, Aldo Vagge, Alejandra Jara Maquilón, Alejandro Leon-Andrino, Aleksandar Sekulić, Aleksandar Trifunovski, Aleksandro Mako, Alemayehu Ginbo Bedada, Alessandro Broglia, Alessandro Coppola, Alessandro Giani, Alessandro Grandi, Alessandro Iacomino, Alessandro Moro, Alessia D'amico, Alessia Malagnino, Alethea Tang, Alex Doyle, Alex Alfieri, Alex Haynes, Alex Wilkins, Alexander Baldwin, Alexander Heriot, Alexander Laird, Alexander Lazarides, Alexander O'connor, Alexander Trulson, Alexander Christopher Rokohl, Alexandra Caziuc, Alexandra Triantafyllou, Alexandre Anesi, Alexandrina Nikova, Alexandros Andrianakis, Alexandros Charalabopoulos, Alexandros Tsolakidis, Alexandru Chirca, Alexis P Arnaud, Alexis Rafael Narvaez-Rojas, Alfie Kavalakat, Alfio Spina, Alfonso Recordare , Alfredo Annicchiarico, Alfredo Conti, Alhassan Datti Mohammed, Ali Kocataş, Ali Almhimid , Ali Arnaout, Ali Fahmy, Ali Mangi, Ali Modabber, Ali Bilal Ulas, Ali Yasen Y. Mohamedahmed, Alice Frontali, Alice Moynihan, Alif Yunus, Aline Ahmad, Alistair J Kent, Almu'atasim Khamees, Aloy Okechukwu Ugwu, Alparslan Turan, Alsosy Abdullah Khalefa Mohammed, Alvaro Navarro-Barrios, Alvaro Yebes, Álvaro Francisco Lopes De Sousa, Amabelle Moreno, Aman Sethi, Amanda Caroline Dawson, Amani Alsayd Abdulsalam Othman , Amanjot Kaur, Amanuel Wolde, Amedeo Antonelli, Amedeo Scifo , Ameen Alhamad, Amelia Davis, Amer Alderazi, Amer Harky, Amina Mohammed-Durosinlorun, Amina Seguya, Amina Okhakhu , Amine Chamakhi, Amine Sebai, Amine Souadka, Amir Asla, Amit Agrawal, Amit Persad, Amit Gupta, Amr Elgazar, Amruta Kulkarni , Amy Coates, Ana Ciscar Bellés, Ana Danic Hadzibegovic, Ana Jotic, Ana Kowark, Ana Martins, Ana Mejía Pineda, Ana Peral, Ana Sánchez Gollarte, Ana Senent-Boza, Ana Isabel Avellaneda Camarena, Ana M Castaño-Leon, Ana Maria Minaya Bravo, Ana María Gimeno Moro, Ana-Maria Musina, Ana-María Tapia-Herrero, Anai Kothari, Anand Gupta, Anand Raja, Anas Aljaiuossi, Anas Taha, Anass Mohammed Majbar, Anastasia Prodromidou, Anastasios Kanatas, Anaya Gupte, Andee Dzulkaenaen Zakaria, Andrea Balla, Andrea Barberis, Andrea Bondurri, Andrea Bottari, Andrea Costantino, Andrea Figus, Andrea Lauretta, Andrea Mingoli, Andrea Romanzi, Andrea Sagnotta, Andrea Scacchi, Andrea Picchetto, Andrea Estefania Cueto Valadez,

Andrea-Pierre Luzzi, Andreas Älgå, Andreas Fontalis, Andreas Hecker, Andreas K Demetriades, Andreea-Madalina Serban, Andrei Bogdan Văcăraşu, Andrej Cokan, Andres Isaza-Restrepo, Andrew Beamish, Andrew Schache, Andrew Stevenson, Andrew Yiu, Andrew J Cockbain, Andrey Litvin, Ane Abad-Motos, Angel Becerra, Ángel Cilleruelo Ramos, Angela Chiaradia, Angela Dell, Angela Romano, Angelo Pascale, Angelo Alessandro Marra, Angelos Dimas, Angelos Kolias, Anis Cerovac, Anish Koneru, Anisse Tidjane, Anita Eseenam Agbeko, Ankur Bajaj, Ankush Gosain, Anna Allan, Anna Carreras-Castañer, Anna D'amore, Anna Dare, Anna Maffioli, Anna Palepa, Anna Paspala, Anna Konney, Anna Nunzia Della Gatta, Anne-Cecile Ezanno, Anneza Yiallourou, Anthony Kinnair, Anthony Rayner, Anthony Kevin Scafa, Antoinette Bediako Bowan, Antonella Veglia, Antonino Russo, Antonino Maniaci, Antonio Castaldi, Antonio Gil-Moreno, Antonio Maffuz-Aziz, Antonio Meola, Antonio Nenna, Antonio Perez Ferrer, Antonio Ramos Bonilla, Antonio Ramos-De La Medina, Antonio Rodriguez Infante, Antonio Santoro, Antonio Simone Laganà, Antony Bateman, Antony Louis Rex Michael, Anwaar Abozid, Anwar Sadat Seidu, Aoife Lowery, Apichat Tantraworasin, Aqsa Rasheed, Arcangelo Picciariello, Arda Isik, Areeba Saif, Arfa Anjum, Argyrios Ioannidis, Ariel Abeldaño, Arif Hussain, Arjun Nathan, Arkady Bedzhanyan, Arkaitz Perfecto, Armando De Virgilio, Armando Galvan, Armin Sablotzki, Arne Böttcher, Arrigo Pellacani, Arthur Gatti, Arturan Ibrahimli, Arun Menon, Arun Sahni, Aruyaru Stanley Mwenda, Asad Choudhry, Asanka Jayawardane, Ashish Gupta, Ashok Ramasamy, Ashrarur Rahman Mitul, Ashvind Bawa, Ashwani Nugur, Ashwin Rammohan, Ashwin Sachdeva, Asif Mehraj, Asif Yildirim, Asma Alqaseer, Asmaa Radwan, Asser Sallam, Athanasios Syllaios, Athanasios Tampakis, Athari Alwael, Athina Samara, Atilla Eroglu, Atiqur Rahman, Attila Ulkucu, Attila Zaránd, Audrius Dulskas, Augustine Tawiah, Augusto Zani, Aurelia Vas, Ausra Lukosiute-Urboniene, Auwal Adamu, Avinash Aujayeb, Awais Amjad Malik, Ayberk İplikçi, Ayesha Mahmud, Aylin Pelin Cil, Ayomide Makanjuola, Ayoub Akwaisah, Aysuna Galandarova, Aytan Saracoglu, Azel Regan, Aziz Mutlu Barlas, Baba Alhaji Bin Alhassan, Badr Mostafa, Baha Ben Hamida, Bahar Canbay Torun, Bahiyah Abdullah, Balasingam Balagobi, Balazs Banky, Baljit Singh, Bamidele

Alegbeleye, Banu Yigit, Baraa Nabil Hajjaj, Barbara Burgos-Blasco, Barbara Seeliger, Barnabas Alayande, Barrag Alhazmi, Basseyy Enodien, Beatrice Torre, Beatriz Gómez Pérez, Beatriz Villota Tamayo, Beatriz De Andrés-Asenjo, Begoña Quintana-Villamandos, Behiç Girgin, Behrad Barmayehvar, Bekzat Beisenov, Ben Creavin, Ben Dunne, Ben Marson, Ben Waterson, Benjamin Martin, Benjamin Zucker, Benjamin Ngie Xiong Wong, Berk Baris Ozmen, Bernard Hammond, Bernard Mbwele, Bernardo Núñez, Bert Dhondt, Besma Gafsi, Bethan Mcleish, Bettina Lieske, Bhavesh Tailor, Biagia La Pira, Biagio Picardi, Biagio Zampogna, Biagio Casagranda, Bianca Maria Festa, Bijnya Panda, Bilal Kirmani, Bilal Sulaiman, Binay Gurung, Bincy Zacharia, Birgit Bette, Birhanu Ayana, Bisera Nikolovska, Blanca Capdevila Vilaró, Blanca De Vega Sánchez, Bm Zeeshan Hameed, Bogdan Diaconescu, Bojan Kovacevic, Boris Bumber, Boris Sakakushev, Boris Tadic, Bouhani Malek, Bourhan Alrayes, Bradley Thomas, Branislav Gális, Brendan Gallagher, Brett Knowles, Brian Cunningham, Brian Daley, Brijesh Mishra, Bruce Ashford, Brunella Maria Pirozzi, Bruno Berselli, Bruno Martinez-Leo, Bruno Sensi, Bruno Nardo, Burak Celik, Burak Giray, Burçin Abud, Bushray Almiqlash, C S Pramesh, Cagatay Taskiran, Caio Antonio De Campos Prado, Calogero Cipolla, Calvin Kumar, Camilla English, Camilla Riccetti, Camilla Vanni, Camille Brassat, Candice Downey, Caoimhe Duffy, Carina Chwat, Carina Cutmore, Carl Sars, Carlo Ratto, Carlo Alberto Pacilio, Carlos De La Infiesta García , Carlos Guijarro Moreno, Carlos Magalhães, Carlos Prada, Carlos Shiraishi Zapata, Carlotta Senni, Carolina Dutra Queiroz Flumignan, Carolina Martinez-Perez, Carolina Lugo Duarte , Carolina Soledad Romero Garcia, Caroline Anderson, Caroline Hing, Carolyn Cullinane, Caterina Cina, Catheriner Zabkiewicz, Catrin Sohrabi, Cem Emir Guldogan , Cezar Ciubotaru, Chaitya Desai, Chandrajit Raut, Charis Demetriou, Charles Handford, Charles Okpani, Charudutt Paranjape, Cherry Koh, Chetan Khatri, Chetan Parmar, Chi Wei Mok, Chiara Caricato, Chiara Marafante, Chidiebere Peter Echieh, Chih Ying Tan, Chon Sum Ong, Christel Conso, Christiaan Jardinez, Christian Konrads, Christian Warner, Christian Chigozie Makwe, Christin Henein, Christina Fleming, Christina L Roland, Christine Maurus, Christine Nitschke, Christof Mittermair, Christoph Mallmann, Christophe Andro, Christopher

Harmston, Christopher Kuppler, Christopher Lotz, Christopher Nahm, Christopher Rowe, Christopher Ryalino, Christopher Wallis, Christopher Paul Millward, Christos Anthoulakis, Christos Apostolou, Christos Chouliaras, Christos Kalfountzos, Christos Kaselas, Christos Vosinakis, Chukwuma Okereke, Chung Shen Chean, Ciaran Barlow, Cihad Tatar, Cillian Clancy, Cillian Forde, Claire Sharpin, Claire Mccarthy, Claire Nestor, Claire Warden, Clara Castro Ávila, Clara Massaguer, Clarissa Ern Hui Fang, Claudia Pinto Martins, Claudio Guerci, Claudio Mauriello, Clemens Holzmeister, Clemens Miller, Clemens Weber, Clemens Georg Wiesinger , Cleo Kenington, Colin Noel, Colin Sue-Chue-Lam, Collins Adumah, Colm Neary, Comert Sen, Conall Fitzgerald, Constantine Ezeme, Constantinos Nastos, Cristian Mesina, Cristina Bombardini, Cristina Torregrosa, Cristina Puentes Valdespino , Cristine Pathirannehalage Don, Dakshitha Wickramasinghe, Damiano Milanese, Daniel Armijos, Daniel Asiimwe, Daniel Beswick, Daniel Clerc, Daniel Cox, Daniel Doherty, Daniel Fernández Martínez, Daniel Garay Lechuga, Daniel Gero, Daniel Gil-Sala, Daniel Lindegger, Daniel Reim, Daniel Shaerf, Daniel Shmukler, Daniela Branzan, Daniela Filipescu, Daniela Rega, Daniele Bernardi, Daniele Bissacco, Daniele Fusario, Daniele Morezzi, Danielle Sabella, Danijela Mrazovac Zimak, Danilo Vinci, Danjuma Sale, Danyal Zaman Khan, Dariel Thereska, Dario Andreotti, Dario Tartaglia, Darling Ramatu Abdulai, Dattatreya Mukherjee, Daunia Verdi, David Idowu, David John, David Johnson, David Moro-Valdezate, David Naumann, David Omar, David Proud, David Roberts, David Santos Guzmán, David Watson, David Julià Bergkvist, David Benjamin Lumenta, Davide Ferrari, Davide Rizzo, Dawit Degarege, Dayan Fanery Campino Castillo, Deborah Douglas, Deborah Wright, Deedar Nanjiani, Dejan Bratus, Demet Altun, Denise Sievers, Dennis Vaysburg, Devvrat Katechia, Dhruva Ghosh, Diallo Abdoul Azize, Diana Rodrigues, Diana Alejandra Pantoja Pachajoa, Dickon Hayne, Didier Mutter, Diego Raimondo, Diego Eskinazi, Diego Sasia, Diletta Corallino, Dillip Muduly, Dilraj Grewal, Dimitar Hadzhiev, Dimitra Peristeri, Dimitri Pournaras, Dimitri Aristotle Raptis, Dimitrios Angelou, Dimitrios Haidopoulos, Dimitrios Magouliotis, Dimitrios Moris, Dimitrios Schizas, Dimitrios Symeonidis, Dimitrios Tsironis, Dimitrios Korkolis, Dimitris Tatsis, Dinesh Thekkinkattil, Dirk Rolf Bulian, Diwakar Pandey, Dogan

Vatansever, Dominic Parker, Dominik Wiedemann, Dominika Borselle, Domiziana Pedini, Donald Schweitzer, Donatas Venskutonis, Dr Job Otokwala, Dr Kabir Musa Adamu, Dr Parvathy Pk, Dr. Mebanshanbor Garod, Dr.amera Ali Dakheel Ellafi, Dragana Zivkovic, Drago Jelovac, Duminda Wijeyesundera, Duncan Mcpherson, Éanna Ryan, Ebere Ugwu, Ebikela Ivie Baidoo , Ebrahim Shaddad, Ecem Memişoğlu, Eddy P. Lincango Naranjo, Edgar Brodtkin, Edoardo Segalini, Edoardo Viglietta, Eduard Hendriks, Eduard-Alexandru Bonci, Eduarda Sá-Marta, Eduardo Nieto Ortega, Eduardo Garcia-Loarte Gomez, Edwaldo Edner Joviliano, Edward Clune, Edward Horwell, Edward Mains, Edward Vasarhelyi, Edward J Caruana, Edward J Nevins, Edwin Mwintierah Ta-Ang Yenli, Efstratia Baili, Eftychios Litoridis, Eghosa Morgan, Ehab Shiban, Ejaz Latif, Ekaterini Christina Tampaki, Ekene Ezenwa, Ekpemi Irune, Elaine Borg, Elamin Eisa, Eleftherios Gialamas, Elena Parvez, Elena Theophilidou, Elena Adelina Toma, Eleni Arnaoutoglou, Elgun Samadov, Elie Kantor, Elif Akbas Ulman, Elif Colak, Elisa Cassinotti, Elisa Bannone, Elise Sarjanoja, Elizabeth Yates, Elizabeth Vincent, Elizabeth Weng Yan Lun, Elmedina Cerovac, Elmes Saoussene Dif, Elmustafa Alkhalifa, Elorm Daketsey, Elsayed A. Fayad, Eman Sheikh , Emanuele Pontecorvi, Emanuele Cammarata, Emanuele La Corte, Emanuele Rausa, Emeka Danielson Odai, Emilia Guasch, Emiliano Cano-Trigueros, Emilie Uldry, Emilio Peña Ros, Emily Matthews, Emin Erhan Donmez, Emmanouil Giorgakis, Emmanouil Kapetanakis, Emmanouil Stamatakis, Emmanuel Bua, Emmanuel Schneck, Emmanuel Aadereyir Nachelleh, Emmanuel Owusu Ofori, Emrah Akin, Emre Gönüllü, Emre Furkan Kirkan , Enes Çelik, Enoch Wong, Enrico Capozzi, Enrico Pinotti, Enrique Colás-Ruiz, Enrique González , Enver Fekaj, Ephraim Ohazurike , Ephrem Kebede, Ergin Erginöz, Erik Efrain Sosa Duran, Erin Scott, Erman Aytac, Erminia Albanese, Ernes John Castro, Eslam Albayadi, Eslam Kriem, Esra Siddig, Esraa Otify, Essam Eldien Abuobaida Banaga Hag El Tayeb, Estelle How Hong, Esther Saguil, Etienne Belzile, Eugene Tuyishime, Eugenio Panieri, Eunata Ganuza Martínez, Eva Myriokefalitaki, Evan G. Wong, Evangelia Samara, Evans Kofi Agbeno, Evgeniy Drozdov, Evripidis Tokidis, Faaiz Ali Shah, Fabio Barra, Fabio Carbone, Fabio Ferreli, Fabio Marino, Fabio Martinelli, Fabrizio D'acapito, Fabrizio Masciello, Fabrizio

Bàmbina , Fadi Issa, Fadi-Tamas Salameh, Fagnon Kethy , Fahad Mahmood, Fahed Gareb, Farah Idrees, Faramarz Karimian, Fariha Ashraf, Farnaz Haji, Farwa Inayat, Farzana Begum, Fatma Nabil, Fausto Rosa, Fayza Haider, Fazl Parray, Federica Calculli, Federica Ferracci, Federica Saraceno, Federico Coppola, Federico Coccolini, Federico Fusini, Federico Migliorelli, Felice Pecoraro, Felipe Alconchel, Felipe José Fernandez Coimbra, Felipe Trivik-Barrientos, Felix Naegele, Felwa Almarshad, Ferdinando Agresta, Fergal Fleming, Fernando Mendoza-Moreno, Filip Brzeszczyński , Filippo Carannante, Fiona Wu, Firas Aljanadi, Firdaus Hayati, Flaminia Campo, Flavia Sorbi, Flavio Milana, Flavio Roberto Takeda, Florence Shekleton, Florian Gessler, Florian Recker, Florin Grama, Floryn Cherbanyk, Fodayemi Faponle, Fragkiskos Angelis, Francesca Calabretto, Francesca Gaino, Francesca Toia, Francesco Bianco, Francesco Bussu, Francesco Cammarata, Francesco Castagnini, Francesco Colombo, Francesco Ferrara, Francesco Fleres, Francesco Guerrera, Francesco Litta, Francesco Mongelli, Francesco Pata, Francesco Roscio, Francesk Mulita, Francisco Ardura, Francisco J Tejero-Pintor, Francisco Javier Redondo Calvo, Francisco Jose Barbosa Escobedo, Francisco José Barbosa Camacho, Franco Odicino, Françoise Schmitt, Frank Bloemers, Frank Hölzle, Frank Enoch Gyamfi, Franka Messner, Frederick Koh, Freud Cáceres, Freyja-Maria Smolle-Juettner, Frima Herman, Funbi Ayeni, Gabriel Djedovic, Gabriel Paiva De Oliveira, Gabriel Rodrigues, Gabriela Wagner, Gabriele Bellio, Gabriella Giarratano, Gabriella Teresa Capolupo, Gabrielle Budd, Gad Marom, Gaetano Poillucci, Gajendiran Thiruchandran, Gary Nicholson, Gary Groot, Gary Hoey, Gary Alan Bass, Gaurav Sachdev, Gaurav Agarwal, Gaurav Aggarwal, Gennaro Cormio, Gennaro Mazzarella, Gennaro Perrone, Georg Osterhoff, Georg Singer, George Dejeu, George Fowler, George Garas, George Gradinariu, George Theodoropoulos, George Tzimas, George Babis, George Kwok Chu Wong, George W V Cross, Georgia Micha, Georgios Chrysovitsiotis, Georgios Koukoulis, Georgios Peros, Georgios Tsoulfas, Georgios Kapetanios, Georgios Karagiannidis, Georgios-Ioannis Verras, Gerald Ekwen, Gerardo Perrotta, Gerardo Petruzzi, Giacomo Bertelli, Giacomo Calini, Giacomo Fiacchini, Giacomo Maria Pirola, Giampiero Dolci, Gian Mendiola, Gian Luca

Baiocchi, Gian Marco Palini, Gian Marco Prucher, Giancarlo D'andrea, Giandomenico Maggiore, Gianluca Cassese, Gianluca Franceschini, Gianluca Pellino, Gianmarco Saponaro, Gianmaria Casoni Pattacini, Gianni Pantuso, Giannicola Iannella, Gilbert Batioka Bonsaana, Gillian Lever, Gioia Brachini, Giorgio Girauda, Giorgio Lisi, Giorgio Ivan Russo, Giovanni Aprea, Giovanni Pascale, Giovanni Tomasicchio, Giovanni Battista Levi Sandri, Giulia Armatura, Giulia Turri, Giulia Zaccaria, Giuliano Barugola, Giuliano Lantone, Giulio Gasparini, Giulio Iacob, Giulio Sozzi, Giuseppa Zancana, Giuseppe Mercante, Giuseppe Bianco, Giuseppe Brisinda, Giuseppe Consorti, Giuseppe Currò, Giuseppe Giannaccare, Giuseppe Palomba, Giuseppe Pascarella, Giuseppe Rotunno, Giuseppe Spriano, Giuseppe Vizzielli, Giuseppe Cucinella, Giuseppe Sica, Giuseppina Campisi, Glauco Baiocchi, Glen R Guerra, Glenda Marina Falcon Pacheco, Gokhan Atis, Goran Augustin, Goran Šantak, Govind Singh Chauhan, Graham Branagan, Grant Harris, Grant D. Stewart, Greg Padmore, Gregor Jan Kocher, Gregorio Di Franco, Gregorio De Jesus Labrador Hernandez, Gregory Christodoulidis, Gregory Neal-Smith, Guang Yim, Guglielmo Niccolò Piozzi, Guillem Claret, Guillermo Yanowsky-Reyes, Guipson Dhaity Dhaity, M.d, Guldeniz Karadeniz Cakmak, Guleed Mohamed, Gultekin Ozan Kucuk, Guntis Ancans, Gurpreet Singh Banipal, Gustavo De Bacco Marangon, Gustavo Laporte, Gustavo Martinez-Mier, Gustavo Recinos, Gustavo Miguel Machain V, Guy Benshetrit , Guy Vijgen, Gwynedd Pickett, H. Alejandro Rodriguez, Haaris Shiwani, Habtamu Derilo, Hadeel Awad, Hadi El Assaad, Hadijat Olaide Raji, Hailey Hardgrave, Haluk Kerim Karakullukcu, Hameedat Opeyemi Abdussalam, Hamid Mustafa , Hammad Parwaiz, Hamza Khan , Hana Arbab, Hani Naga, Hani Salem, Hanife Seyda Ulgur, Hanna Perez-Chrzanowska, Hannah Greenlee, Hannah Javanmard-Emamghissi, Hans Lederhuber, Hany Osman, Harissou Adamou, Haroon Javaid Majid, Harry Van Goor, Harry Vm Spiers, Hassan Fatemi Manesh, Hassan Mushtaq, Hattan Aljaaly, Hayat Ben Hasan , Hayat Tarig Abdelhafiz Ahmed, Hector Martinez-Said, Héctor J Aguado, Heitor Consani, Helen Chaplin, Helen Mohan, Helen Van Vliet, Helmut Alfredo Segovia Lohse, Hemina Shah, Henry Claireaux, Herman Lule, Hernández Juara , Hesham Abozied, Heura Llaquet Bayo, Hidar Alibrahim, Hidde M Kroon, Hilmican Ulman, Hina Khan, Hiroshi

Yonekura, Hisham Abou-Taleb , Ho Ying Flora Wong, Holly Carpenter, Hooman Soleymani
Majd, Horácio Zenha, Horacio F. Mayer, Hosam Elghadban, Hossam Abdou, Hossam
Elfeki, Hossein Yusefi, Hugo Gomez-Fernandez, Hugo Layard Horsfall, Hugo Meleiro, Hulya
Sungurtekin, Humberto Fenner Lyra Junior, Husein Moloo, Hüseyin Bayhan, Hüsnu Şevik,
Hussein Embarek, Hytham K. S. Hamid, I.h.d Saman Pradeep, Ian Donkin, Ibabe
Villalabeitia Ateca, Ibrahim Jafarov, Ibrahim Salisu, Ibrahim Abdalaal , Ibrahim Umar
Garzali, Ibrahim Sall, Idowu Adebara, Ifeanyi Aghadi, Ifeanyi Chukwu Ugwu, Ignacio
Zapardiel, Igor Reis, Ikechuwu Nwafor, Ildar Fakhradiyev, Ilham Utama Surya, Ilma Robo,
Iloba Njokanma, Immacolata Iannone, Imran Khan, Inês Correia, Ingmar Königsrainer,
Ingmar Seiwerth, Inmaculada Benítez Linero, Innih Kadiri, Ioan-Alexandru Florian, Ioanna
Tzima, Ioanna Akrida, Ioannis Baloyiannis, Ioannis Gerogiannis, Ioannis Katsaros, Ioannis
Tsakiridis, Ioannis Valioulis, Ionut Negoii, Ip Yadev, Irene De Haro Jorge, Irene Ortega
Vázquez, Irida Dajti, Iris Shari Russo, Irrum Afzal, Isaac Wasserman, Isaac Chukwu , Isabel
Gracia, Isabel Mora Oliver, Isabel Hughes, Isabella Mondii, Isaie Ncogoza, Isam Bsisu,
Isbah Rashid, Ishwarya Balasubramanian, Islam Omar, Mb Bch, Msc, Mrccs, Febs/Gensurg,
Ismael Dominguez-Rosado, Ismail Smati, Ismail Vokshi, Ismail A. Al-Badawi, Ismail Ali
Saleh, Isobel Pilkington, Iva Kirac, Ivan Trostchansky, Iwona Magdalena Gawron, Jacobo
Trebol, Jacopo Martellucci, Jacopo Andreuccetti, Jad Abou-Khalil, Jaffer Shah, Jaiganesh
Manickavasagam, Jaime Rodríguez De Alarcón, Jakov Mihanovic, James O'riordan, James
Archer, James Ashcroft, James Blair, James Hamill, James Munthali, James Park, James
Parry, James Ryan, James Tomlinson, James Wheeler, James Wilkins, James A. Balogun,
James Michael Hodgetts, Jamie Vatish, Jan Žatecký, Jana Dziaikova, Janet Martin, Jasmine
Winter Beatty, Jasper Stijns, Javaria Faiz, Javier Ripollés-Melchor , Javier Mata, Javier
Alberto Gutiérrez Vásquez, Jayanta Kumar Mitra, Jean Jacques Tuech, Jean Paul
Mvukiyehe, Jean-Michel Fallah, Jeancarlos Trujillo Díaz, Jeewan Ram Vishnoi, Jef Van Den
Eynde, Jennifer Rickard, Jens Rolinger, Jeremy Kaplowitz, Jeremy Meyer, Jeremy Reid,
Jeremy Rossaak, Jeremy Smelt, Jerin Jose Thomas, Jeryl Anne Silvia Reyes, Jessica
Davies, Jessica Luc, Jesús Aarón Martínez Alonso, Jiannis Hajioannou, Jill Querney, Jill

Van Acker, Jingya Jane Pu, Jitoko Cama, Joana Simoes, Joanne Cozens, Joao Barbosa-Breda, João Ribeiro, Joaquin De Haro, Joe Nigh, Joel Bowen, Joerg Matthias Pollok, Johanna Josefina Strotmann, Johannes Doerner, John Edwards, John Green, John Massoud, John Mcgrath, John Squiers, John Street, John Windsor, John Ashutosh Santoshi, John G. Meara, John Tabiri Abebrese, John-Joe Reilly, Jon Zabaleta, Jonathan Phillips, Jonathan Herron, Jonathan Horsnell, Jonathon Dawson, Jonathon Sheen, Joonas H Kauppila, Joop Konsten, Jordi Raurich-Leandro, Jorge Sanz Romera, Jorge Nuñez, Jörn-Markus Gass, Jose Blanco, Jose Andres Calvache, Jose Luis Fadil Iturralde, José Luis D'addino, Jose María González Hermosa, Jose Ramon Oliver Guillen, Jose-Luis Beristain-Hernandez, Josep M Sole-Sedeno, Josep Maria Muñoz Vives, Joseph Attwood, Joseph Furey, Joseph Hadaya, Joseph Mckay, Joseph Meilak, Joseph Natale, Joseph Shalhoub, Josephine Jung, Joshua Arthur, Joshua Kealey, Joshua Wright, Joshua Moreau, Josip Miskovic, Jovan Juloski, Juan Carlos Catalá Bauset, Juan José Segura-Sampedro, Juan Roberto Torres Cisneros , Juan-Carlos Gomez-Rosado, Jugpal Arneja, Julia Heider, Julio Domenech Fernández, Julio Plata-Bello, Julio Villanueva, Julius Olaogun, Jun Xian Hing, Jurij Aleš Košir, Jurstine Daruwalla, Justin Yeung, Justin Wormald, Justina Seyi-Olajide, Jyotsna Rani, Kai Yuen Wong, Kalina Hristova, Kamal Kajal, Kamal Algarni , Kanthan Theivendran, Kaori Futaba, Karam Elsayem, Karan Kapur, Karen Bailey, Kariem El-Boghdadly, Karim Ataya, Karisha Lacorbiniere, Karishma Shah, Karla Susana Martin Tellez, Karol Szyluk, Karthick Rangasamy, Karthikeyan Iyengar, Katarína Szabó Mihályová, Kate Atkinson, Katherin Camargo-Parra, Katherine Galliard, Kathryn Dickson, Kathryn Singh, Kawthar Qader, Kawthar Hasan, Kayleigh Spellar, Kaylem Feeney, Kayode Ajenifuja, Ke En Oh, Kehinde Okunade, Kekeli Adanu, Kellie Bateman, Kemal Saracoglu, Ken Weixing Ho, Kenneth Enwerem, Keshav Mishra, Kevin Verhoeff, Khadidja Bensoltane, Khadidja Larabi , Khairul Hazim Hamdan, Khaldoun Nadi, Khaldoun Fozo, Khaled Abdelwahab, Khaled Al-Sayaghi, Khaled Dajani, Khaled Algahtany, Khalid Abdel-Galil, Khalid Ahmed, Khalid Bajunaid, Khalid Bhatti, Khalid Sofi, Khalifa Abdulsalam, Khalil Tamoos, Khasan Dzhumabaev, Khursheed Ahmed Samo, Kieran Purich, Kiran Madhvani, Kirby R. Qin, Kirk

Underwood, Kithsiri Janakantha Senanayake, Knut Magne Augestad, Kohila Sigamoney, Konstantinos Apostolou, Konstantinos Bouchagier, Konstantinos Bouliaris, Konstantinos Bramis, Konstantinos Gousias, Konstantinos Lasithiotakis, Konstantinos Paraskevopoulos, Konstantinos Perivoliotis, Konstantinos Reditis, Konstantinos Stamatis, Konstantinos Stroumpoulis, Kosmas I. Paraskevas, Krishna Kumar Govindarajan, Kristián Šimko, Kristofor A. Olson, Krunal Khobragade, Kt Matthew Seah, Kunal Kishore, Kusay Ayad, Kyriakos Papavasiliou, Kyveli Angelou, Ladislao Cayetano Paniagua, Ladislav Czako, Laine Valerie Kongsun Ching, Lajpat Rai, Lalit Gupta, Lamiese Ismail, Langanani Mbodi, Lanka Dasanayake, Lars Schröder, Lateef Ayodele Baiyewu, Laura Fortuna, Laura Gomez Fernandez, Laura Guillamon Vivancos, Laura Jack, Laura Keçi, Laura Lavalley, Laura Leonard, Lauren Shelmerdine, Laretta Vaassen, Layla Hasan, Lazaros Lazarou, Lazaros Tzelves, Leandro Matos, Leandro Siragusa, Leo Licari, Leonardo Santos Lima, Leonardo Solaini, Leonid Lichman, Leopoldo Tapia Moral, Leticia Cabeza, Lewis Kaplan, Liana Valeanu, Lileswar Kaman, Lina Karout, Linas Pieteris, Linda Chan, Linda Grüßer, Lindsey Zamora, Lisa Catarzi, Lisa Rampersad, Lofty-John Anyanwu, Lok Ka Cheung, Lorena Varela Rodríguez, Lorenzo Andreani, Lorenzo Cobianchi, Lorenzo Petagna, Louise Howse, Lourdes Elorduy Gonzalez, Lovenish Bains, Lubna Vohra, Luca Ansaloni, Luca Bertolaccini, Luca Ferrario, Luca Orecchia, Luca Tirloni, Luca Zanin, Luca Morelli, Luca Scaravilli, Luca Giovanni Locatello, Lucia Diego García, Lucian Vida, Ludovico Carbone, Ludwig Maximilian Heindl, Luigi Bonavina, Luigi Conti, Luigi Marano, Luigi Verre, Luigi Eduardo Conte, Luis Boccalatte, Luis Garcia-Sancho Tellez, Luis Loureiro, Luis Sánchez-Guillén, Luis Tallon-Aguilar, Luis Nakano, Luis Adrian Alvarez-Lozada, Luis Angel Suarez Gonzalez, Luis Joaquín García Flórez, Luis-Cristobal Capitan-Morales, Luiz Paulo Kowalski, Lukas Werner Widmer, Luke Harper, Luke Render, Luke Wheldon, Lukman Abdur-Rahman, Lütfi Doğan, Lydia Prusty, Lykoyrgos Katsiaras, Lysander Gorbault, M. Tayyab Siddiqui, Ma'moun Saleh, Madhivanan Karthigeyan, Magdiel Rodriguez, Mahbub Chowdhury, Mahesh Nagappa, Mahesh Sultania, Mahmud Bashir, Mahmood Alam, Mahmoud Abdelaziz Mohamed Elshahawy, Mahmoud Elfiky, Mahmoud Loubani, Mahmoud Marei, Mahmoud

Mewafy, Mahmoud Alali, Mahmoud A Nassar, Majd Alobied, Majed Bilfaqirah, Maleeha Ahmad, Malena Rius, Mallikarjuna Manangi, Mamun David Dornseifer, Manjul Tripathi, Manjula S, Manol Sokolov, Manon Pigeolet, Manuel Diez Alonso, Manuel Losada, Manuel Moriche Carretero, Manuel Tousidonis, Manuel Damasio Cotovio, Manuk Wijeyaratne, Mar Achalandabaso Boira, Mara Franza, Maram Albdour, Maram Alkhatieb, Marc Danguy Des Déserts, Marc Niewiera, Marc Vallve-Bernal, Marcel Marjanović Kavanagh, Marcello Migliore, Marcello Calabrò, Marcello Di Martino, Marcello Reicher, Marco Baia, Marco Caricato, Marco Clementi, Marco De Zuanni, Marco Fiore, Marco Giacometti, Marco Inama, Marco Maestri, Marco Materazzo, Marco Sparavigna, Marco Maria Pascale, Marcus Nemeth, Margherita Serra, Margo Medhat Fouad Fahim, Maria Coronas Soucheiron, Maria Papadoliopoulou, Maria Wittmann, Maria Sotiropoulou, María García-Conde, Maria Chiara Ranucci, María Dolores Arribas Del Amo, Maria Jesus Maroño Boedo, Maria Jose Martinez Velázquez , Maria Katerina Pissaridou, Maria Laura Petersen, Maria Luís Sacras, Maria Marta Modolo, Maria Mercedes Caubet, Maria Michela Di Nuzzo, Maria P Ntalouka, Maria Paola Menna, Maria-Lorena Aguilera-Arevalo, Mariam Rela, Marianna Capuano, Marianne Hollyman, Maricarmen Olivos, Marie Dione Sacdalan, Marie-Claire Raphael, Marijn Takkenberg, Marina Bortul, Marino Cabrera, Mario Castaño, Mario D'oria, Mario Giuffrida, Mario Mella Laborde, Mario Rodriguez-Lopez, Mario Trejo-Avila, Mario Virgilio Papa, Marios Ghobrial, Marius Kryzauskas, Mariyah Anwer, Mark Cheetham, Mark Davies, Mark Higgins, Mark Siboe, Marko Tarle, Markus Velten, Markus Wurm, Marlen Süleyman, Marlies Bauer, Marliza O'dwyer, Marta Caretto, Marta De La Rosa-Estadella, Marta Fragoso, Marta Lopes Serra, Marta Merayo, Marta Roldón Golet, Marta Isabel Martínez-Sánchez, Marta María Arroyo Domingo, Martijn Gosselink, Martin Batstone, Martin Reichert, Martin Salö, Martina Soljic, Martina Zambon, Martina Aida Angeles, Marwa Abdulkhaleq, Maryam Abdelkarim, Maryam Alsefri , Masae Iwasaki, Masaki Shiota, Massimiliano Veroux, Matilde Molina-Corbacho, Matteo Frasson, Matteo Serenari, Matteo De Pastena, Matteo Desio, Matteo Risaliti, Matteo Rottoli, Matthew Bence, Matthew Chan, Matthew Watson, Matthew Wiles, Matthieu Boisson, Mattia Berselli, Mattia Capobianco, Mattia Di Bartolomeo, Matyas

Fehervari, Maurizio Pacilli, Maurizio Romano, Maurizio Zizzo, Maurizio Domanin, Mauro Montuori, Mauro Podda, Mauro Zago, Mawutor Dzogbefia, Maximos Frountzas, May Htoo Thaw, Maytham Al-Juaifari , Mayur Gharat, Mazin Mohamed , Md. Jafrul Hannan, Meenakshi Venketeswaran, Meer Chisthi, Megbar Dessalegn, Mehmet Kaplan, Mehmet Çağlar Çakıcı, Mehmet Eşref Ulutaş, Mekki Hassan, Menan Elsadek , Mengistu G Mengesha, Mercedes Estaire Gómez, Merihan A. Elbadawy, Meron Pitcher, Mert Tanal, Merve Tokocin, Merve Ergenç, Meryem Nur Çelik, Metaxia Bareka, Mevlut Recep Pekcici, Micaela Cappuccio, Michael Dasa, Michael Dewan, Michael El Boghdady, Michael Ezeanochie, Michael Greenhalgh, Michael Jenkinson, Michael Kelly, Michael Spartalis, Michael Zyskowski, Michaël Racine, Michael De Cillia , Michael Jen Jie Chu, Michael R. Mallmann, Michael Z.I. Zhu, Michail Klimovskij, Michail Vailas, Michał Kisielewski, Michel Adamina, Michela Campanelli, Michele Carvello, Michele Ammendola, Michele Manigrasso, Michele Scopelliti, Michelle White, Michelle L Collins, Mickael Chevally, Miguel Fróis Borges, Miguel Mayo-Yáñez, Miguel Rocha Melo, Miguel Ruiz-Marín, Miguel Angel Freiria Eiras, Miguel F. Cunha, Mihaela Pertea, Mihail Slavchev, Mihnea Davidescu, Mikel Prieto, Mikhail Agapov, Milad Gahwagi, Milagros Carrasco Prats, Milan Rudic, Milena Senica Verbic, Milosz Kostusiak, Mircea Gabriel Stoleriu, Miriam Abellan Lucas, Mirko Barone, Misbahu Ahmad, Misganaw Alemu Adimass Alemu, Mishal Fatima, Mitsuru Ida, Mo Sahu, Mo'nes Muhaisen, Moacyr Salem, Moataz Maher Emar, Mobolaji Oludara, Mohadeseh Sotudeh, Mohamad B. Kassab, Mohamed Abdelkhalek, Mohamed Alsori, Mohamed Anwar, Mohamed El-Kassas, Mohamed Elbahnasawy, Mohamed Eldabaa, Mohamed Rabie, Mohamed Abdelghafor Hassanin, Mohamed Adhnan Thaha, Mohamed Shafi Mahboob Ali, Mohammad Alhamid, Mohammad Badr Almoshantaf, Mohammad Reza Keramati, Mohammed Bafaquh, Mohammed Abuzaid, Mohammed Al-Shehari, Mohammed Alharthi, Mohammed Alkahlan, Mohammed Alwash, Mohammed Alyousef, Mohammed Amir, Mohammed Basendowah, Mohammed Deputy, Mohammed Jibreel, Mohammed Shadrul Alam, Mohammed Alsharif , Mohammed Duah Issahalq , Mohammed Eltahier Abdalla Omer, Mohammed Kabir Abubakar, Mohd Rusdi Draman, Moheyaldien Ahmed Elamin

Elnour, Momin Eltayeb, Monica Noguez Castillo, Monir Jawad, Monish Raut, Montassar Ghaleb, Morihiro Katsura, Moritz Lebe, Mostafa Abbas, Mostafa Abdelrahman, Mostafa Shalaby, Muhamed Farhan-Alanie, Muhammad Farooq, Muhammad Musadaq, Muhammad Arshad, Muhammad Ayyub Anjum, Muhammad Usman, Muhammad Amjad Chaudhary, Muhammad Asif Raza, Muhammad Fairuz Shah Abd Karim, Muhammad Hamid Chaudhary, Muhammad Haris Janjua, Muhammad Imran Khokhar, Muhammad Isfandyar Khan Malik, Muhammad Taqi Pirzada, Muhammad Umar Younis, Muhammed Elhadi, Muhammed Salih Suer, Muhammer Ergenç, Muhannud Binnawara , Muhawenimana Emmanuel, Mujeeb Abbasi, Mukhammad David Naimzada, Mukhtar Kulimbet, Munenori Kusunoki, Muneza Eugene, Munish Chauhan, Muntaser Abu Shokor, Murad Aljiffry, Murat Kalın, Musbahu Kurawa, Müserref Beril Dincer, Musliu Adetola Tolani, Mustafa Soytaş, Mustapha Yakubu, Mustapha Ibrahim Usman , Muyiwa Aremu, Mykola Paranyak, Nabila Talat, Nabila Kausar, Nagendra Dudi-Venkata, Nagham Bazzi, Najat Ben Hasan, Naomi Natasha Van Wyk, Naseebah Shaban, Naser Almgla, Naser Yousefzadeh Kandevari, Nasser Alzerwi, Natalia Alvarez, Natalia Motas, Natalia Andrea Rivera Rincón , Natalie Blencowe, Natalie Simon, Natasha Aghtarafi, Navdeep Kaur Ghuman, Naveen Sharma, Naveen Wijekoon, Navin Kumar, Naya Hassan, Ndubuisi Onyemaechi , Nebojša Prijović, Necdet Özçay, Neha Goel, Neil Segaren, Neil Sharma, Nektaria Kalyva, Nelson Morales Palacios, Nestor Fabian Pedraza Alonso, Ngozi Onyeagwara, Niccolò Petrucciani, Niccolò Daddi, Nicholas Lightfoot, Nicholas Power, Nicholas Segaren, Nichole Starr, Nici Markus Dreger, Nicola Cillara, Nicola Colucci, Nicola Eardley, Nicola Tartaglia, Nicola Zanini, Nicolae Bacalbasa, Nicolas Campuzano, Nicolas Mouawad, Nicoletta Sveva Pipitone Federico, Nicolò Tamini, Nicolò Maria Mariani, Nigel Beasley, Nii Armah Adu-Aryee, Nikita Burlov, Nikolaos Dimitrokallis, Nikolaos Gouvas, Nikolaos Machairas, Nikolaos Memos, Nikolaos Thomakos, Nikolaos Tsakiridis, Nikolaos Schizas, Nikolaus Börner, Nikoletta Theochari, Nina Al-Saadi, Nina Glass, Nir Horesh, Nissi Evelyn. R, Nitesh Gahlot, Nizar Ismail, Noof Aljirdabi , Noor Ul Huda Maria, Nora Trabulsi, Nouf Akeel, Nuno Borges, Nupur Moda, Nuria Villacé Redondo, Obed Ofori Nyarko, Octav Ginghina, Octavian Enciu, Oghenekevwe Okere, Okechukwu

Hyginus Ekwunife, Oladeji Quadri, Olakayode Ogundoyin, Olga Tucker, Olga Mateo-Sierra, Olivier Azzis, Olufemi Ojewuyi, Olufemi Habeeb, Olufemi Idowu, Olumide Elebute, Oluseyi Agboola, Oluwaseun Ladipo-Ajayi, Oluwaseun Oyinloye, Oluwaseyi Adebola, Oluwayemisi Ekor, Oluwole Ogundoyin, Omar Salamanca, Omar Vergara-Fernandez, Omar Wafi, Omar Aladawi, Omar Mohammed Bahassan, Ömer Tammo, Omer Faruk Ozkan, Omolara Modupe Williams, Omotayo Salami, Opeyemi Akinajo, Orazbek Sakhov, Oreste Gallo, Oriol Martin Sole, Oronzo Milella, Osaid Alser, Osama Al Bettar, Osama Alomar, Osama Saeed Osman, Oseremen Aisuodionoe-Shadrach, Oshan Basnayake, Osman Bozbiyik, Owen Hodges, Owolabi Ojo, Özge Yanık, Özgecan Pırl Zambak Mutlu, Ozgur Kazan, Pablo Calavia, Pablo Rodríguez García , Pablo Vallés Urriza, Paloma Rodriguez Lopez, Panagiotis Christidis, Panagiotis Dorovinis, Panagiotis Kokoropoulos, Panagiotis Mourmouris, Panayiotis Papatheodorou, Pankaj Kumar Garg, Panna Patel, Panteleimon Vassiliu, Paola Campenni , Paola De Nardi, Paolo Bernante, Paolo Ubiali, Paolo Baroffio, Paolo Pizzini, Paolo Sapienza, Par Myrelid, Paraskevi Chatzikonitsa, Paraskevi Tsiantoula, Parth Gada, Pasquale Avella, Pasquale Cianci, Patricia Romero, Patricia Serrano Méndez, Patricio Andrés Freile Pazmiño, Patrick Coughlin, Patrick Kirchweger, Patrick Pessaux, Patrick J Maguire, Patrizio Petrone, Paul Cullis, Paul Köglberger, Paul Marriott, Paul Nankivell, Paulo Santos-Costa, Paulo N. Martins, Pedram Panahi, Pedro Botelho, Pedro Teixeira, Pedro Escobar, Pedro José Gil Vázquez, Petar Gribnev, Peter Nolte, Peter Agbonrofo, Peter Bobak, Peter Choong, Peter Elbe, Peter Hutchinson, Peter Labib, Peter Paal, Peter Pockney, Peter Reemst, Peter Szatmary, Peter G Vaughan-Shaw, Philip Alexander, Philip Pucher, Philip Stather, Philipp Foessleitner, Philipp Winnand, Philipp Zehnder, Philippe Kruse, Philomena Alice Wawer Matos, Pierfrancesco Lapolla, Pierfranco Maria Cicerchia, Piergiorgio Solli, Pierpaolo Di Lascio, Pierre Zarif, Pierre-Olivier Champagne, Pietro Anoldo, Pietro Bertoglio, Pietro Fransvea, Pietro Familiari, Pietro Maria Lombardi, Piotr Tomasz Stogowski, Placido Bruzzaniti, Prashant Tripathi, Prashanth D'sa, Pravin Salunke, Pritik A Shah, Prof Prakash P Punjabi, Prokopis Christodoulou, Qusai Hamdan , Ra'fat Tawalbeh, Rabea Gadelkareem, Rabih Awad, Rachael Callcut, Rachael Clegg, Rachel Choron, Rachel

Payne, Rachel Gefen, Radu Costea, Radu Drasovean, Radu Mihail Mirica, Raevin Ravindra, Rafael Torres Fajardo, Rafael Leite Nunes, Raffaele Aspide, Raffaele Lombardi, Raghavan Vidya, Rahma Elboraei , Rahmah Saaid, Rahul Ghodke, Rahul Gupta, Rahul Deo Sharma, Raimundas Lunevicius, Raja Kalayarasan, Rajashekar Mohan, Rajdeep Singh, Rajesh Sivaprakasam, Rajkumar Kottayasamy Seenivasagam, Rajkumar Rajendram, Raluca Bievel Radulescu, Raluca Goicea, Ramakrishnan Ayloor Seshadri, Ramazan Sari, Ramesh Nataraja, Ramisha Aslam, Rania Abdelemam, Rashmit Shrestha, Rasiah Bharathan, Raul Pellini, Raul Guevara, Ravi Agarwal, Ravi Vissapragada, Rawan A.rahman Alharmi, Raza Sayyed, Rebecca Browning, Rebecca Critchley, Rebecca Mallick, Rehab Alarabi, Reinaldo Isaacs Beron, Reinhold Függer, Rema Othman, Rema Saad, Remedios Revilla Amores, Renan Carlo Colombari, Renata Curic Radivojević, Renato Patrone, René Novysedlák, René Manuel Palacios Huatuco, Reto Baertschiger, Rhea Liang, Rhys Luckwell, Ricardo Escrevente, Ricardo Fernandes Rezende, Ricardo Pedrini Cruz, Riccardo Lenzi, Riccardo Rosati, Richard Donovan, Richard Egan, Richard Morris, Richard Page, Richard Seglenieks, Richard Unsworth, Richard Wilkin, Richard Je Skipworth, Richard Justin Davies, Rifat Bezirci, Rishi Talwar, Rizwan Azami, Rob Bohmer, Robert Crichton, Robert Fruscio, Robert Hooker, Robert Jach, Robert Parker, Robert Pillerstorff, Robert Sinnerton, Robert Stabler, Robert Michael O'connell, Roberta Ragozzino, Roberta Tutino, Roberta Angelico, Roberto Cammarata, Roberto Colasanti, Roberto Macchiavello , Roberto Peltrini, Roberto Pirrello, Roberto Vaschetti, Robinson Esteves Pires, Rocco Papalia, Rodrigo Arrangoiz, Roel Hompes, Rohin Mittal, Rokeya Salah, Romina Pinto , Ronald Flumignan, Rory Callan, Rory Cuthbert, Rory Dennis, Rosa Scaramuzzo, Rosa Montero Macías, Rosa Sánchez, Rosemary Ogu, Rosnelifaizur Ramely, Rossella Sgarzani, Roszalina Ramli, Roxane Hillier, Ruben Thumbadoo, Rucira Ooi, Rukiyat Abdus-Salam, Ruqaya Masri, Russell Hodgson, Ryan Mathew, Ryckie Wade, Sabatino D'archi, Sabina Khan, Sabrina Ngaserin, Sachin Kale, Sadiq Hassan, Safa Merghani , Safia Benamar , Sagir Muhammad, Saif Badran, Saifaleslam Elsahli, Saimir Heta, Salah Hammouche, Saleh Baeesa, Salvatore Paiella, Samaher Taj Eldeen Hassan Taj Eldeen , Samara Arkani, Samarth Mittal, Sameer

Hirji, Sameer Tebha, Sameh Emile, Samer Dbouk, Samik Kumar Bandyopadhyay, Saminu Muhammad, Samson Olori, Samuel Amoako Asirifi, Samuel Hailu, Samuel Ling, Samuel Newman, Samuel Ross, Samuel Wanjara, Sandip Kumar, Sanjeewa Seneviratne, Sara Tamburello, Sara Busto Suarez, Sara Ingallinella, Sara Irshaidat , Sara Konswa, Sara Mambrilla, Sara Nasser, Sara Parini, Sara Pitoni, Sara Ornaghi, Sara Castanheira Rodrigues, Sarah Abdelmohsen, Sarah Aitken, Sarah Tian, Sarit Badiani, Sarwat Ahmad, Sarya Swed, Sathish Muthu, Sathya Lakpriya, Saud Alzahrani, Saulius Mikalauskas, Savita Lasrado, Savni Satoskar, Sayesha Bawa, Saygin Altiner, Sean Garcia, Sean Stevens, Sebahattin Demir , Sebastian Ken-Amoah, Sebastian Tranca, Sebastian Ziemann, Selmy Awad, Semra Demirli Atici, Sentilnathan Subramaniam, Serap Erel, Serena Jiang, Sergey Efetov, Sergey Efremov, Sergey Katorkin, Sergio Chávez Valladares, Sergio Marcos Contreras, Serhat Meriç, Serkan Zenger, Seyer Safi, Sezai Leventoğlu, Shady Elsalhawy, Shafaque Shaikh, Shahila Sheik, Shahnoor Islam, Shahzad Shamim, Shahzad Hussain Waqar, Shahzaib Ahmad, Shahzaib Farid, Shaikh Sanjid Seraj, Shalini Sundarraju, Sharad Karandikar, Sharan Sambhwani, Sharat Chopra, Sharfuddin Chowdhury, Sharon Laura, Sharwany Ahmed, Shaun Wason, Shawn Jia Hwang Tan, Sheila Fraser, Shekinah Williams , Sherief Ghozy, Sherif Abdelmawgoud, Sherif Shehata, Shilpa Sharma, Shima Ahmed , Shimaa A. Al-Touny, Shireen Ramzanali, Shireen Anne Nah, Shirley Jansen, Shiv Rajan, Shiva Dindyal, Shivang Amin, Shoaib Ahmad, Shoukrie I M Shoukrie, Shoura Karar, Shraddha Patkar, Shuaib Abdulsalam, Shuxun Lin, Siddhi Hegde, Silvia Fiorelli, Silvia Quaresima, Silvia Villacé Redondo, Silvia Palmisano, Silvia Ruggiero, Simon Balogun, Simon Cais, Simon Cole, Simon Federer, Simon Le Roux, Simona Ippoliti, Simona Meneghini, Simona Viola, Simone Manfredelli, Simone Novello, Sivakumar Gananadha, Smain Nabil Mesli, Smruti Kale, Sobhana Iftekhar Tani, Sobia Malik , Sofia Anastasiadou, Sofia Boligo, Sofia Esposito, Sofia Valanci, Sofia Xenaki, Sofija Pejnova, Soham Bandyopadhyay, Sokol Trungu, Somprakas Basu, Sondas Alkhatib, Sonia Pérez-Bertólez, Sonia Lopez Flores , Sophie Donoghue, Sorinel Lunca, Soyombo Orsoo, Spyridon Potamianos, Sreekar Devarakonda, Sreelakshmi Suresh, Stefanie M Croghan, Stefano Turi,

Stefano Capella, Stefano Lucchini, Stefano Magnone, Stefano Salizzoni, Stefano Scabini, Stefano Scaringi, Stefano Piero Bernardo Cioffi, Steffen Seyfried, Stephan Degener, Stephanie Potten, Stephanie Taha-Mehlitz, Stephen Ali, Stephen Angamuthu, Stephen Mcaleer, Stephen Richard Knight, Stuart White, Styliani Mantziari, Stylianos Kykalos, Su Kah Goh, Subhadip Pal Chowdhury , Sufyan Ibrahim, Suha Elzwai, Sujesh Bansal, Sujit Tripathy, Sultan Amrayev, Sumadi Lukman Anwar, Sumit Banerjee, Sumit Thakar, Summaya Saeed, Sunil Kumar Venkatappa, Sunit Das, Suphakarn Techapongsatorn, Surya Kumar Dube, Susan Lee, Susana González-Suárez, Susana Henriques, Suzana Konjevoda, Suzanne Gisbertz, Sybil Lizanne Bravo, Syed Mannan, Syed Imran Bukhari, Syed Nabeel Zafar, Sylvia Batista, Synn Lynn Chin, Tahera Arif, Taiwo Akeem Lawal, Talar Vartanoglu Aktokmakyan, Tamara Osborn, Tamas Szakmany, Tamás Sztipits, Tania Triantafyllou, Tania Abigail Cueto Valadez, Tanveer Singh, Tanwir Khaliq, Tapan Patel, Tarig Fadalla, Tarik Jichi, Tarik Sammour, Tariq Al-Shaiji, Taryn Naggs, Tatjana Barišić, Taxiarchis Nikolouzakis, Tayfun Bisgin, Teresa Perra, Tevfik Kivilcim Uprak, Themistoklis Dagklis, Theodore Liakakos , Theodoros Sidiropoulos, Theophilus Justus Kofi Adjeso, Theresa Dölker, Thida Oung, Thomas Aherne, Thomas Diehl, Thomas Pinkney, Thomas Raymond, Thomas Rhomberg, Thomas Schmitz-Rixen, Thumuluru Kavitha Madhuri, Tibor Karl Lohmann, Tien Yeoh, Tilemachos Zaimis, Tim Bright, Tim O. Vilz, Tim R. Glowka, Timothy Board, Timothy Hardcastle, Tina Cohnert, Tina Tomić Mahečić, Tinka George William, Tobias Klatte, Tom Abbott, Tom Watcyn-Jones, Tome Mendes, Tomislav Kulis, Tomislav Sečan, Tommaso Campagnaro, Tommaso Frisoni, Tommaso Simoncini, Tommaso Violante, Toms Janis Safranovs, Toni Risteski, Tony Pang, Tosin Akinyemi, Tsanko Yotsov, Tsegazeab Laeke, Tsukasa Kochiyama, Tunde T. Sholadoye, Tural Alekberli, Uchechukwu Ezomike, Ugo Giustizieri, Ugo Grossi, Ülkü Ceren Köksoy, Ulrich Bork, Ulrich Kissler, Ulrich Ronellenfitsch, Umar Saeed, Umberto Bracale, Umesh Jayarajah, Umme Habiba Abdul Rauf, Uros Bumbasirevic, Ursula María Jarrod Ferrer, Usama Ahmed, Usman Mohammed Bello, Uzair Jogiat, Uzma Sadia, Vagif Galandarov, Vairavan Narayanan, Valentin Calu, Valentina Bianchi, Valeria Ciniero, Valeria Tonini, Vania Silvestri, Vardhini Vijay, Varun

Dewan, Varut Lohsiriwat, Vasanthika Thuduvage, Vasileios Mousafeiris, Vedran Dragisic, Veerasamy Sasireka, Veljko Santric, Venkata Ramana Murthy Kusuma, Venkata Satish Kolli, Veronica Alonso, Veronica De Simone, Veronica Picotti, Verónica Martín Martínez, Vicky Panduro-Correa, Victor Kakotkin, Victor Pinto Angulo, Victor Turrado-Rodriguez, Vijay Krishnamoorthy, Vin Shen Ban, Vinay Shah, Vincenza Maiola, Vincenzo Giordano, Vincenzo La Vaccara, Vincenzo Lizzi, Vincenzo Papagni, Vincenzo Schiavone, Vinojan Satchithanatham, Virginia Garcia-Virto, Virginia Jimenez, Vishal Kumar, Vishal Shelat, Vivek Bhat, Vivek Sodhai, Vivien Graziadei, Vladislav Kutuzov, Vladislav Stoyanov, Vlasios Oktseloglou, Vojko Flis, Wael Atif Fadi Elhassan, Wah Yang, Wai Cheong Soon, Wail Tashkandi, Waleed Al-Khyatt, Waleed Mabood, Walid Bijou, Wasantha Wijenayake, Wasim D, Wiktor Krawczyk, William Atkins, William Bolton, William White, Wim Ceelen, Xanthoula Vagena, Yaacov Gozal, Yabasin Iddrisu Baba, Yamini Subramani, Yanina Jansen, Yash Mittal, Yasin Kara, Yasir Zwain , Yasser Noureldin, Yazan Alawneh, Yener Aydin, Yick Ho Lam, Yita Tang, Yizhe Lim, Yomna Dean, Yousef Tanas, Yu-Xiong Su, Yuki Fujimoto, Yuksel Altinel, Yulia Frolova, Yusuf Oshodi, Zahir T Fadel, Zahra Zahid , Zain Elahi, Zakarya Djama, Zakia Zaheen, Zaynab Jawad, Zaza Demetrashvili, Zersenay Gebremeskel, Zewdie Gudisa, Ziyad Alyami, Zoe Garoufalia, Zoe Li, Zoran Zimak, Zorana Radin, Zsolt J. Balogh.

