Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.
How to Receive CME and MOC Points

LIVE VIRTUAL GRAND ROUNDS WEBINAR
ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2021 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2022 for this activity.

MOC QUESTION

If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement.
THESE ANSWERS WILL BE REVIEWED.
ACG Virtual Grand Rounds

Join us for upcoming Virtual Grand Rounds!

Week 14, 2021
Cystic Fibrosis-Navigating Gastrointestinal Complications
Christine Y. Hachem, MD, FACP
April 8, 2021 at Noon Eastern

Week 15, 2021
Exocrine Pancreatic Insufficiency
Jodie A. Barkin, MD
April 15, 2021 at Noon Eastern

Visit gi.org/ACGVGR to Register

Disclosures:

Speaker: Swaspna Gayam, MD
Moderator: Justin T. Kupec, MD, FACP

None of the faculty for this educational activity have relevant financial relationship(s) to disclose.
Healthcare Carbon Footprint: “Scope” of the Problem

Swapna Gayam, MD
Associate Professor of Medicine
Section of Gastroenterology and Hepatology
West Virginia University

Objectives

▪ Discuss global climate crisis
▪ What does medical literature say
▪ Impact of climate change on human health
▪ Healthcare carbon footprint
▪ What does GI literature say
▪ Define healthcare sustainability
▪ Discuss WHO guidelines for climate friendly hospitals
▪ Discuss efforts by other institutions
▪ Discuss the role of medical societies
▪ Discuss what we can do
Climate change: An 'existential threat' to humanity, UN chief warns global summit

UN News 2018

Teenage climate change activist Greta Thunberg has said that climate change is an "existential crisis" and has urged politicians to "Listen to the scientists".

BBC News 2019

Biden believes that climate change is an "existential threat" that demands immediate, far-reaching action

Washington Post. Sep 2020
Cost of climate change


- WHO predicts that by 2030, climate change will cause an additional 250,000 deaths annually.

Johan Rockström
2010

“Overwhelming scientific evidence that we have reached a saturation point beyond which we set off irreversible feedback loops and tipping points.”

Only one of the fifteen biomes that regulate climate had strong evidence of reaching its tipping point

Johan Rockström
2020

Nine out of 15 at risk biomes have either crossed or close to crossing tipping points.
Global warming

We cannot go over 1.5°C to avoid irreversible catastrophic feedback loops and tipping points

- Special Report on Global Warming of 1.5°C
  IPCC Oct 2018

Why did the goal change from 2°C in 2010 to 1.5°C in 2018??
So...Why should we care?

Climate change and health are intricately linked.
Josh Gabbatiss. Healthcare in world’s largest economies ‘accounts for 4%’ of global emissions

Climate Change Is The Greatest Threat To Human Health In History
David Introcaso. Health Affairs Blog. DECEMBER 19, 2018

Climate change is the 21st century’s greatest threat to human health
Objectives

- Discuss global climate crisis
- **What does medical literature say**
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"Climate change from GHG’s is the number one public health issue of 21st century“
“The indicators that comprise section 1 of the 2020 report describe a warming world that is affecting human health both directly and indirectly and putting already vulnerable populations at a high risk.”

Objectives

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Weather Event | Health Effects | Populations Most Affected
--- | --- | ---
Heat waves | Heat stress | Extremes of age, athletes, people with respiratory disease
Extreme weather events, (rain, hurricane, tornado, flooding) | Injuries, drowning | Coastal, low-lying land dwellers, low SES
Droughts, floods, increased mean temperature | Vector-, food- and water-borne diseases | Multiple populations at risk
Sea-level rise | Injuries, drowning, water and soil salinization, ecosystem and economic disruption | Coastal, low SES
Drought, ecosystem migration | Food and water shortages, malnutrition | Low SES, elderly, children
Extreme weather events, drought | Mass population movement, international conflict | General population
Increases in ground-level ozone, airborne allergens, and other pollutants | Respiratory disease exacerbations (COPD, asthma, allergic rhinitis, bronchitis) | Elderly, children, those with respiratory disease
Climate change generally; extreme events | Mental health | Young, displaced, agricultural sector, low SES

Climate change spares no one
Why deforestation and extinction make pandemics more likely

- Nature
Zoonotic host diversity increases in human-dominated ecosystems.

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Healthcare Carbon footprint

- The healthcare industry (hospitals and labs) contributes 4.4% to the global carbon footprint.

- Health care–associated emissions of pollutants →
  - acid rain (12% of the national total)
  - photochemical smog (10%)
  - respiratory disease (9%).

Health Care’s Climate Footprint by Arup and Health Care Without Harm

Poll Question

- How much (in %) does US healthcare contribute to the national carbon footprint?
  a) 1-3%
  b) 4-5%
  c) 5-7%
  d) 8-10%
The United States is the world’s highest emitter of health care greenhouse gases, accounting for 27% of the global health care footprint.

Supply chain accounts for 57% of its emissions. Care emissions, including heating, fuel, and electricity, account for about a quarter of emissions.

NHS reports that as a result of concerted sustainability initiatives, it has dropped its carbon emissions by 18.5% since 2007.
Healthcare is part of the problem

Carbon footprint of global healthcare sector is 2 Gt CO2e

Outdoor air pollution kills 4.2 million people worldwide.

2% global plastic production is medical plastic; increases by 6.3% per year

Antibiotics found at 65% of 711 river sites worldwide

Supply chain workers paid less than US$1 per day, no health and safety, many are children

Center for Sustainable Healthcare, NHS
Poll question

- As a specialty, what is GI and endoscopy’s ranking in healthcare waste generation?
  a) 1st
  b) 3rd
  c) 5th
  d) 7th

Top 3 highest hazardous healthcare waste generating departments

1. Anesthesia
2. Pediatric and Intensive Care
3. GI and Endoscopy

Vaccari et al. Costs associated with the management of waste from healthcare facilities: An analysis at national and site level. Waste Manag Res. 2018
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Plastic waste disposal

- 1.5 kg waste/ procedure (0.3 kg recyclable)
- 60 kg/ day (40 procedures/ day approx.)
- 0.066 ton/day
- 37.4 metric tons of CO2 equivalents/ yr.
  - 4211 gallons of gasoline consumed
  - 41,237 lbs of coal burned
  - Sequestered by 48.9 acres of US forests/ yr.

Endoscopy Unit

- Energy consumption

<table>
<thead>
<tr>
<th>Unit</th>
<th>Energy consumption/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers</td>
<td>8.96 kWh</td>
</tr>
<tr>
<td>Anesthesia machines</td>
<td>12 kWh</td>
</tr>
<tr>
<td>Wash machines</td>
<td>24.67 kWh</td>
</tr>
<tr>
<td>Scope processors</td>
<td>27 kWh</td>
</tr>
<tr>
<td>Lighting</td>
<td>47.88 kWh</td>
</tr>
<tr>
<td>Total</td>
<td>120.5 kWh</td>
</tr>
</tbody>
</table>

- 31,200 kWh/yr.
- 22.1 metric tons of CO2 equivalents/yr.
- 2482 gallons of gasoline consumed
- 24,307 lbs. of coal burned
- Sequestered by 28.8 acres of US forests/yr.


Our endoscopy unit data when extrapolated on a national scale, shows the staggering environmental impact of endoscopy.

The GHGs produced by 18 million endoscopy procedures are equivalent to the emissions of nearly 86,000 metric tons of CO2 e.

Burning almost 95 million lbs. of coal burned.
“There is an urgent unmet need for research on sustainable practice in endoscopy”

“Existential challenge that will affect our lives, our children, and the lives of our patients unless it is tackled urgently and decisively”

“Creating a work environment and clinic space emphasizing energy conservation and adopting renewable power sources”

“The time is also ripe for professional GI (and other medical) organizations to consider and provide specific effective recommendations that can be implemented broadly or that pertain to specific (sub)specialties or even specific practice models”
With the emergence of single use endoscopes, particularly duodenoscopes, it begs the question of the impact this will have on sustainability.

**Improved sustainability efforts benefit not only the hospital but also the community**

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WHAT IS HEALHCARE SUSTAINABILITY?

Sustainability is the continued protection of human health and the environment while fostering economic prosperity and societal well-being.  


Meet the needs of the present without compromising the ability of the future generation to meet their needs.  

World Commission on Environment and Development 1987

A sustainable health care system is achieved by delivering high quality care and improved public health without exhausting natural resources or causing severe ecological damage.  

sduhealth.org.uk. Greener NHS

An environmentally sustainable healthcare system is resilient, financially responsible, and ethical.
A healthcare system is sustainable if it works within its financial, environmental and social resources, improving and protecting health now and for future generations.

Sustainability in healthcare can be measured as a sustainable value:

\[
\text{Sustainable value} = \frac{\text{Outcomes for patients and populations}}{\text{Environmental + social + financial impacts}} \quad \text{(the ‘triple bottom line’)}
\]
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**HEALTHY HOSPITALS**
**HEALTHY PLANET**
**HEALTHY PEOPLE**

Addressing climate change in health care settings

“Climate mitigation can contribute to public health and save health care systems money”

“Every dollar a hospital in the United States saves on energy is equivalent to generating US$ 20 in new revenues”
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The Lancet Commission on Health and Climate Change: “tackling climate change could be the greatest global health opportunity of the 21st century”

NHS:
- Created Center for Sustainable Healthcare 2008-13 years ago!!!
- Launched “For a Greener NHS” program in 2020

Commitment to Net Zero by 2040

BSG has just started a Sustainability Committee

Hospitals race to save patients — and the planet

Ken Budd, Special to AAMCNews
October 15, 2019

Hospitals and labs emit 4.4% of the world’s greenhouse gas emissions and are responsible for more than 5 million tons of waste each year. Here’s what academic medicine is doing to reduce its carbon footprint.
In December 2018, seven Boston-area teaching hospitals and clinical institutes, including Harvard Medical School, announced a commitment to decarbonize.

The University of California system has pledged to become 100% reliant on clean electricity for its campuses and medical centers by 2025.

Cleveland Clinic is working to become carbon neutral by 2027.

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ACP Recommendations

• A global effort is required to reduce anthropogenic greenhouse gas emissions and address the health impact of climate change. The United States must commit to taking both a leadership and collaborative role in developing, implementing and ensuring the success of such a global effort and in reducing its own contributions to greenhouse gas emissions. Climate change adaptation strategies must be established and mitigation measures must be adopted.
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- **Discuss what we can do**

So, what do we need to do?

1. Acknowledge the problem!!!!!!
2. Committed leadership is the key
3. Create a sustainability team
4. Identify problem areas
5. Create goals
6. Educate staff: Change attitudes and behavior
   
   **Lets create a culture of supporting and rewarding environmental sustainability**
7. Educate Students: Start at the beginning
8. Recycle: Costs less than incineration
Hospitals generate > 5 million tons of waste every year

EVERYDAY TRASH
REGULATED MEDICAL WASTE
NON-RECYCLABLE PLASTIC WASTE
RECYCLABLE PLASTIC WASTE
FOOD WASTE
FOOD WASTE

Emits Methane---X 25 CO2e
Feed the hungry
Composting
Creating opportunities to grow healthy gardens

Reuse
Gowns
Scopes
Scope Buttons
Tweezers

Recycle
Educating staff
Proper sorting
Innovative technologies like Sterimelt

What is the process?
Make clinical waste, a profit

Collect your Clinical sterilisation wrap
The Sterimelt Machine
Take out the profit
Circular economy

RENEWABLE ENERGY

Benefits of Renewable Energy Use

- Reduced energy costs.
- Enhanced reputation.
- Better community health.
- Assistance in achieving green building certification.

Transforming Health Care

North America’s leading consortium for health care organizations investing in our shared future.

333 Practice Greenhealth hospitals reported more than $826 million in savings from sustainability initiatives in 2017.

Facilities can save more than $1 million annually through initiatives like these.
Encourage innovations and research for greener GI

The slowness of climate change is a fairy tale, perhaps as pernicious as the one that says it isn’t happening at all.

David Wallace-Wells
*The uninhabitable Earth Life After warming*

It is not in the distant horizon
It is here, now and we need to act now!
Stay Tuned!

Coming:
ACG Survey on environmental awareness
2021