GEORGIA OSTEOPATHIC MEDICAL ASSOCIATION
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GOMA News & Updates

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This issue of the GOMA newsletter is dedicated to

Earth Day April 22, 2022

Atul Bhatnagar, DO, FCCP gives his Pulmonary Thoughts on Earth Day

In light of the below efforts to create an industrial way to convert plastics into fuel and the upcoming Earth Day, we caught up with Atul “Al” Bhatnagar, DO, FCCP to get his opinion. Dr. Bhatnagar is a 1993 graduate of Des Moines University College of Osteopathic Medicine who stayed in Iowa to do his AOA internship at Des Moines General Hospital before he got his Internal Medicine residency at West Penn Hospital in Pittsburgh. Dr. Bhatnagar completed a pulmonary fellowship at Allegheny General Hospital in Pittsburgh and did a Critical Care Medicine (Anesthesiology) fellowship at the University of Pittsburgh Medical Center. Dual certified in pulmonary medicine and critical care

medicine, Dr. Bhatnagar is currently working at Wellstar Health System as a pulmonary intensivist.

Dr. Bhatnagar writes:
When I think about Earth Day, I think about recycling, climate change and pollution. So, do those factors affect lung health? Does it even compare to cigarette smoking?

Climate change will affect pulmonary conditions based on the subtle, but steady increase in global warming, which we know causes changes in our climate that affects our pulmonary patients. That may be represented by increased allergies, asthma exacerbations, COPD exacerbations and even for people without pulmonary conditions due to increased risk of extreme temperatures.

As we are aware, pollution can definitely cause increased asthma and COPD exacerbations, and in the extreme, reactive airway disease (RAD).

What about recycling…well it certainly depends on what we are recycling and how. We are aware of recycling efforts to aid with paper products to other paper products and glass to glass, but what about plastic. Can we convert plastic to energy and safely? Normally, burning plastic can release toxic and even carcinogenic fumes, but can it be done safely? Are there processes to safely convert plastics to energy? According to companies, yes, but is that the truth or a dream?

Research says that 90% of the most common (polyolefin) plastic can be converted to jet fuel at 220 degrees centigrade for 1 hour. That's amazing…but there are other methods. Those include catalyst degradation, isomerization and advanced oxidation.

Also, what about carcinogens? Is the risk zero? Some of these questions are theoretically answered, but only time will tell.

We know that pollutants can cause lung disease, heart disease and even reported brain and kidney disease. Long

term affects can be seen due to pre-existing disease, or new disease like asthma, COPD, emphysema and even cancers.

Also, the number one cause of lung damage is still cigarette smoking. Even when you quit smoking, some of the changes are not reversible. Certainly, the rate of decline in lung function and return to that of a non-smoker can be accomplished in 10 years. One cannot reverse the incidence and increased risk of lung cancer or interstitial lung disease. Other changes in susceptible individuals include emphysema and COPD which are not reversible.

At this time, we can say that lung changes due to the above processes are not reversible, but again only time will tell.

For Earth Day, recommendations would be, quit smoking, exercise for your good health, avoid carcinogens in any form, take all your medicines as directed to maintain optimal organ function, avoid extreme pollution as much as possible, and of course recycle when possible.

Plastics-to-Fuel in the Southeast: What Could Go Wrong?

Only 9% of the plastic gets recycled, so what happens to the other 91%?

In June of 2021, the San Francisco-based company Brightmark announced its intention to build the world's largest plastic-to-fuel facility in zip code 31216, Macon, Georgia. Brightmark stated that the facility would cover 5.3 million square feet and intake 400,000 to 800,000 tons of plastic trash each year from all over the Southeast region. The facility would burn these plastics at temperatures over 500 °C and condense their vapors into fuels such as diesel.

Brightmark refers to this plastic-to-fuel operation as “chemical recycling,” a term denoting relatively new plastic treatment technologies that use a combination of heat, pressure, and/or chemicals to turn plastics into fuel. Brightmark is only one of many companies pushing these plants around the country.

Plastic-to-fuel methods are unproven. There is a lack of research on the proof of success or failure of plastic-to-fuel in practice due to a lack of real-world operational data, and existing research suggests that it will be a challenge to scale up from a laboratory to an industrial setting. Optimistic projections estimate plastic-to-fuel will not become cost-competitive for another thirty years. Of the 37 facilities proposed in the United States since the early 2000s, only three are operational today. For example, although Brightmark originally stated that their plant in Ashley, Indiana would start up by “late 2020,” it still has not started commercial operation as of March 2022. Similarly, the Florida-based company PureCycle has announced plans to build a facility in Augusta, Georgia which it claims will purify polypropylene, a difficult-to-recycle type of plastic. However, the solvent-based purification technologies PureCycle plans to use are still in the pilot phase and cannot process mixed plastic waste, and the company’s existing facility in Ironton, Ohio is not operational.

There are grave concerns that the massive facility proposed in Macon would be a major source of air pollution and harm the health and quality of life of those who live and work in Macon and nearby communities in Georgia.

The process used to convert plastic to fuel has the potential to emit large volumes of hazardous air pollutants including carbon monoxide, nitrogen oxides, and volatile organic compounds (VOCs) such as benzene and toluene among other harmful substances. This plant will be located in an area surrounded by homes and schools, all of which will be directly exposed to the emissions and which are already

disproportionately exposed to emissions compared to the rest of Georgia. The workers at the proposed plant will also be particularly exposed. Poor-air-quality environments are bad for health and those living within them were more likely to die of Covid-19.

Exposure to any one of these potential hazards can have serious health consequences. For example, carbon monoxide is a poisonous gas with no smell or taste. It causes headaches, dizziness, confusion, chest pain, and even death. Long-term low-level exposure can cause peripheral artery disease and cardiomyopathy. Nitrogen oxides harm the lungs, causing inflammation and wheezing. This stunts children's lung growth, can lead to asthma, and ultimately is the cause of 1.6% of all deaths in the US.

The International Agency for Research on Cancer and the World Health Organization classify benzene as a human carcinogen. Evidence shows it can cause acute myeloid leukemia, acute lymphocytic leukemia, multiple myeloma, and non-Hodgkin's lymphoma. Toluene, in addition to being a known asthma risk factor, can cause nerve damage, cognitive impacts, and liver and kidney disease.

In addition to causing direct harm to health, nitrogen oxides and VOCs are substrates for ozone formation; any quantity emitted will result in increasing ozone levels. Ozone is also very hazardous to health, causing asthma, worsening lung and heart disease, and increasing deaths in exposed populations.

It is a major health concern that the proposed facility is within 3 miles of 8 schools, preschools, and daycares. Moreover, 30 percent of the population in the area is under 18 years of age. These toxins are hazardous to all humans; however, some are more at risk than others, including children, pregnant women, and the elderly. Children, whose brains and bodies are still growing and developing, are more vulnerable to the effects of toxic pollutants due to their size and physiology. They breathe

more rapidly than adults and so inhale and absorb more pollutants for their body size.

The air pollution generated by transporting plastics from all over the Southeast region to Macon also carries health implications. Plastics will need to be sorted and decontaminated and unusable materials will need to be hauled away. Some of the products will end up in landfills, which creates an increased risk that toxic pollutants may leach into soil and groundwater—if not directly from the plant itself, then via new and enlarging landfills. This risks contaminating our streams and rivers which would impact fishing and agriculture and thus subject aquatic life, animals, and humans to not only breathing but ingesting harmful contaminants.

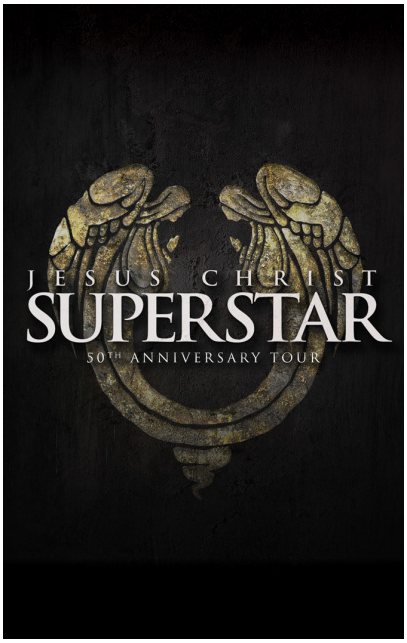
Plastics-to-fuel is an energy-intensive, toxic method for processing and burning petrochemicals. It pollutes our environment and consequently harms our health. Consider contacting our elected officials and our leaders at the Georgia Environmental Protection Division and the U.S. Environmental Protection Agency to consider the consequences of this unproven, wasteful, and harmful technology as decisions are being made about the future of the plastic waste and plastic incineration industry in Georgia.

Winner of Fox Theatre Tickets

Raymond McCarthy, DO was selected among the GOMA members as the winner of the drawing for four orchestra tickets to the Fox Theatre showing of Jesus Christ Superstar on Saturday April 23.

Encourage your osteopathic friends to join GOMA before April 30 so they can be in the next drawing for the June 11 showing of Disney's Frozen playing at

the Fox Theatre. Of course, these tickets are only a bonus to the great work that GOMA is known for: supporting osteopathic students, residents, practicing physicians and retired physicians. Advocacy, CME and social events have been our calling card over the past 120 years!



Does Climate Change Impact Allergic Disease?

Spring has arrived here in our beautiful state of Georgia! I hope that you take the opportunity to get outside for fresh air and exercise. Of course, along with the sunny weather and blooming flowers comes the blanket of pollen that heralds allergy season. If you happen to be an ENT, and Allergist, or work in Primary Care, you may have noticed that allergy season is growing longer and more intense. Rising temperatures lead to longer allergy seasons and make air pollution worse. The American Academy of Allergy, Asthma, and Immunology says the following about climate change and allergy season:

Scientific consensus that climate change is occurring and that our planet is warming is nearly unanimous. Climate change is associated with rising temperatures, changes in worldwide weather patterns and increasing airborne pollen levels and duration. These changes have been observed to impact health, including that of allergic individuals.

Climate Change and Global Warming

• Climate change is characterized as any change in composition of the global atmosphere or regional climate patterns that adds to the natural variability of the climate observed over time.
• Global warming is the increase in global temperature that is mainly attributable directly or indirectly to human activities resulting in an increase of atmospheric greenhouse gases.
• Increasing atmospheric gases such as CO2, N2O and CH4 along with H20 vapor are thought to be contributing factors to climate change. Greenhouse gases trap solar energy near the Earth's surface, resulting in global warming.

Climate Change and Allergic Health
• Climate change variably affects the production and protein composition of pollen and fungal spores, as well as aerobiological processes such as emission, dispersion, transport and deposition associated with changing rainfall, winds and other related meteorological factors.
• Changes in the climate may impact pollen seasons of trees, grasses and weeds by both increasing the amount of pollen produced and by extending the duration of the pollen season.
• Alterations in the duration and intensity of pollen seasons affect allergic disorders such as rhinitis, conjunctivitis and asthma. Populations more vulnerable to these adverse health effects include children, elderly and those suffering from preexisting reactive airways diseases such as asthma.
• Greenhouse gases are capable of eliciting respiratory symptoms in persons with asthma and chronic obstructive lung disease, as well as contribute to premature mortality and declines in lung function over time.
• Flooding and severe storms can result in damp buildings and resultant mold exposure. In addition to triggering allergic reactions, increased mold spore exposures have been linked to other lung diseases.

Air Pollution and Hospitalizations in the Southeast

Truncated from an article by Anne Mellinger-Birdsong

Outdoor (ambient) Air Pollution has significant impacts on health in the Southeast. But fortunately, we also know that when we reduce air pollution, we start seeing health benefits within weeks.

A study published in Environment International in 2019 (https://doi.org/10.1016/j.envint.2019.05.073), found that in the Southeast, long term exposure to both fine particulate matter (PM2.5) and ozone increased hospitalization rates for people receiving Medicare. The researchers studied all 13 million people receiving Medicare who live in the Southeast. Long term (annual) exposure to an increase of just 1µg/m3 in annual PM2.5 increased admissions for pneumonia and COPD by 5-6%, and increased admissions for strokes, myocardial infarction, and congestive heart failure by 2.6-5%. When the study was restricted to only Medicare recipients who lived in areas where air pollution was always less than the EPA standard for annual PM2.5 of 12µg/m3, the increase in hospitalizations was similar: 7-10% for pneumonia and COPD, and 3.4-7.6% for strokes and cardiovascular conditions. A similar effect was found for every 1ppb increase in annual ozone exposure, a 1-3% increase in respiratory and cardiovascular conditions, including areas where the ozone was always less than the EPA standard. The same research group also looked specifically at dementia in the Southeast (https://doi.org/10.1016/j.envpol.2019.07.094), and again found that PM2.5 increases hospitalizations for dementia. Both rural areas and urban areas have increased admissions for dementia, with rural areas seeing admission rates increase by 3.6% and admissions in urban areas increasing 5.2% for every 1µg/m3 of annual PM2.5.

Fortunately, we know from other studies that reducing air pollution results in improved health within weeks. Schraufnagel et al (https://doi.org/10.1513/AnnalsATS.201907-538CME) reviewed examples and studies from all over the world documenting better health: when steel mills closed in Utah,

during the Olympics in Atlanta, banning workplace smoking in Ireland. Many other studies show links between air pollution and COVID infection and COVID deaths, infection with influenza or respiratory syncytial virus. Air pollution is also very dangerous for children, affecting birth outcomes, damaging lung growth, causing asthma and asthma attacks, and affecting school performance. This gives us a real win-win opportunity: transitioning to clean power and clean transportation, and improving energy efficiency, will reduce air pollution and greenhouse gases. We will see immediate health benefits within weeks, and we will be addressing the health emergency that is climate change.

Osteopathic physicians can work with their office staff/clinic/hospital/health system to transition to clean energy, reduce energy use, and improve purchasing, and can advocate with our governor, legislature, public service commission, municipal leaders, and federal elected officials to do everything possible to speed the transition to clean energy. Encouraging staff to not sit in their idle running car in order to eat lunch, using light switches that use sensors to switch off when no one is in the room and promoting carpooling are all simple ways to make an impact.

Michael Baron, DO & his Electric Vehicle

Michael Baron, DO recently posted on social media that he was amused that the staff at Emory at Rockbridge in Stone Mountain where he works alongside five other providers when they recently became interested in his electric vehicle (EV) after he had owned it for eight months. Of course, he realized that the high price on gas was the source of queries, but he admits that he is always happy to sing the praises of his 2021 Volkswagen iD.4.

Dr. Baron is a 1988 graduate of Nova Southeastern University College of Osteopathic Medicine in south Florida (recently changed name to Dr. Kiran C. Patel College of Osteopathic Medicine at Nova Southeastern University) and moved to Georgia to do his family practice residency at the former Northlake Regional Medical Center in Tucker. He had his own practice in Stone Mountain for 24 years and then sold it but continued to work at the same location as an employee DeKalb Medical Center in 2016. After DeKalb Medical Center and its affiliated practices were purchased by Emory, he moved two miles away from his original location and continues to serve the Stone Mountain community. Dr. Baron served as President of GOMA 1996 – 1997 & 2018 – 2019.

Dr. Baron realized his 2007 VW Eos was due to be replaced when his patient who works as a VW salesman told him about VW's new electric offering. Dr. Baron didn't commit until three months later when there was an iD.4 available to test drive. He recalls that he was sold on the EV by multiple factors: no emissions; free charging for three years; $7500 tax rebate; comfortable ride including front seats that massage on demand and a sales price of $47,500. Dr. Baron states he drives 45 miles round trip on his work days and has created once or twice a week pattern of plugging in at the Electrify America charging station located at Target half way between home and work and spending the forty minutes shopping for groceries or other items while his EV gets juiced up. The above August 2021 picture above shows Dr. Baron and his wife Mary taking his new iD.4 on a major road trip up to Pittsburgh making their first stop to charge in Manchester, Tennessee.

Dr. Baron recommends that anyone who is considering the pros and cons of an EV or a Hybrid should purchase the April 2022 *Consumer Reports* for help in deciding, or go to the Drive Electric Earth Day event being held on April 23, 2022 from 10 AM to 2 PM in Downtown Dawsonville.

Nikhil Shah, DO is Creating the Next Great Breakthrough

On March 16, Nikhil L. Shah, MPH, DO who serves as CEO and Co-Founder of Nephrodite, Inc. pitched a business plan before a distinguished panel of judges at SXSW in Austin, Texas. He spoke about development of an implantable, continuously operating, patient-friendly renal replacement system for transforming home dialysis. One might wonder how a urologist in Atlanta would make the leap to a hemodialysis device that is designed to be a bridge to transplant for eligible patients and/or a destination therapy for transplant ineligible patients. Dr. Shah has been merging technology with medicine over the past ten years: initially with robotic surgery for urologic surgeries and over the past eight years as an Adjunct Associate Professor at Georgia Tech.

The device was inspired by a patient named “Ms. Holly” and served as a more effective renal replacement therapeutic as it minimized the impact/burden of treatment, facilitate mobility, and reduced disease maintenance and complications. The key functionality is provided by the novel coupling of an arterial-based mechanical pump, long-lasting semi-permeable filtration membrane, and an implanted reservoir that allows for solutes < 30kDa to be removed from the blood via exchange with dialysate. The dialysate, including the waste product, is contained in the implanted reservoir, and exchanged daily during sleeping hours via an implanted catheter that is connected to an external fluid exchange device. Key proof-of-concept testing has been completed in construction of the mechanical pump termed the Filtration Unit (FU). These include: feasibility of implantation of the FU, pressure and flow testing of the device, and

demonstration of sufficient urea removal over an extended period of time. Dr. Shah & Nephrodite, Inc. is currently seeking funding to validate prior experiments using blood and to build an operational benchtop prototype. More info: https://www.nephrodite.com/technology

Brandon Naylor, DO Presents at the American Academy of Orthopedic Surgeons

Is Virtual Physical Therapy (PT) appropriate for individuals following total knee replacement? Analysis of the data found no significant difference in patient reported outcomes between outpatient PT versus virtual PT in the majority of patients. Brandon Naylor, DO discussed the results at the AAOS conference in Chicago on March 26. Dr. Naylor is an orthopedic surgeon at Arthritis & Total Joint Specialists and practices at their Alpharetta and Cumming locations. Dr. Naylor trained at the prestigious Lenox Hill Hospital in New York City, and he has expertise spanning complex hip and knee reconstruction, orthopedic trauma and sports medicine, including ACL reconstruction.

Devin Collins, CO Presented at AAOS about Cubital Tunnel Syndrome

Devin W. Collins, DO is an orthopedic surgery resident at Hughston Memorial Hospital. In his presentation at the American Academy of Orthopedic Surgeons in Chicago, Dr. Collins discussed “Cubital Tunnel Syndrome: Does a Consensus Exist for the Diagnosis?” Soon Dr. Collins will be starting his hand and upper extremity fellowship at the Florida Orthopedic Institute.

Rural America Health Corps Act Paying Off Student Loans is Big Issue for DO Day

Rural America Health Corps Act (H.R. 2130/S. 924) is a bill in Congress that would establish a student loan repayment demonstration program for eligible providers who agree to work for five years in a rural area with a shortage of primary, dental or mental health providers. Sign up for DO Day and advocate on Capitol Hill either virtually or in person in Washington, D.C. by signing up on the AOA link: https://bit.ly/DODay2022

Rural Students Will Become Osteopathic Medical Students at PCOM South Georgia

Krupesh Patel (MS/BS ’22) and Teighlor Livingston (MS/BS ’22) are two PCOM biomedical science students from South Georgia. The have both seen first-hand the need for healthcare professionals in underserved communities – it’s part of what drove their decisions to become physicians and receive their education at PCOM South Georgia. After graduating from Valdosta State University, Patel and Livingston both pursued their graduate degree at PCOM South Georgia, and now will be joining the DO Class of 2026 this August. Learn more about the students’ journeys here: https://bit.ly/3C88vk7

GA-PCOM Students Succeed in 2022 Match

More than 99% of PCOM Georgia’s fourth-year Doctor of Osteopathic Medicine students matched into 19 specialty areas on Match Day (March 19), with 58% of the students matching into what the Georgia Board of Health Care

Workforce considers primary care and core specialty areas! Get the whole story: https://bit.ly/3tP1dzt

In other words...

"Successfully reframing the climate debate in the United States from one based on environmental values to one based on health values…holds great promise to help American society better understand and appreciate the risks of climate change." ~ George Mason (1725 -1792)

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