

Curriculum Vitae

CASSANDRA L. THIEL, PhD

Contact Information

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Webpage: <http://wagner.nyu.edu/thiel>

Current Appointments and Leadership Positions

Faculty Appointment

- 2016-present Assistant Professor, Tenure Eligible, Population Health & Ophthalmology, New York University, School of Medicine, New York, NY
- 2016-present Assistant Professor, Non-Tenure, NYU Robert F. Wagner School of Public Service, New York, NY
- 2016-present Assistant Professor, Non-Tenure, Civil & Urban Engineering, NYU Tandon School of Engineering, New York, NY

Other Appointments and Leadership Positions

- 2019-present Sustainability in Business Research and Advising, Senior Research Scholar, NYU Stern School of Business, Center for Sustainable Business, New York, NY
- 2018-present Data-Driven Sustainability in the Medical Sector, Associate, Centre for Sustainable Healthcare (CSH), Oxford, UK
- 2017-present Data-Driven Sustainability in the Medical Sector, Expert Contributor, United Nations (UN) Sustainable Procurement in the Health Sector (SPHS) Voices, Istanbul, Turkey
- 2014-present Data-Driven Sustainability in the Medical Sector, Expert Contributor, Global Green and Healthy Hospitals (GGHH) Connect, Planet Earth

Education and Training

Education

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|------|-------------|-----------------------------------|-----------------------------------|
| 2004 | Certificate | | Tomah High School |
| 2009 | BS | Civil Engineering, German (minor) | Michigan Technological University |
| 2013 | PhD | Civil & Environmental Engineering | University of Pittsburgh |

Postdoctoral Training

- 09/2015-08/2016 Postdoctoral Associate, Civil & Environmental Engineering, University of Pittsburgh, Pittsburgh, PA
- 10/2014-03/2015 Fulbright-Nehru Fellow (Research Track), Sustainable Healthcare, Aravind Eye Care System, Pondicherry, India
- 09/2013-09/2014 Postdoctoral Associate, Civil & Environmental Engineering, University of Pittsburgh, Pittsburgh, PA

Previous Appointments and Leadership Positions

N/A

Awards, Honors, and Memberships in Honorary Societies

Internal

N/A

External

- 05/2019 Royal College of Ophthalmologists (RCOphth), Wallace Foulds Trophy for Best Rapid Fire for “Results of beta-testing the global 'EYEFFICIENCY' tool to improve cataract surgical productivity, costs and carbon footprint.”
- 10/2017 Tomah High School (Wisconsin) Distinguished Alumnus, Inaugural Program
- 05/2016 American Association of Ophthalmology (AAO) ‘Best Paper’ Award for “Comparison of Cataract Surgical Wastes and their Associated Costs in both the United States and India.”
- 05/2016 University of Pittsburgh ‘Best Poster’ Award at Postdoctoral Data & Dine Symposium
- 02/2016 The American Ophthalmological Society (AOS) Charitable, Educational and Scientific Trust Fund, Grant Recipient
- 09/2014 Fulbright-Nehru Academic and Professional Excellence Award (Research), Fulbright Scholar Program, Council for International Exchange of Scholars (CIES)
- 08/2014 Alumni of the Year, Summer Institute for Sustainability and Energy (UI-Chicago)
- 06/2014 Sustainability Scholar Award, University of Pittsburgh (NSF 1432890)
- 05/2013 Provost Development Fund Award, University of Pittsburgh
- 12/2011 University of Pittsburgh Medical Center (UPMC) Sustainable Health Care Innovation Competition Winner, Student Division
- 05/2010 National Science Foundation (NSF) Integrative Graduate Education and Research Traineeship (IGERT No. 0504345) Fellowship, University of Pittsburgh
- 01/2009 Tau Beta Pi Engineering Honor Society, Michigan Beta Member
- 01/2007 Chi Epsilon National Civil Engineering Honor Society Member

Research Activity

Research Activities

My research utilizes life cycle assessment and principles of industrial ecology to analyze and improve the environmental performance of medical systems, hospital design, healthcare practice, and medical technologies. My overarching goal is to develop a new field of specialized research focused on clinical and healthcare sustainability, which introduces medical providers to data-driven, environmentally-preferable solutions while simultaneously developing and improving sustainability metrics and tools to better account for medical-specific processes, and human and environmental health.

Grant History

Current

Agency	Role	% Effort	Project Title	Award Type	Grant Number	Project ID	Project Start Date	Project End Date	Annual Project Direct Costs	Annual Project Indirect Costs	Annual Project Total Costs	Total Project Costs
National Science Foundation (NSF)	PI	16.6%	RAPID: Variation in Resilience Under Shortages in the Medical Supply Chain	Research Grant	2027927	PD 20-7643 Environmental Sustainability	04/01/2020	03/31/2021	\$141,976	\$58,024	\$200,000	\$200,000

Pending

Agency	Role	% Effort	Project Title	Award Type	Grant Number	Project ID	Project Start Date	Project End Date	Annual Project Direct Costs	Annual Project Indirect Costs	Annual Project Total Costs	Total Project Costs

Past

Agency	Role	% Effort	Project Title	Award Type	Grant Number	Project ID	Project Start Date	Project End Date	Annual Project Direct Costs	Annual Project Indirect Costs	Annual Project Total Costs	Total Project Costs
International Agency for the Prevention of Blindness (IAPB) Seeing is Believing (SIB) Innovation Fund	Co-PI	16%	EyeEfficiency Beta Testing	Research Grant	NA	NA	05/2018	12/2019	\$130,000	\$0	\$130,000	\$130,000
Sustainable Healthcare Coalition (SHC)	PI	100%	Project Funding: Inpatient and MRI Emissions	Research Grant	NA	NA	04/2018	10/2019	\$25,000	\$0	\$25,000	\$25,000
National Science Foundation (NSF)	PI	In-kind	Research Development Workshop: Environmental Sustainability and Clinical Care	Workshop Grant	1818038	NA	01/01/2018	06/30/2018	\$49,998	\$6174.40	\$94,385.06	\$94,385.06
NYU Green Grants	PI	In-kind	Workshop for Environmental Sustainability and Clinical Care	Workshop Grant	NA	NA	01/01/2018	06/30/2018	\$20,000	\$6174.40	\$94,385.06	\$94,385.06
International Agency for the Prevention of Blindness (IAPB) Seeing is Believing (SIB) Innovation Fund	Co-PI	16%	EyeEfficiency Pilot Testing	Research Grant	NA	NA	11/2017	05/2018	\$51,500	\$0	\$51,500	\$51,500
Fulbright Scholar Program, Council for International Exchange of Scholars (CIES)	PI	100%	Life Cycle Environmental Impacts of Cataract Surgery in India	Fulbright-Nehru Academic and Professional Excellence Award (Research)	NA	NA	11/2014	03/2015	\$20,000	\$0	\$20,000	\$20,000
University of Pittsburgh	PI	10%	Thesis Development	Provost Development Fund Award	NA	NA	05/2014	08/2014	\$5,000	\$0	\$5,000	\$5,000
Mascaro Center for Sustainable Innovation (MCSI)	Co-I	In-kind	Shaler High School Greening Project	Student Community Grant	NA	NA	03/2010	04/2010	\$5,000	\$0	\$5,000	\$5,000

Clinical Activity

N/A

Educational Activity

Personal Statement

I am dedicated to educating students and the public on a range of topics, including systems thinking/engineering, triple bottom line sustainability, operations management, industrial ecology, life cycle assessment (and other environmental assessment tools), healthcare or clinical sustainability, and efficient health services management. The foundation of good teaching and effective learning, for me, lies in five core principles: accessibility and mutual respect, organization and timeliness, expectations and responsibility, excitement and creativity, and a continuous learning environment. I attempt to live these five principles by incorporating in my

classes: open and inclusive class dialog and liberal office hours; preplanned and clearly-structured learning activities; clearly defined goals and acceptable behavior guidelines for myself and my students; my own enthusiasm for the topics (thus inviting my students to be engaged); and a constant invitation for my students to look beyond the boundaries of the classroom walls. I have always maintained positive (average) course reviews from my students, and take pride in their comments, such as: “I had never learned about any of this before. This provided a new perspective for how to think about my work I am really glad I took this class.” “She was very good at getting the class involved and getting people to participate in positive discussions.” “Cassie is a fantastic, responsive, conscientious instructor. It's clear that she is passionate about operations and deeply understands the concepts, and is very good at explaining more complex systems to those who are not familiar with the content coming in.”

Teaching Activities

2020 Guest Lecture, Medical Supply Chains, Pop. Health & Health Policy, NYU SoM, 1hr
 2018,2020 Instructor, Managing for Environmental Sustainability, 20hrs/yr
 2020 Instructor, Preceptorship Elective, NYU Medicine, 1.5hrs
 2017-2019 Instructor, Operations Management, NYU Wagner, 40hrs/yr
 2017-2019 Guest Lecture, Health Services Management, NYU Wagner, 2hrs/yr
 2017-2019 Guest Lecture, Environmental Science, NYU Enviro. Studies, 2hrs/yr
 2019 Guest Lecture, Practice of Medicine, NYU School of Medicine, 1hr
 2018 Guest Lecture, Healthcare System Innovation and Health Policy, 1.5hrs/yr
 2017 Guest Lecture, Occupational and Environmental Health Training, NYU Nursing, 2hrs
 2016 Guest Lecture, Sustainable Computing, Pitt, 2hrs
 2012-2015 Module Instructor, Engineering and Sustainable Development, Pitt, 8hrs/yr
 2015 Guest Lecture, Introduction to Environmental Engineering, Pitt, 2hrs
 2015 Instructor, Engineering Applications for Society, Pitt, 90hrs
 2013 Guest Lecture, Green Building Design, Pitt, 2hrs
 2012 Instructor, LCA and the Use of SimaPro Software (UFES), 14hrs
 2011 Teaching Assistant, Introduction to Life Cycle Assessment, Pitt, 10hrs
 2011 Guest Lecture, Analise do Ciclo da Vida (UFES), 1hr
 2011 Guest Lecture, Design for the Environment, Pitt, 2hrs
 2011 Teaching Assistant, Design for the Environment, Pitt, 5hrs
 2011 Instructor, Sustainability, Junior Urban Leadership Institute, Kingsley Association, 12hrs
 2010 Teaching Assistant, Nondestructive Evaluation and Structural Health Monitoring, Pitt, 2hrs
 2010 Guest Lecture, Introduction to Life Cycle Assessment, Pitt, 2hrs
 2010 Guest Lecture, Research Methods, Virginia Tech, 2hrs
 2006-2007 Course Coordinator, Calculus I Labs, Michigan Tech, 10hrs/sem
 2005-2006 Teaching Assistant, Calculus I, II, & III Labs, Michigan Tech, 40hrs/sem

Curriculum Development

I am currently developing a 3-credit course on Environmental Life Cycle Assessment (LCA) for upper-level undergraduate and graduate students at NYU. The course will be hosted by Tandon School of Engineering and will cover introductory topics of triple bottom line sustainability and industrial ecology, before covering the basic approaches to designing and conducting an environmental LCA. In addition, in my NYU Wagner course “Managing for Environmental

Sustainability” I am developing online learning content in a flipped-classroom approach for specific lecture content.

Invited Talks and Teaching of Peers

Internal

Sponsored by NYU Langone Health

- 05/15/2020 *NYU Implementation Science Course.* “Environmental Sustainability & Resilience in Healthcare Delivery, during Covid-19 & Beyond.” New York, NY.
- 04/05/2019 *NYU SOM Environmental Medicine Interest and Advocacy Group (EMIAG).* “Medicine and the Environment.” New York, NY.
- 06/09/2017 *New York University, Dept. of Population Health.* External Advisory Board Meeting. Junior Faculty Spotlight: Environmental Efficiency in Medicine. New York, NY.
- 04/17/2017 *New York University, Surgical Research Seminar.* Sustainability in Surgery: Environmental Impact of Cataracts. New York, NY.
- 02/17/2016 *Center for Healthcare Innovation and Delivery Science, New York University.* New York, NY. Sustainability in Medicine: Metrics for Change.

Sponsored by all other NYU Schools

- 03/08/2019 *NYU Stern School of Business.* NYU Social Innovation Symposium: Striving for the Circular Economy. Industrial Ecology Panel Moderator. New York, NY.
- 04/22/2017 *March for Science Teach-In.* New York University. Is it really green? Auditing emissions with life cycle assessment. Washington, D.C.
- 04/18/2017 *New York University, College of Nursing.* Climate Change and Clinicians Panel Discussion. New York, NY.
- 04/17/2017 *New York University College of Dentistry.* Earth Week: Health Care Sustainability. New York, NY.
- 04/06/2017 *New York University.* What We Waste: An Evening with Dr. Robin Nagle and Dr. Cassandra Thiel. Educating for Sustainability Lecture. New York, NY.
- 02/24/2017 *New York University.* South Asia Conference. Using Technology to Address Inequality Panellist. New York, NY.
- 02/07/2017 *New York University, College of Dentistry.* Professional Development Seminar Speaker. New York, NY.
- 11/10/2016 *New York University.* Zero Waste Challenge Kick-Off. New York, NY. Moderator for discussion on the election’s impact on sustainability efforts.
- 04/26-
27/2016 *New York University, Robert F. Wagner School of Public Service & Tandon School of Engineering.* New York, NY. Sustainability in Medicine: Metrics for Change.

External to NYU Langone Health and all other NYU Schools

- 04/27/2020 *Montclair State University, Sustainability Lecture Series.* Medicine’s Footprint: The Surprising Need for Environmentally Sustainable Healthcare Delivery. Montclair, New Jersey.
- 04/27/2020 *Students in Medicine and Health.* Sustainability in Healthcare. United Arab Emirates.
- 05/08/2020 ~~*Royal Australian and New Zealand College (RANZCO), New Zealand Branch.*~~ ~~Waste in Ophthalmic Surgeries and What to Do About It.~~ Christchurch, NZ. Canceled due to Covid-19.

- 04/24/2020 ~~*The Welsh Sustainable Cataract Surgery Summit 2020.* Cardiff, Wales, UK.~~
Canceled due to Covid-19.
- 11/11/2019 *University of Sydney and Wiser Healthcare.* Clinical Sustainability Research: Data Driven Approaches to Make Healthcare More Efficient. Sydney, Australia.
- 11/07/2019 *The Fred Hollows Foundation, Eye Opener.* Focus on the Future: Environmentally Sustainable Eye Care Services around the World. Sydney, Australia.
- 05/08/2019 *2nd Sustainable Healthcare in Aotearoa - NZ Forum.* Keynote on Sustainable Procurement for the Healthcare Sector. Wellington, New Zealand.
- 04/18/2019 *University of Wisconsin-Madison.* Weston Roundtable Lecturer. "Clinically Sustainable: The Possibilities and Challenges of Environmentally Sustainable Healthcare Delivery." Madison, WI.
- 04/13/2019 *Unite for Sight's Global Health and Innovation Conference.* "Ophthalmology Around the World: Using Life Cycle Assessment to Measure and Mitigate Health Care Pollution." New Haven, CT.
- 03/22/2019 *Royal College of Ophthalmology.* Developing Ophthalmic Public Health Sustainability Strategies. Mini-debate. "The World has got H.O.T." Inverness, Scotland.
- 02/14/2019 *All India Ophthalmological Conference (AIOC).* Eye Care and Environmental Impact. Indore, India.
- 11/16/2018 *University of Wisconsin-Madison.* Civil and Environmental Engineering Seminar. "Measuring and Improving Environmental Emissions from the Medical Service Industry." Madison, WI.
- 11/15/2018 *3M Headquarters.* Sustainability in the Medical Supply Chain. St. Paul, MN.
- 08/21-22/2018 *Aravind Eye Hospital October Summit.* Eye Care and Environmental Impact. Leading 3 sessions at this workshop. Pondicherry, India.
- 08/16/2018 *International Agency for Prevention of Blindness (IAPB) Council of Members Meeting.* Overview of environmental sustainability. "Session: Sustainability: Practices today for tomorrow." Hyderabad, India.
- 08/13/2018 *IAPB Council of Members Meeting.* Co-lead session on IAPB's Environmental Sustainability Work Group. Hyderabad, India.
- 06/19/2018 *International Council of Ophthalmology (ICO).* Environmental Sustainability Masterclass. Barcelona, Spain.
- 06/15/2018 *ICO General Assembly.* What is Environmental Sustainability and What Does it Mean for Eye Care? Barcelona, Spain.
- 05/24/2018 *Rethinking Remote 2018.* Sustainability for Remote and Rural Eye Care Delivery. Session: Managing Eye Care in Remote and Rural Environments. Inverness, Scotland.
- 05/23/2018 *Royal College of Ophthalmologists Sustainability Working Group.* Sustainable Cataract Surgery – What Can You Do? Liverpool, UK.
- 05/21/2018 *UKISCRS Cornea & Cataract Day.* Sustainability in Ophthalmology. Liverpool, UK.
- 04/15/2018 *The Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO) 2018 Technicians and Nurses Program at ASCRS (American Society of Cataract & Refractive Surgery).* Sustainability in the Ambulatory Surgery Center. Washington, D.C. USA.

- 04/06/2018 *The Workshop on Environmental Sustainability in Clinical Care*. Host, moderator, and speaker. Introduction to Lightning Presentations. Clinical Sustainability Research: Global sampler of interdisciplinary projects in operating rooms. New Haven, CT.
- 01/18/2018 *HSC Belfast Health and Social Care Trust*. Clinical Audit Ophthalmology. Environmental Sustainability in Ophthalmology. Belfast, Northern Ireland.
- 12/21/2017 *National Health Services (NHS) Queen's Hospital*, London. Grand Rounds presentation on environmental emissions from surgery. London, UK.
- 11/23/2017 *Royal College of Ophthalmologists* How to deliver a sustainable ophthalmology service in the 21st century seminar. Sustainable cataract surgery: The global perspective. London, UK.
- 09/18/2017 *International Association for Prevention of Blindness (IAPB)* Council of Members. Sustainability Workshop. Kathmandu, Nepal.
- 07/25/2017 *Anglia Ruskin University*. Sustainable Health Symposium. Cambridge, UK.
- 04/06/2017 *VA New York Harbor Healthcare System*. Health Science Research & Development Mini Center Meeting. New York, NY.
- 10/31/2016 *Global Green and Healthy Hospitals (GGHH)*. Pre-Conference Workshop Panel Discussion. World Hospital Congress. Durban, South Africa.
- 6/15/2016 *University of Pittsburgh* Postdoctoral Association. Pittsburgh, PA. Postdoc to Postdoc. Improving Efficiency in Medicine: Quantifying Environmental Emissions and Resource-Use of Surgery.
- 05/25/2016 *Royal College of Ophthalmologists* Annual Congress. ICC Birmingham, UK. A Sustainable Future in Ophthalmology. Aravind vs Pittsburgh: The carbon footprint of cataract surgery.
- 01/19/2016 Surgical Team Workgroup Meeting, *University of Pittsburgh Medical Center*. Pittsburgh, PA. Efficiency and Material Optimization Research with UPMC Surgeons.
- 12/14/2015 School of Environment, Enterprise, and Design, *University of Waterloo*. Waterloo, ON Canada. Sustainable Healthcare: Applying Industrial Ecology to Medicine.
- 11/18/2015 School of Environment, Enterprise, and Design, *University of Waterloo*. Waterloo, ON Canada. A Healthy Place to Heal: the Rise of Environmental Sustainability in Healthcare.
- 11/12/2015 *University of Arkansas*. Fayetteville, AR. Sustainability Engineering: From Green Buildings to Green Surgeries.
- 10/15/2015 Seven Steps to Sustainable Eye Care Services, *The Royal College of Ophthalmologists*. London, UK. Higher Volume, Lower Carbon Cataract Surgery in the UK, USA, and India. (with Dan Morris.)
- 05/5/2015 *Google Waterloo*, Kitchener, Ontario. Sustainability Engineering and Healthcare: Efficiency and Waste in the Operating Room.
- 04/20/2015 The Systems Institute, *Johns Hopkins University*. Baltimore, MD. Healthcare and the Environment: Emissions and Effects of Surgical Models and their Material Use.
- 10/23/2014 *Engineers for Sustainable World* and *Engineers for Sustainable Medical Devices* (ESW & ESMD) Workshop Speaker. PITT. Material flow and sustainability assessments.
- 08/29/2014 *Gundersen Health System*. LaCrosse, WI. Sustainability and Healthcare: A Surgical Case Study Quantifying the Environmental Impacts of Hysterectomies.

- 08/19/2014 University of Illinois-Chicago, *SISE 2014*. Chicago, IL. Sustainability within Healthcare: Using Environmental LCA in the OR.
- 04/26/2014 Undergraduate Research Program, *MCSI PITT*. Environmental Footprint of Hospital Operating Rooms.
- 04/26/2014 University of Illinois-Chicago, *SISE Alumni Event*. Chicago, IL. Sustainability within Healthcare: Using Environmental LCA in the OR
- 04/25/2014 Golisano Institute for Sustainability, *Rochester Institute of Technology*. Rochester, NY. Sustainability Engineering Tools and Techniques to Improve Environmental Footprint of Healthcare Systems
- 11/12/2013 *University of Wisconsin - La Crosse*, BioMath Seminar. Sustainability and Healthcare: A Case Study Quantifying the Environmental Impacts of Surgical Hysterectomies.
- 11/02/2013 *Engineers for a Sustainable World (ESW)* Regional Conference. PITT. Beyond Environmental Sustainability: the US Healthcare System.
- 10/30/2013 *UPMC Shadyside Hospital*, Grand Rounds. PITT. Science-Based Sustainability in the Operating Room
- 08/2013 *American Association of University Women (AAUW)* Tomah Branch. Tomah, WI. Creating Sustainability in Healthcare and Our Community.
- 04/2013 *University of Colorado – Boulder*. Civil, Enviro, & Architectural Eng. Seminar. Boulder, CO. Life Cycle Assessment and Implications for Green Building Design

Mentoring and Advising

Pre-Doctoral Students supervised/mentored (Dates, Name, Program, Role, Title)

- 2020 – present Yiming Huang, Tandon Summer, Student Researcher, BS Student, CS
- 2020 – present Pallavi Sreedhar, Tandon Summer, Student Researcher, BS Student, Econ/Hist
- 2020 – present Hannah Bockius, Tandon Summer, Student Researcher, BS Student, Biomed
- 2020 – present Meenakshi Seetharaman, Tandon Summer, Student Researcher, BS Cog. Sci.
- 2020 – present Genevieve Silva, Sustainable Healthcare, Student Researcher, Med Student
- 2020 – present Hannah Green, Sustainable Healthcare, Student Researcher, BS Student, Bio
- 2020 – present Danielle Sorscher, Sustainable Healthcare, Student Researcher, Enviro PPEL
- 2019 – present Hena Goel, Sustainable Healthcare, Project Manager, Masters Candidate
- 2019 – present SiWoon Park, Sustainable Healthcare, Student Researcher, BS Student, STS
- 2019 – present Michelle Lam, Sustainable Healthcare, Student Researcher, BS Student, biosci
- 2019 – present Cordelia Kwon, Sustainable Healthcare, Student Researcher, BS Student, PH
- 2019 – present Radhika Pats, Sustainable Healthcare, Student Researcher, BS Student, biosci
- 2019 – present Ankit Sharma, Tandon Summer, Student Researcher, BS Student, Chem/bioE
- 2019 – present AhRam Cho, Tandon Summer, Student Researcher, BS Student, math
- 2019 – present Anthony Chua, Tandon Summer, Student Researcher, BS Student, bio
- 2019 – present Ruhana Amin, Tandon Summer, Student Researcher, BS Student, biosci
- 2018 – present Dhruvi Joshi, Tandon Summer, Student Researcher, BS Student, CE
- 2018 – present Purnima Prasad, Tandon Summer, Student Researcher, BS Student, CE
- 2017 – 2020 David Kleyn, Sustainable Healthcare, Student Researcher, BS Student, Psych
- 2017 – 2020 Danielle Wilkins, Sustainable Healthcare, MS Student, U. Michigan, Professional
- 2019 – 2020 Muhammad Anas Jawed, Sustainable Healthcare, Student Researcher, BS Student, CS

2019 Ziwei (Ava) Zhang, Tandon Summer, Student Researcher, BS Student, CS
2019 Shruti Karmakar, Healthcare Waste Policy, Policy Researcher, Masters Candidate
2019 Priyanka Upasani, Sustainable Healthcare, Student Researcher, BS Student, PH
2019 Samuel Boahen, Sustainable Healthcare, Student Researcher, BS Student, CS/EE
2017-2019 Jenna Tauber, Sustainable Healthcare, Med, Student, Ophtho Drugs, Med Student
2017-2019 Ijeoma Chinwuba, Sustainable Healthcare, Resident, Ophtho Drugs, Med Resident
2017-2019 Michael Rothschild, Sustainable Healthcare, Resident, Ophtho Drugs, Med Resident
2018-2019 Jagan Subramanian, Tandon Summer, Student Researcher, BS Student, EE
2018-2019 Abdur (Mani) Rehman, Tandon Summer, Student Researcher, BS Student, CE
2014-2019 Emily Schehlein, Sustainable Healthcare, Med, Student Researcher, Med Resident
2018 Samuel Cytryn, Biostatistics, Med Resident, Med Resident
2018 Cesar Soria, Biostatistics, Med Resident, Med Resident
2018 Margot Hedlin, Biostatistics, Med Resident, Med Resident
2018 Varshini Kumar, Sustainable Healthcare, Student Researcher, BS Student, Business
2018 Yizhen (Grace) Cai, Sustainable Healthcare, Student Researcher, BS Student, Business
2017-2018 Chhavi Gupta, Sustainable Healthcare, Research Assistant, Masters Candidate
2017 Lyndsay Gavin, Sustainable Healthcare, MS Student, Yale U., MS Student
2015-2017 Ann Shue, Sustainable Healthcare, Resident, Ophtho Drugs, Med Fellow
2015-2016 Anton Kolomeyer, Sustainable Healthcare, Resident, Ophtho Drugs, Med Fellow
2014-2015 Sara de la Rosa, Sustainable Healthcare, Med, Student, Ophtho LCA, Med Fellow
2010-2013 Leah P. Swanzy, Sustainable Healthcare, Med. Student, U. Pittsburgh, Physician

Doctoral students supervised/mentored (Dates, Name, Program, Role, Current Title)

2018-present Alexander Cimprich, Industrial Ecology, PhD Candidate, University of Waterloo, Engineering, PhD Candidate
2019-2020 Jeffrey Mao, Masters Candidate, NYU Tandon School of Engineering, Masters Candidate
2014-2016 Scott Unger, Sustainable Healthcare, PhD Student, U. Pittsburgh, EPA Researcher
2014-2016 Harold Rickenbacker, Green Building Design, PhD Student, U. Pittsburgh, Employee at the Environmental Defense Fund
2014-2016 Vaclav Hasik, Green Building Design, PhD Student, U. Pittsburgh, Postdoc
2013-2015 Nicole Champion, Sustainable Healthcare, PhD Student, U. Pittsburgh, Professional

Post-Doctoral students supervised and/or mentored (Dates, Name, Program, Role, Current Title)

N/A

Faculty mentored

03/2019-present Jonathan Slutzman, MD, Emergency Medicine, Harvard Medical School

Institutional, Local/National Service and Related Activity

Institutional Service

10/2019-present Advisor, NYULH Dept. Population Health GreenFirst Committee
10/2019-present Member, NYULH “FutureClinic”, NYU HiBRID Lab
10/2019-present Faculty Advisor, NYULH GreenFirst Working Group
11/2018-present Member, NYULH Pharmaceutical & Therapeutics Committee
09/2017- present Reviewer, NYU Office of Sustainability *Green Grants* Committee
2017-present Advisor, NYU Provost’s Sustainability Work Group
2017 Member, NYU Wagner School Faculty Diversity Committee Focus Group

Professional Service

For Professional Organizations

2019- present Member, American Center for Life Cycle Assessment (ACLCA)
2017- present Member, International Agency for Prevention of Blindness (IAPB)
Environmental Sustainability Working Group
2017- present Vice-Chair, Life Cycle Sustainability Assessment (LCSA) Section,
International Society for Industrial Ecology (ISIE)
2013- present Member, International Society for Industrial Ecology (ISIE)
2017 Member, Interdisciplinary Association for Population Health Science (IAPHS)
2013-2017 Member & Trained Facilitator, American Association of University Women
(AAUW); StartSmart Salary Negotiation Workshop
2015-2016 Member, Association for Research in Vision and Ophthalmology (ARVO)
2013-2015 Member, American Society for Engineering Education (ASEE)
2009-2014 Member, Engineers Without Borders (EWB-USA); State Representative,
Western PA (2010-12); President, EWB North East Region (2012-14)

Peer Review Groups, Grant Application Review Groups, and Study Sections

2020 Reviewer, THIS Institute (The Healthcare Improvement Studies Institute)
Fellowship, University of Cambridge – 1 application
2017 Reviewer, Swiss National Science Foundation (SNF) ‘Sustainable Economy’
Grants Program – 1 application

Advisory Boards and Consultant Positions

08/2019-present Consultant, Stryker Corporation

Organizing Roles in Scientific Meetings

2019-2020 Invited Session Convener, International Agency for Prevention of Blindness
(IAPB) 2020 General Assembly. Environmental Sustainability session. Singapore.
04/2018 Co-Organizer, The Workshop on Environmental Sustainability in Clinical Care,
Yale University, New Haven, CT.
https://publichealth.yale.edu/climate/research/conferences/copy_of_index.aspx

Editorial and Journal Positions

2018-2020 Guest Editor, Resources, Conservation and Recycling (RCR) Special Issue on

Sustainable Healthcare

2019-2020 Peer Reviewer, Journal of Cataract and Refractive Surgery (JCRS) – 2

2016-2019 Peer Reviewer, Resources, Conservation & Recycling – 4

2019 Peer Reviewer, Medical Journal of Australia (MJA) – 1

2019 Peer Reviewer, British Medical Journal (BMJ) Innovations – 1

2019 Peer Reviewer, British Medical Journal (BMJ) Quality and Safety – 1

2018 Peer Reviewer, PLoS ONE – 1

2018 Peer Reviewer, Public Administration Review (PAR) – 1

2018 Peer Reviewer, Acta Ophthalmologica – 1

2017 Reviewer, NYU CHIDS Delivery System Redesign Grants

2017 Peer Reviewer, Int, Journal of Environmental Research and Public Health (IJERPH) – 1

2017 Peer Reviewer, International Society for Industrial Ecology-International Symposium on Sustainable Systems and Technology (ISIE-ISSST) Joint Conference – 8

2015-2017 Peer Reviewer, International Journal of Life Cycle Assessment (IJLCA) – 6

2016 Peer Reviewer, Health Affairs – 1

2015 Peer Reviewer, Environmental Science and Technology (ES&T) – 1

2014 Peer Reviewer, Journal of Industrial Ecology (JIE) – 2

2014 Peer Reviewer, ASEE National Conference - Student Division – 3

2014 Associate Editor, Proceedings of ISSST2014

2013 Reviewer, Simonen, K, (2014), Life Cycle Assessment, Routledge, – 2

Community Service, Volunteer Activities, and Teaching of Patients

2017- present Member, 500 Women Scientists New York Pod

2013-2016 Volunteer (Photographer), Women in Bio (WIB Pittsburgh), 4River Solutions, AAUW Start\$mart Salary Negotiation Workshop

2011-2015 Instructor, Manchester Academic Charter School (MACS) Green Week, Sustainability Day

2014-2015 Volunteer, Sri Aurobindo Society, SARVAM & Public Health Projects

Military Service

N/A

Bibliography

Publications

Peer-Reviewed Publications

1. Shrake, S., **Thiel, C.**, Landis, A., Bilec, M. (2012). "Life Cycle Assessment as a Tool for Improving Service Industry Sustainability." *IEEE, Potentials*. 30:1, 10-15.
2. Champion, N., **Thiel, C.***, DeBlois, J., Woods, N., Landis, A., Bilec, M. (2012). "Life cycle assessment perspectives on delivering an infant in the US." *Science of the Total Environment*. 425(0): 191-198. *corresponding author
3. **Thiel C.**, Champion N, Landis A, Jones A, Schaefer L, Bilec M. (2013) "A Materials Life Cycle Assessment of a Net-Zero Energy Building." *Energies*. 6(2):1125-1141.

4. **Thiel C.**, Needy, K., Ries, R., Hupp, D., Bilec M. (2014) "Building Design and Performance: A Comparative Longitudinal Assessment of a Green Children's Hospital." *Building and Environment*. 78(0), 130-6.
5. **Thiel, C.***, Eckelman, M., Guido, R., Huddleston, M., Landis, A., Sherman, J., Shrake O., Woods, N., Bilec, M. (2014) "Environmental Impacts of Surgical Procedures: Life Cycle Assessment of Hysterectomy in the US." *Environmental Science and Technology (ES&T)*. 49 (3), 1779-1786. *corresponding author
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- Forthcoming Peer-Reviewed Publications**
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 5. Buchan, J., **Thiel, C.**, Steyn, A., Somner, J., Burton, M., Ramke, J. (2020) "Addressing Environmental Sustainability in Eye Health Delivery: A Scoping Review." **In Progress.**
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 8. Chua, A., Amin, R., Gross, J., **Thiel, C.** (2020) "Environmental Life Cycle Emissions of Interventional Radiology." **In Progress.**

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10. Kwon, C., Essayei, L., Spencer, M., Vengadesan, N., **Thiel, C.** (2020) “Broader Impacts of Digital Healthcare: Comparative Environmental Life Cycle Emissions from Paper Based and Electronic Medical Records.” *In Progress*.
11. Leapman, M., Nolte, A., Overcash, M., Gordon, I., **Thiel, C.**, Sherman, J. (2020) “Environmental Life Cycle Emissions of Prostate Biopsies.” *In Progress*.
12. Slutzman, J., Lam, M., Hsu, S., Gordon, I., Roberts, T., **Thiel, C.** (2020) “Auditing Hospital Wastes, A Scoping Literature Review of Solid Waste Audits in Hospital Settings.” *In Progress*.
13. Gupta, C., Hong, D., Dobosz, B., Shah, P., **Thiel, C.** (2020) “Cost and Environmental Savings from Physician Preference Card Redesign.” *In Progress*.
14. **Thiel, C.**, Schehlein, E., Saeedi, O., Robin, A., Newman-Casey, P.A., Schuman, J. (2020) “Eyes on the Environment: Life Cycle Environmental Impacts and Costs of Cataract Surgery in the United States.” *In Progress*.

Peer-Reviewed Reviews

N/A

Non Peer-Reviewed Publications

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Book Chapters, Books

1. Buchan, J., **Thiel, C.**, Thomas, P. (2020) “Carbon and Cataracts: How to Make Your Service Sustainable.” A chapter in *Cataract Surgery: Pearls and Techniques*. Liu, C., Bardan, A. Springer Nature Switzerland AG. *In Review*.

Editorials and Commentaries

1. **Thiel, C.**, Morris, D. S., Somner, J. E., Cassels-Brown, A., Thomas, P. (2018) “We must continue testing delivery models to create more efficient surgical care.” *British Journal of Ophthalmology*. (Comment on an article on hub-and-spoke surgical process)
2. Donnellan, J., & **Thiel, C. L.** (2018). The Ethical Foundation for Environmental Responsibility. *Healthcare Executive*, January/February 2019.
3. Sherman, J. D., MacNeill, A., & **Thiel, C.** (2019). “Reducing Pollution from the Health Care Industry.” *JAMA*. 322(11):1043-1044. doi:10.1001/jama.2019.10823
4. **Thiel, C.**, Whelan, T. (2019). “If Hospitals Made Efforts to Go Green, Health Care Costs Would Go Down.” *Fortune*. <https://fortune.com/2019/09/05/health-care-costs-sustainability>
5. **Thiel, C.**, Horwitz, L.I. (2019) “Improving Value in Healthcare through Comprehensive Supply Optimization.” *JAMA*. 322(15):1451-1452. doi:10.1001/jama.2019.15478
6. **Thiel, C.** and L. I. Horwitz (2020). "Supply Chain Optimization and Waste Reduction—Reply." *JAMA* 323(6): 573-573.
7. **Thiel, C.**, Sherman, J., Hopf, H. (2020) “Use of Disposable Perioperative Jackets and Surgical Site Infections.” *JAMA Surgery*. Comment.
8. A, Steyn, Cassels-Brown A, Chang DF, Faal H, Vedanthan R, Venkatesh R, and **Thiel CL**. "Frugal Innovation for Global Surgery: Leveraging Lessons from Low- and Middle-Income

Countries to Optimise Resource Use and Promote Value-Based Care." *The Bulletin of the Royal College of Surgeons of England* 102, no. 5 (2020): 198-200. <https://dx.doi.org/10.1308/rcsbull.2020.150>. **Invited.**

9. Silva, G., Sreedhar, P., Greene, H. through advising and editing with CL Thiel. (2020) "Op-Ed: Is Medical Waste... Racist? Disposal Methods are Threatening Minority Communities" MedPage Today. <https://www.medpagetoday.com/publichealthpolicy/ethics/87415?trw=no>
10. Sherman, J., **Thiel, C.**, MacNeill, A., ... Bilec, M. (2020) The Green Print: Advancement of Environmental Sustainability in Healthcare. *Resources, Conservation and Recycling*. **Accepted.**
11. **Thiel, C.**, Schuman, J., Robin, A. (2020) "SARS-CoV-19: More Safety at The Expense of More Medical Waste" *American Journal of Ophthalmology*. **Invited, Accepted.**
12. MacNeill, A., Khanuja, A., Bilec, M., Eckelman, M., **Thiel, C.**, Alizamir, S., Simonsen, K., Hopf, H., McGain, F., Sherman, J. (2020) "A Call for Medical Device Industry Transformation: Toward a Circular Economy." *Health Affairs*. **Invited, Submitted.**

Book Reviews

1. **Thiel, C. L.** (2019). "The future when we don't do enough." *Nature Climate Change*, 9(9), 646-646. doi:10.1038/s41558-019-0565-y

Meetings Reports, Consensus Reports, Practice Guidelines and Any Other Publication

1. **Thiel, C.**, Shrake, S., Champion, N., Bilec, M., Landis, A., Woods, N. (2011). "Applications of Life Cycle Assessment: Sustainable Healthcare." *LCA XI*. Chicago, IL.
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3. **Thiel, C.**, Bilec, M., Needy, K. (2012). "Impacts of Green Design on Hospital Performance in the United States." *4th CIB International Conference on Smart and Sustainable Built Environments (SASBE)*. São Paulo, Brazil.
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8. **Thiel, C. L.**, Schehlein, E., Saedi, O., Schuman, J. S., Robin, A. L., Venkatesh, R., Ravindran, R.D., Thulasiraj, R. D. (2016). Environmental Life Cycle Assessment and Costs of Phacoemulsification at Aravind Eye Hospital in Pondicherry, India. *Investigative*

Ophthalmology and Visual Science, 57(12), 5575-5575. Association for Research in Vision and Ophthalmology (ARVO). Seattle, WA.

9. **Thiel, C.**, Schehlein, E., Saeedi, O., Robin, A., Newman-Casey, P.A., Ravilla, T., Ravindran, RD., Schuman, J., Venkatesh, R. (2016) "Comparison of Cataract Surgical Wastes and their Associated Costs in both the United States and India." *American Academy of Ophthalmology (AAO)*. Chicago, IL. **Best Paper Award**.
10. Lawrence, C., Gavin, L., Mishra, S., Wang, E., Boateng, A., **Thiel, C.**, Dubrow, R., Zafar, J., Sherman, J. (2017) "Carbon Footprint Impact of Reduction in Unnecessary Medical Testing in a Hospital Clinic." *American Public Health Association (APHA) Annual Meeting*. Atlanta, GA.

Media Appearances

- 7/?/2020, Liz Hillman, EyeWorld
- 6/10/2020, Tatiana Schlossber, New York Times, Mountains of medical waste, <https://www.nytimes.com/2020/06/10/climate/climate-scientists-strike-black-lives-matter.html>
- 3/27/2020, Nick Leiber, Boston Globe, Curing hospitals' addiction to the fossil fuels that make people sick; Green hospitals may be better prepared to deal with Covid-19, <https://www.bostonglobe.com/2020/03/27/magazine/curing-hospitals-addiction-fossil-fuels-that-make-people-sick/>
- 12/17/2019, Dulcy Israel, NYU News Story, Planet-Pleasing Presents: Gift-Giving Advice from NYU's Eco-Minded Faculty Experts, <https://www.nyu.edu/about/news-publications/news/2019/december/sustainable-gift-guide.html>
- 11/07/2019, George Winter, The Bulletin, Royal College of Surgeons, https://publishing.rcseng.ac.uk/doi/10.1308/rcsbull.2019.272?mc_cid=2d648b575c&mc_eid=5a88bffa1c
- 08/?/2019, Nicole Wetsman, Popular Science;
- 09/22/2019, NHKNews (Japan Public Broadcasting), Student Climate Strike and Doctors Notes Interview.
- 08/12/2019, HealthDay News, Unused Pharmaceuticals Common After Cataract Surgery, <https://www.physiciansweekly.com/unused-pharmaceuticals-common-after-cataract-surgery/>
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- 04/05/2019, Nancy Groves, Ophthalmology Times, Tallying financial, environmental costs of medical waste in cataract surgery, <https://www.ophthalmologytimes.com/ophthalmic-news/tallying-financial-environmental-costs-medical-waste-cataract-surgery>
- 7/24/2018, NYU Tandon News, Student Researchers Investigate the Environmental Costs of Healthcare, <https://engineering.nyu.edu/news/student-researchers-investigate-environmental-costs-healthcare>
- 08/2018, Rochelle Nataloni, Adopting Eco-Friendly Initiatives, Cataract & Refractive Surgery Today.
- 05/20/2018, Workshop to address the environmental footprint of clinical care, Yale News, <https://sustainability.yale.edu/news/workshop-address-environmental-footprint-clinical-care>
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 - Popular Science: <https://www.popsci.com/us-health-care-industry-generates-ton-waste-it-should-take-lesson-from-india>
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Other Media Including Research and Analytic Tools

Abstracts

N/A

Oral and Poster Presentations

1. Joshi, D., Prasad, P., **Thiel, C.** (2020) “Resource Use and Carbon Footprint of Inpatient Stays in a US Hospital.” *Society for General Internal Medicine (SGIM) 2020 Annual Meeting*. June, 2020. Virtual Conference. Poster.
2. Leapman, M., **Thiel, C.**, Gordon, I., Nolte, A., Perekman, A., Overcash, M., Sherman, J. (2020) “Environmental Emissions Associated with Reductions of Low-Value Prostate Biopsy.” *American Urological Association (AUA) Annual Meeting*. May 15-19, 2020. Washington, D.C.
3. Gordon, I., Leapman, M., Nolte, A., Overcash, M., Sherman, J., **Thiel, C.** (2020) “Life Cycle Assessment of Surgical Pathology Biopsies.” *United States and Canadian Academy of Pathology (USCAP)*. Feb 29 - March 5, 2020. Los Angeles, CA. Platform presentation.
4. Poudel R, Walzer D, Thompson R, Triola D, **Thiel C.** “Assessing Medical Student Attitudes Towards Including Environmental Concerns in the Medical School Curriculum.” *NYU Grossman School of Medicine, Annual Medical Education Innovations & Scholarship Day*. November 20, 2019. New York. Poster.
5. Tauber, J., Kahn, J., Chinwuba, I., Rothschild, M., Kleyn, D., Coulon, S., Chen, D., **Thiel, C.** (2019) “Identifying Sources of Greenhouse Gas Emissions in Cataract Care in the United States: Opportunities for Resource Efficiency in the Operating Theatre.” *Royal Australian New Zealand College of Ophthalmology (RANZCO) Annual Congress*. November 10, 2019. Sydney, Australia. Poster. *Ophthalmic Research Institute of Australia (ORIA) Recommended Poster.
6. **Thiel, C.**, Goel, H., Cassels-Brown, A., Steinbach, I., Stancliffe, R., Thomas, P. (2019) “The Eyefficiency Tool: A global cataract surgical services auditor for productivity, costs, and carbon.” *Royal Australian New Zealand College of Ophthalmology (RANZCO) Annual Congress*. November 10, 2019. Sydney, Australia. Poster.
7. Bilec, M., **Thiel, C.**, Slutzman, J., Sanchez, S., Pearson, C. (2019) “Life Cycle Assessment and Healthcare: The Untapped, Under-Explored, and Unwieldy Sector.” *American Center for Life Cycle Assessment (ACLCA) Annual Conference*. Tucson, AZ. September 24, 2019. Special Session.
8. Cassels-Brown, A., **Thiel, C.**, Morris, D., Thomas, P., Somner, J., Buchan, J., Stancliffe, R., Steinbach, I., Vendries, J. (2019) “Results of beta-testing the global 'EYEFFICIENCY' tool to improve cataract surgical productivity, costs and carbon footprint.” *Royal College of Ophthalmologists Annual Congress*. Edinburgh, Scotland. May 26, 2019. Poster.
9. **Thiel, C.**, Pearson, C. (2019) “Quantifying the environmental footprint of medical practice through life cycle assessment” *CleanMed*. May 8, 2019. Nashville, TN.
10. Collins, A., Sherman, J., Slutzman, J., **Thiel, C.** (2019) “Clinical Sustainability: What is it and How Do We Achieve it?” *CleanMed*. May 7, 2019. Nashville, TN.
11. Costello, A., Sherman, J., Anderko, L., **Thiel, C.**, Eckelman, M., Bilec, M., Barna, S. (2019) “Sustainable Healthcare and Global Environmental Change.” *Consortium of Universities for Global Health (CUGH) Conference*. March 8-10. Chicago, IL.
12. **Thiel, C.**, Sherman, J. Collins, A., Slutzman, J. (2019) “The healthcare sector’s role in environmental emissions mitigation and climate resilience” *National Council for Science and the Environment (NCSE)*. January 2-10. Washington, D.C.

13. Joshi, D., Prasad, P., Collins, M., **Thiel, C.** (2018) “Footprinting of an Inpatient Stay” *Bioinnovation NYUAD Research Conference*. November 5-7. Abu Dhabi, UAE. Poster.
14. Cimprich, A., Santillan-Saldivar, J., **Thiel, C.**, Sonnemann, G., Young, S. (2018) “Towards a systemic foundation for healthcare sustainability: scoping review of a fragmented literature and industrial ecology framework for future research” *International Society for Industrial Ecology, Americas Conference*. October 29-November 1. Cartago, Costa Rica.
15. **Thiel, C.** Kleyn, D., Stancliffe, R., Steinbach, I., Cassels-Brown, A., Thomas, P., Vendries, J. (2018) “Carbon footprinting of global surgeries: the Eyefficiency auditing tool” *International Society for Industrial Ecology, Americas Conference*. October 29-November 1. Cartago, Costa Rica. Poster.
16. Joshi, D., Prasad, P., Collins, M., **Thiel, C.** (2018) “Footprinting of an Inpatient Stay” *International Society for Industrial Ecology, Americas Conference*. October 29-November 1. Cartago, Costa Rica. Poster.
17. Mishra, S., Lawrence, C., Gavin, L., Wang, E., Boateng, A., **Thiel, C.**, Dubrow, R., Zafar, J., Sherman, J. (2018) “Carbon Footprint reduction by Implementing Standardized Preoperative Evaluation Center (PEC) Guidelines.” *American Society of Anesthesiologists (ASA) Annual Meeting*. October 13-17. San Francisco, CA. Poster.
18. Santillan-Saldivar, J., Cimprich, A., **Thiel, C.**, Sonnemann, G., Young, S. (2018) “A Novel Framework for Life Cycle Thinking to Support Sustainable Healthcare.” *Life Cycle Innovation Conference (LCIC)*. 29-31 August. Berlin, Germany. Poster.
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20. Tauber, J., Chinwuba, I., Kleyn, D., Rothschild, M., Kahn, J., **Thiel, C.** (2018) “The Carbon Footprint of Cataract Surgery: Why Every Wasted Pharmaceutical Drop Counts.” *World Ophthalmology Congress (WOC)*. 16-19 June. Barcelona, Spain. ePoster.
21. **Thiel, C.**, Cassels-Brown, A., Morris, D., Thomas, P., Somner, J., Buchan, J., Stancliffe, R., Steinbach, I., Vendries, J. (2018) “Eyefficiency: Triple Bottom Line Auditing Tool for Cataract Surgical Services Worldwide” *NYU Health Tech Symposium*. 7 June. New York, NY. Lightning Talk.
22. **Thiel, C.**, Cassels-Brown, A., Morris, D., Thomas, P., Somner, J., Buchan, J., Stancliffe, R., Steinbach, I., Vendries, J. (2018) “Results of "Triple C" sustainability pilots in India and South Africa: Benchmarking Cataract Productivity, Costs and Carbon Footprint” *NYU Health Tech Symposium*. 7 June. New York, NY. ePoster.
23. Steyn, A., **Thiel, C.**, Vengadesan, N., Ravilla, T., Ackland, P., Cassels-Brown, A. (2018) “Priorities for Increasing Capacity and Sustainability of Community Cataract Programmes: Qualitative results from an IAPB Environment Sustainability Workshop Kathmandu 2017.” *Royal College of Ophthalmologists Annual Congress*. 21-24 May. Liverpool, UK. Poster.
24. Morris, D., Cassels-Brown, A., **Thiel, C.**, Vengadesan, N., Stein, A., Thomas, P., Stancliffe, R., Vendries, J., Kleyn, D., Buchan, J., Somner, J., Steinbach, I., Chua, P., Adel, M., Pyott, A.,

- Hewick, S., Hingorani, M., Cook, C., Ravilla, T. (2018) “Results of ‘Triple C’ sustainability pilots in the NHS: Benchmarking Cataract Productivity, Costs and Carbon Footprint.” *Royal College of Ophthalmologists Annual Congress*. 21-24 May. Liverpool, UK. Poster.
25. **Thiel, C.**, Kleyn, D., Vengadesan, N., Steyn, A., Cassels-Brown, A., Thomas, P., Thulasiraj, R., Cook, C., Stancliffe, R. (2018) “Results of ‘Triple C’ sustainability pilots in India and South Africa: Benchmarking Cataract Productivity, Costs and Carbon Footprint.” *Royal College of Ophthalmologists Annual Congress*. 21-24 May. Liverpool, UK. Poster.
 26. Bilec, M., Collinge, W., Rickenbacker, H., Landis, A., **Thiel, C.** (2018). “Static and dynamic modeling of high performance buildings: Comparison of average and marginal electricity mixes, a consequential effect on LCA results.” *SETAC Europe 28th Annual Meeting*. May 13-17, 2018. Rome, Italy. Poster.
 27. Chinwuba, I., Kleyn, D., Rothschild, M., Tauber, J., Kahn, J., **Thiel, C.** (2018) “Pharmaceutical Waste in Cataract Surgery: Costs and Environmental Impact.” *CleanMed*. 9 May. San Diego, CA.
 28. Steyn, A., **Thiel, C.**, Cassels-Brown, A., Natarajan, V., Ravilla, T., Stancliffe, R., Steinbach, I., Morris, D., Buchan, J., Somner, J., Thomas, P., Cook, C. (2018) “Developing a global cataract “sustainability” audit tool (Triple C) to benchmark and improve surgical productivity, cost and carbon footprint.” *Ophthalmological Society of South Africa (OSSA) 2018 Congress*. 1-4 Feb. Sandton Johannesburg, South Africa. Poster.
 29. Cassels-Brown, A., Adelsen, M., Hewick, S., Pyott, A., Steyn, A., Natarajan, V., **Thiel, C.** (2017) “Developing Triple C: a productivity, cost and carbon footprint tool to support resilience in the face of escalating demand for cataract services.” *NHS Highland Research, Development & Innovation Annual Conference*. 24 Nov. Inverness, Scotland.
 30. Triola, D., **Thiel, C.** (2017) “When is the best time to teach health care sustainability and climate change in the medical student curriculum?” *NYU Langone Health MedEd Day*. New York, NY. 11 November. Poster.
 31. **Thiel, C.**, Schehlein, E., Saeedi, O., Schuman, J., Robin, A., Venkatesh, R., Ravindran, R.D. (2017). Lessons on Responsible Consumption of Resources from a Developing Country: Environmental LCA of Cataract Surgery in India. *International Society for Industrial Ecology (ISIE) & International Symposium on Sustainable Systems and Technology (ISSST) 2017 Conference*. 25-29 June. Chicago, IL. Poster & Oral.
 32. **Thiel, C.**, Sherman, J., Eckelman, M. (2017). LCIs in the Healthcare Sector: The Case for Better Emissions Data. *International Society for Industrial Ecology (ISIE) & International Symposium on Sustainable Systems and Technology (ISSST) 2017 Conference*. 25-29 June. Chicago, IL. Rapid Fire Poster presentation.
 33. **Thiel, C.**, Schehlein, E., Cassels-Brown, A., Ravilla, T., Ravindran, RD., Schuman, J., Venkatesh, R. (2017). Lowering the Carbon Footprint of Phacoemulsification: Lessons from Aravind Eye Care System. *Royal College of Ophthalmologists Annual Congress*. Liverpool, UK. Rapid Fire Poster Presenter.
 34. **Thiel, C.**, Schuman, J. (2017). From Scoping to Interventions: Creating Emissions Reduction Strategies in Medicine. Mascaro Center for Sustainable Innovation Engineering Sustainability (MCSI ES17). Poster.

35. **Thiel, C.**, Ravilla, T., Ravindran, RD., Schuman, J., Venkatesh, R. (2016). Environmental Life Cycle Assessment of Aravind Eye Care System: Minimizing Emissions through High Throughput and Reusable Surgical Supplies. *International Society Geographical & Epidemiological Ophthalmology Congress (ISGEO)*. Durban, South Africa. Poster.
36. **Thiel, C.**, Cassels-Brown, A. (2016). Sustainability Strategies to Reduce Costs, Waste and Environmental Impact. *International Association for the Prevention of Blindness's 10th General Assembly (IAPB 10GA)*. Durban, South Africa.
37. **Thiel, C.**, Schehlein, E., Ravilla, T., Ravindran, RD., Robin, A., Saeedi, O., Schuman, J., Venkatesh, R. (2016). Carbon Footprint of Cataract Care: Addressing Sustainable Development Goals 12 and 13. *International Association for the Prevention of Blindness's 10th General Assembly (IAPB 10GA)*. Durban, South Africa. Poster.
38. Shue, A., **Thiel, C.**, Schehlein, E., Kolomeyer, A., Saeedi, O., Robin, A., Schuman, J. (2016). Costs of Unused Drugs Disposed of in Cataract Surgery in the United States. *Women in Ophthalmology Summer Symposium*, Williamsburg, VA. Poster.
39. Hasik, V., Anderson, N., Collinge, W., **Thiel, C.**, Khanna, V., Landis, A., Bilec, M. (2016). Comparative Life Cycle Assessment of Decentralized and Centralized Water Systems on a Building Level. *LCA XVI*, Charleston, SC.
40. **Thiel, C.**, Tighe, J., Baratz, M., Bilec, M. (2016). Medicine and the Environment: Using Environmental Life Cycle Assessment to Inform Changes in Surgical Practices. *LCA XVI*, Charleston, SC.
41. **Thiel, C.**, Schehlein, E., Saeedi, O., Venkatesh, R., Ravindran, RD., Ravilla, T., Robin, A., Schuman, J. (2016). Green Cataract Surgery: Waste Generation and Carbon Footprint of Phacoemulsification at Aravind Eye Hospital in Pondicherry, India. *American Ophthalmology Society (AOS) Annual Meeting*. Colorado Springs, CO. Poster.
42. **Thiel, C.**, Schehlein, E., Saeedi, O., Venkatesh, R., Ravindran, RD., Ravilla, T., Robin, A., Schuman, J. (2016). Environmental Life Cycle Assessment and Costs of Phacoemulsification at Aravind Eye Hospital in Pondicherry, India. *University of Pittsburgh Postdoctoral Association's Data and Dine Event*. Pittsburgh, PA. Poster.
43. **Thiel, C.**, Venkatesh, R., Ravindran, RD., Ravilla, T., Robin, A., Schuman, J. (2016). Environmental Life Cycle Assessment and Costs of Phacoemulsification at Aravind Eye Hospital in Pondicherry, India. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*. Seattle, WA. Poster.
44. **Thiel, C.**, Schehlein, E., Saeedi, O., Robin, A., Schuman, J. (2016). Costs and Life Cycle Carbon Footprint of Materials Used in Cataract Surgery in the United States. *American Society of Cataract and Refractive Surgery (ASCRS) Symposium & Congress*. New Orleans, LA.
45. **Thiel, C.**, Venkatesh, R., Ravindran, RD., Ravilla, T., Robin, A., Schuman, J. (2016). *Special Interest Scientific Film*. Eye on Emissions: Carbon Footprint of Cataract Surgery in Aravind Eye Hospital. *American Society of Cataract and Refractive Surgery (ASCRS) Symposium & Congress*. New Orleans, LA. Video.
46. Namburur, S., **Thiel, C.**, Robin, A. (2016). Medical Waste from Glaucoma Surgeries at Indian and American Eye Hospitals: A Pilot Study. *American Glaucoma Society (AGS) 26th Annual Meeting*. Ft. Lauderdale, FL. Poster.

47. **Thiel, C.**, Schehlein, E., Saeedi, O., Schuman, J., Robin, A., Venkatesh, R., Ravindran, R.D. (2015). Comparative Material Flow of Medical Supplies and Waste from Cataract Surgery in Southern India and the United States. *International Society for Industrial Ecology (ISIE) 2015 Conference*. Surrey, United Kingdom.
48. Hasik, V., Collinge, W., **Thiel, C.**, Landis, A. Bilec, M. (2015). Dynamic LCA of a Zero Energy and Water Building and Implications at the Community Scale. *International Society for Industrial Ecology (ISIE) 2015 Conference*. Surrey, United Kingdom.
49. **Thiel, C.**, Venkatesh, R., Ravindran, R.D. (2015). Environmental Impacts and End-of-Life Scenarios for Medical Supplies Used in High-Volume Cataract Surgery in Southern India. *International Symposium on Sustainable Systems and Technology (ISSST)*. Dearborn, MI.
50. Collinge, W., **Thiel, C.**, Campion, N., Al-Ghamdi, S.G., Woloschin, C. L., Soratana, K., Landis, A. Bilec, M. (2015). Integrating Life Cycle Assessment with Green Building and Product Rating Systems: North American Perspective. *International Conference on Sustainable Design, Engineering and Construction (ICSDEC)*. Chicago, IL.
51. **Thiel, C.** (2015). Material Use and the Environmental Impact of High-Volume Cataract Surgery at Aravind Eye Hospitals. *South and Central Asia Fulbright Conference*. Hyderabad, India.
52. **Thiel, C.**, Eckelman, M., Guido, R., Landis, E., Sherman, J., Copley-Woods, N., Bilec, M. (2015). Life Cycle Assessment in Hospital Operating Rooms: Environmental Impacts from Four Types of Hysterectomy. *Engineering Sustainability*. Pittsburgh, PA. Poster.
53. **Thiel, C.**, Woods, N., Landis, A., Eckelman, M., Guido, R., Sherman, J., Bilec, M. (2014) "Quantifying environmental impacts of surgeries in US operating rooms using life cycle assessment." *Gordon Research Conference (GRC), Industrial Ecology*. Lucca, Italy. Poster.
54. Campion, N., **Thiel, C.**, Landis, A., Sherman, J., Eckelman, M., Woods, N. Bilec, M., (2014). Integrating Environmentally Preferred Solutions into the Healthcare Industry: A Closer Look at Supply Chain and Anesthetic Gases. *LCA XIV*. San Francisco, CA.
55. **Thiel, C.**, Campion, N., Bilec, M., Focareta, J., Landis, A., Woods, N. (2014). Does Green Design Affect Patient Outcomes and Staff Productivity? A Look at Evidence-Based Design. *CleanMed*. Cleveland, OH.
56. Collinge, W., **Thiel, C.**, Campion, N., Landis, A. Bilec, M. (2014). Evaluation of a Living Building using Dynamic LCA. *International Symposium on Sustainable Systems and Technology (ISSST)*. Oakland, CA.
57. Campion, N., Copley-Woods, N., Landis, A., Swanzy, L., **Thiel, C.**, Bilec, M. (2014). The Life Cycle Environmental Impacts of Disposable Custom Packs. *International Symposium on Sustainable Systems and Technology (ISSST)*. Oakland, CA. Poster.
58. Grabowski, Z., Matsler, A., **Thiel, C.**, Hum, R., Bradshaw, A., McPhillips, L., Miller, T., Redman, C. (2014). Weaving the Seamless Web: Conceptualizing Integrated Infrastructures for the 21st Century. *Association of American Geographers (AAG) Annual Meeting*. Tampa, FL.
59. **Thiel, C.** (2013). University of Pittsburgh's Sustainability Initiative in Engineering IGERT Program. *Third Conference for Sustainability IGERTs (C4SI3)*. Portland, OR. Poster.

60. **Thiel, C.**, Huddleston, M., Shrake, S., Landis, A., Copley-Woods, N., Bilec, M. (2013). Life Cycle Assessments of Surgery. *Third Conference for Sustainability IGERTs (C4SI3)*. Portland, OR. Poster.
61. **Thiel, C.**, Shrake, S., Woods, N., Landis, A., Bilec, M. (2013). Analyzing surgical techniques using LCA to inform environmentally sustainable changes in hospital operating rooms. *International Congress on Sustainability Science and Engineering (ICOSSE)*. Cincinnati, OH.
62. **Thiel, C.**, Bilec, M., Needy, K., Reis, R. (2013). Quantifying the Impacts of Green Hospital Design through a Comparative Longitudinal Assessment. *International Symposium on Sustainable Systems and Technology (ISSST)*. Cincinnati, OH.
63. **Thiel, C.**, Huddleston, M., Shrake, S., Landis, A., Copley-Woods, N., Bilec, M. (2013). Environmental Impacts of Minimally Invasive Surgery. *International Symposium on Sustainable Systems and Technology (ISSST)*. Cincinnati, OH. Poster.
64. **Thiel, C.**, Champion, N., Bilec, M., Landis, A., Woods, N. (2013). Improving Environmental Performance of the Operating Room. *CleanMed*. Boston, MA.
65. **Thiel, C.**, Bilec, M., Needy, K., Ries, R. (2013). Benefits of Green Hospital Design: A comparative longitudinal assessment. *Engineering Sustainability*. Pittsburgh, PA.
66. Champion, N., **Thiel, C.**, Landis, A., Bilec, M., (2013). Net-Zero Energy Building Material Perspective: A Life Cycle Assessment. *Engineering Sustainability*. Pittsburgh, PA. Poster.
67. Wood, C., LaScola Needy, K., Shrake, S., **Thiel, C.**, Huddleston, M., Bilec, M. (2013). Emerging Technologies in Healthcare and the Associated Environmental Impacts. *2013 Industrial and Systems Engineering Research Conference (ISERC)*. San Juan, Puerto Rico. Poster.
68. **Thiel, C.**, (2012). Meet the Region & Personal Leadership in EWB-USA Chapters. *Engineers Without Borders-USA North East Regional Conference*. Philadelphia, PA.
69. **Thiel, C.**, Bilec, M., LaScola-Needy, K. (2012). Impacts of Green Design on Hospital Performance in the United States. *4th CIB International Conference on Smart and Sustainable Built Environments (SASBE)*. São Paulo, Brazil. Poster.
70. **Thiel, C.**, (2012). Sustainability Research at University of Pittsburgh & Tools of the Road to Sustainable Healthcare. *3rd Annual PUC-Rio and University of Pittsburgh Workshop: Research on Nonconventional Materials and Technologies*. Pontifical Catholic University of Rio de Janeiro, Brazil.
71. Bilec, M., Landis, A., Shrake, O., **Thiel, C.**, Woods, N. (2012). Using LCA in Healthcare: Focus on Hysterectomy Surgeries. *LCA XII*. Tacoma, WA.
72. **Thiel, C.**, Champion, N., DeBlois, J., Landis, A., Woods, N., Bilec, M. (2012). Life Cycle Assessment of Medical Procedures: Vaginal and Cesarean Section Births. *International Symposium on Sustainable Systems and Technology (ISSST), IEEE*. Boston, MA.
73. **Thiel, C.**, Shrake, S., Champion, N., Bilec, M., Landis, A., Woods, N. (2011). Applications of Life Cycle Assessment: Sustainable Healthcare. *LCA XI*. Chicago, IL.
74. **Thiel, C.**, Champion, N., Bilec, M., Landis, A., Copley-Woods, N. (2011). Use of Life Cycle Assessment in Healthcare: A Preliminary Cesarean Section Case Study. *IEEE: International Symposium on Sustainable Systems and Technology (ISSST)*. Chicago, IL. Poster.

75. Woods, N., Goodman, L., **Thiel, C.** (2011). Creating Sustainable Surgery: A Trashy Operation. *CleanMed*. Phoenix, AZ.
76. **Thiel, C.**, Campion, N., Bilec, M., Landis, A., Copley-Woods, N. (2011). Sustainable Healthcare: Environmental Improvements for the Operating Room through Life Cycle Assessment of Birthing Kits. *Engineering Sustainability*. Pittsburgh, PA. Poster.
77. **Thiel, C.**, (2011). Education and outreach programs at MCSI. *Mascaro Center for Sustainable Innovation (MCSI) Advisory Board Committee*. Pittsburgh, PA.
78. **Thiel, C.**, Bilec, M., Landis, A. (2011). Net-Zero Energy Building: A Materials Life Cycle Assessment. *NSF CMMI Research and Innovation Conference*. Atlanta, GA. Poster.
79. **Thiel, C.**, (2010). Development of personal research goals. *ASCE 6th Annual National Civil Engineering Department Heads Conference*. Pittsburgh, PA.
80. **Thiel, C.**, Bilec, M., Landis, A. (2010). Life Cycle Assessment of Net-Zero Energy Building: Focus on Materials. *LCA X*. Portland, OR. Poster.

Patents

N/A