



## FY2022 New Assembly/Committee Project Application

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Submitter: **Peggy Lai**

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Collaboration: There will be opportunities for other organizations to co-sponsor the document. The ATS prefers that the project not be discussed with potential co-sponsoring organizations until the project has been approved because premature discussions may jeopardize a final agreement. All negotiations for collaboration will be handled by ATS staff following project approval.

### SECTION I - GENERAL PROJECT INFORMATION

\* 1. ATS PROJECT TITLE:

Household air pollution interventions to improve lung health in LMICs: How does research translate into real-world decisions?

\* 2. PROJECT PRIMARY ASSEMBLY:

Environmental, Occupational and Population Health

\* 3. ATS SECTION:

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\* 4. ATS COMMITTEE SUBMITTING PROJECT APPLICATION:

International Health Committee

\* 5. What official ATS document will be developed as part of this project?

## Research Statement

- \* 6. Can the project move forward as a virtual project if necessary?

Yes

## SECTION II - RELEVANCE to ATS

### PROJECT DESCRIPTION

- \* A. Clearly and concisely describe the project's goals, objectives, and relevance/importance to the ATS. Goals and objectives should be focused and feasible to achieve. Do NOT include your meeting agenda here. If you are proposing a clinical practice guideline, this section should include your PICO question(s). (maximum of 6 questions are permitted)

Based on the 2020 ATS Executive Committee Task Force on International Activities, 35% of the ATS membership is from international participants, with over 50% of international members living in low and middle income countries (LMICs). Approximately half of all manuscript published in ATS journals are from authors outside of North America. This highlights the importance of global health topics to ATS members and aligns with initiatives from the ATS leadership to engage and retain international members.

One of the most important environmental health problems affecting people living in LMICs is household air pollution. 3 billion people worldwide are exposed to household air pollution from indoor combustion sources including cooking, heating, and lighting fuel, with the problem disproportionately affecting people in LMICs due to the lack of critical energy infrastructure(Gordon, et al. 2014). Household air pollution is responsible for 3.9 million deaths per year and is among the top five risk factors for premature mortality in low and middle income countries(Gordon, et al. 2014, Smith, et al. 2014). In 2014, the respiratory risks from household air pollution was highlighted in a Lancet Commission, which summarized the evidence for the association between household air pollution and a broad range of lung diseases including respiratory infections, respiratory cancers, and chronic lung diseases. Furthermore, the commission highlighted household air pollution as a fundamental health equality issue, with women and children living in poverty at the highest risk of exposure(Gordon, et al. 2014). Given the large burden of lung disease in LMICs due to household air pollution, a number of large randomized controlled trials have been performed to evaluate the efficacy of interventions to mitigate household air pollution. These have largely focused on either more efficient biomass stoves or replacing biomass with cleaner-burning fuels such as liquid petroleum gas (LPG). In 2011, a trial of improved biomass stoves in Guatemala(Smith, et al. 2011) showed a reduction in the secondary outcome of severe pediatric pneumonia, although this was not subsequently replicated in a large improved biomass stove trial Malawi(Mortimer, et al. 2017). Clinical trials of cookstove interventions have been

performed in, India(Hanna, et al. 2016), Nigeria(Alexander, et al. 2017), Peru(Checkley, et al. 2020), with mixed or no health effects. Most of these trials were published after the 2014 Lancet commission, highlighting the need to re-evaluate the evidence for strategies to reduce household air pollution and improve lung health.

A further challenge is that for household energy interventions to be scaled and thus have a public health impact, non-academic stakeholders must be engaged. There remains a communication gap between academic researchers and the energy decision-makers at the level of local and national governments, global organizations, and finance corporations. Health-related research may not be the information these energy decision-makers use to decide on policy. Thus it is critically important that a bridge be built between researchers in this field and energy decision-makers who have the ability to scale household energy interventions.

This proposal is timely as two major RCTs of household energy interventions conducted in Ghana, Guatemala, Peru, India, and Rwanda focused on liquid petroleum gas (LPG), a cleaner cooking fuel, have recently been completed and are due for publication in early 2022(Lee, et al. 2018, Clasen, et al. 2020). The principal investigators of these trials are speakers, panelists, or chairs of this Assembly Project proposal. Additional expertise present in this proposal include all principal investigators and key co-investigators for existing randomized controlled trials of household energy interventions, which include interventions targeted towards both cookstoves and fuel-based lighting.

The **overarching purpose** of this research statement is to obtain a consensus on and outline a research agenda for impactful studies designed to reduce household air pollution and improve lung health in LMICs. In order to achieve these goals, we will address four topic areas focused on the following **key questions**:

- (1) What have we learned from existing household air pollution interventions to improve lung health?
- (2) What are important secondary outcomes and design considerations for such trials?
- (3) How do we bridge the communication gap between academic research and decision makers that increase household energy access?
- (4) What are critical knowledge gaps in household air pollution research that require further study.

In order to develop this research statement, disparate groups of stakeholders will need to start on common ground in order to have productive discussions. Therefore the methods involve workshop-like presentations followed by discussions, in order to generate the final deliverable which is a set of specific research recommendations, compatible with a research statement. The workshop will be structured with speakers and panel discussions around each topic, with the goal of obtaining consensus on the key

questions.

### **Topic 1. Do household air pollution interventions in LMICs improve lung health?**

Since 2011, intervention trials to reduce exposure to household air pollution and improve health have been conducted in Latin America, Africa, and Asia. These interventions focused on reducing cooking-related emissions, and ranged from improved biomass stoves to the provision of liquid petroleum gas. Two major trials are planned for publication in early 2022. In this session, lead investigators from all major randomized controlled trials of cookstove interventions will address the question, “What have we learned from existing trials?”. Each speaker will discuss the immediate goals and tested hypothesis of their trial, local context, rationale for choice of intervention, implementation challenges, rationale behind selection of primary and secondary outcomes, and plans for scale-up after the conclusion of the trial. Investigators from major randomized controlled trials of household energy interventions, including those pending publication, will be invited as speakers and panelists. A panel discussion format will be used to obtain consensus on key questions including: Did the interventions work to improve health? Why did some interventions reduce pollutant exposure but not improve health? Given the existing evidence, should there be more trials focused on cookstoves alone? What is the importance of context and can the results of one trial be applied to another setting with different household energy infrastructure and needs?

### **Topic 2. What are important secondary outcomes and design considerations for meaningful household air pollution studies in LMICs?**

The primary outcome in major cookstove trials have focused on primary prevention of pediatric pneumonia and adult lung health, although studies have demonstrated benefits in other organ systems, or in potential economic benefits at the household level that may address social determinants of health. In addition, intervention trials in resource-limited settings require additional design considerations. This session will discuss important considerations in the design of research studies on household air pollution, including the role of end user priorities in study design, the selection of meaningful secondary outcomes, the choice of intervention (both type and timing), the role of adherence monitoring. A panel discussion format will be used to obtain consensus on key questions including: Based on the experience of the panelists, what are lessons learned and if they had the opportunity to re-design their trials, what would they change? What secondary outcomes should be measured? Is reducing exposure to household air pollution in adults efficacious for health effects or should windows earlier in the life course be targeted? What are responsibilities of study investigators to the local community both before and after the conclusion of the trial? Are there design considerations from household air pollution research generalizable to other studies conducted in LMICs to improve lung health?

### **Topic 3**

## **. Does academic research help household energy interventions get scaled? Engaging non-academic stakeholders**

Household air pollution is a problem that needs the collaboration of multiple stakeholders including the end user, non-governmental organizations, corporations, local and national governments, and global agencies in order to introduce lasting change. Research on household energy should support increased access to clean energy solutions and mitigate polluting alternatives. Yet, there remains a large communication gap between papers published by academic researchers and the decision makers in government and international institutions who ultimately create household energy policy and determine the feasibility for scaling-up household energy interventions. This session will provide perspectives from energy access practitioners and non-academic stakeholders on how health research is (or is not) used for informing their effort. Currently energy access practitioners do not rely on health research for decision making thus a better alignment of the priorities of academic researchers and energy access practitioners is needed. Perspectives will cover a range of vantage points, including government engagement, sector investment, and energy service providers. A panel discussion format will be used to obtain consensus on key questions including: Does health research in household air pollution lead to increased access to clean energy? How does knowledge generated in academia reach non-academic stakeholders and policy makers? Which outcomes influence decision making for energy practitioners, and should they be incorporated in academic research studies since these are the outcomes that influence large-scale uptake of interventions? In what ways can health research in this space better support on-the-ground practitioners on the front lines of energy access efforts?

## **Topic 4. What are the next steps for household air pollution research to improve lung health in LMICs?**

The goal of this section is to obtain consensus on the future research agenda for household air pollution studies in LMICs. This includes a discussion on whether a focus of these studies should be non-health outcomes such as climate change (Goldemberg, et al. 2018) (an important ATS priority), considering interventions on non-cookstove sources of household air pollution such as kerosene-based lighting or diesel generators, and considering who should set the research agenda beyond funding agencies and investigators. A panel discussion format will be used to obtain consensus on key questions including: What should future research in household air pollution focus on? Is the existing body of research sufficient sufficient to recommend against specific study designs, such as more intervention studies using improved biomass stoves? Are there opportunities for collaboration using data or biorepositories from existing intervention trials? Is there "conventional wisdom" in household air pollution research that needs to be re-examined in light of recent studies? Whose priorities should be setting the research agenda - the end user, energy access decision makers, investigators, or others?

## **References cited**

1. Gordon SB, Bruce NG, Grigg J, Hibberd PL, Kurmi OP, Lam K-bH, Mortimer K, Asante KP, Balakrishnan K, Balmes J, Bar-Zeev N, Bates MN, Breyse PN, Buist S, Chen Z, Havens D, Jack D, Jindal S, Kan H, Mehta S, Moschovis P, Naeher L, Patel A, Perez-Padilla R, Pope D, Rylance J, Semple S, Martin WJ. Respiratory risks from household air pollution in low and middle income countries. *The Lancet Respiratory medicine*. 2014;2(10):823-60. doi: 10.1016/S2213-2600(14)70168-7. PubMed PMID: 25193349; PMCID: PMC5068561.
2. Smith KR, Bruce N, Balakrishnan K, Adair-Rohani H, Balmes J, Chafe Z, Dherani M, Hosgood HD, Mehta S, Pope D, Rehfuess E, Group HCRE. Millions dead: how do we know and what does it mean? Methods used in the comparative risk assessment of household air pollution. *Annu Rev Public Health*. 2014;35:185-206. Epub 2014/03/20. doi: 10.1146/annurev-publhealth-032013-182356. PubMed PMID: 24641558.
3. Smith KR, McCracken JP, Weber MW, Hubbard A, Jenny A, Thompson LM, Balmes J, Diaz A, Arana B, Bruce N. Effect of reduction in household air pollution on childhood pneumonia in Guatemala (RESPIRE): a randomised controlled trial. *Lancet*. 2011;378(9804):1717-26. Epub 2011/11/15. doi: 10.1016/S0140-6736(11)60921-5. PubMed PMID: 22078686.
4. Mortimer K, Ndamala CB, Naunje AW, Malava J, Katundu C, Weston W, Havens D, Pope D, Bruce NG, Nyirenda M, Wang D, Crampin A, Grigg J, Balmes J, Gordon SB. A cleaner burning biomass-fuelled cookstove intervention to prevent pneumonia in children under 5 years old in rural Malawi (the Cooking and Pneumonia Study): a cluster randomised controlled trial. *Lancet*. 2017;389(10065):167-75. Epub 2016/12/13. doi: 10.1016/S0140-6736(16)32507-7. PubMed PMID: 27939058; PMCID: PMC5783287.
5. Hanna R, Duflo E, Greenstone M. Up in Smoke: The Influence of Household Behavior on the Long-Run Impact of Improved Cooking Stoves. *American Economic Journal: Economic Policy*. 2016;8(1):80-114.
6. Alexander D, Northcross A, Wilson N, Dutta A, Pandya R, Ibigbami T, Adu D, Olamijulo J, Morhason-Bello O, Karrison T, Ojengbede O, Olopade CO. Randomized Controlled Ethanol Cookstove Intervention and Blood Pressure in Pregnant Nigerian Women. *Am J Respir Crit Care Med*. 2017;195(12):1629-39. Epub 2017/01/13. doi: 10.1164/rccm.201606-1177OC. PubMed PMID: 28081369.
7. Checkley W, Williams KN, Kephart JL, Fandino-Del-Rio M, Steenland NK, Gonzales GF, Naeher LP, Harvey SA, Moulton LH, Davila-Roman VG, Goodman D, Tarazona-Meza C, Miele CH, Simkovich S, Chiang M, Chartier RT, Koehler K, Investigators Ct. Effects of a Cleaner Energy Intervention on Cardiopulmonary Outcomes in Peru: A Randomized Controlled Trial. *Am J Respir Crit Care Med*. 2020. Epub 2020/12/12. doi: 10.1164/rccm.202006-2319OC. PubMed PMID: 33306939.
8. Lee AG, Kaali S, Quinn A, Delimini R, Burkart K, Opoku-Mensah J, Wylie BJ, Yawson AK, Kinney PL, Aengibise KA, Chillrud S, Jack D, Asante KP. Prenatal Household Air Pollution is Associated with Impaired Infant Lung Function with Sex-Specific Effects: Evidence from GRAPHS, a Cluster Randomized Cookstove Intervention Trial. *Am J Respir Crit Care Med*. 2018. doi: 10.1164/rccm.201804-0694OC. PubMed PMID: 30256656.

9. Clasen T, Checkley W, Peel JL, Balakrishnan K, McCracken JP, Rosa G, Thompson LM, Barr DB, Clark ML, Johnson MA, Waller LA, Jaacks LM, Steenland K, Miranda JJ, Chang HH, Kim DY, McCollum ED, Davila-Roman VG, Papageorghiou A, Rosenthal JP, Investigators H. Design and Rationale of the HAPIN Study: A Multicountry Randomized Controlled Trial to Assess the Effect of Liquefied Petroleum Gas Stove and Continuous Fuel Distribution. *Environ Health Perspect*. 2020;128(4):47008. Epub 2020/04/30. doi: 10.1289/EHP6407. PubMed PMID: 32347766; PMCID: PMC7228119.
10. Goldemberg J, Martinez-Gomez J, Sagar A, Smith KR. Household air pollution, health, and climate change: cleaning the air. *Environmental Research Letters*. 2018;13.

\* B. Describe any related ATS / non-ATS activities relevant to your project.

Numerous presentations at the annual ATS international conference have addressed household air pollution in resource-limited settings, highlighting the importance of this topic to ATS members. At ATS 2021, talks or posters on this topic were presented at two scientific symposia (one focused on pediatric lung health and the other focused on air pollution exposure as a risk factor for respiratory viral infections) and one thematic poster session. A scientific symposium proposal for ATS 2022 “Hearth of the matter: Do household air pollution interventions improve health outcomes?” has been submitted focused on interventions to reduce household air pollution in resource-limited settings. However, these scientific sessions do not allow for the opportunity to obtain consensus from the research community on the interpretation of the literature, and do not allow for the opportunity to set the future research agenda in this field.

In 2014, the Lancet Commission (Gordon, et al. 2014) evaluating respiratory risks from household air pollution in low and middle income countries was published to review the existing literature focused on the contribution of household air pollution to the high burden of respiratory diseases in resource-limited settings, to summarize recommendations for exposure monitoring, and to provide recommendations for interventions likely to impact health and to have a high uptake. However, the majority of the clinical trials to reduce household air pollution in LMICs was published after the Lancet Commission. In addition to obtaining a consensus on the interpretation of existing research and setting the future research agenda in the field, in this proposal we also engage household energy decision makers (the focus of Session 3) in order to ensure that academic research can translate into decision-making and scale-up of cleaner household energy solutions.

While a number of meta-analyses have been published on the efficacy of household energy interventions in LMICs in changing personal exposure to pollution or on health effects, they do not include the large trials pending publication in 2022 (which this statement will incorporate) nor do they offer the opportunity for investigators of all major conducted trials as well as energy access

practitioners to come to a consensus regarding the four major topics outlined in this research statement.

\* C. How does this project relate to health equality? How will health equality be addressed in this project?

Household air pollution is fundamentally a health equality issue, with women and children living in poverty in LMICs at the highest risk of exposure and related health effects. The purpose of this research statement is to provide consensus on several key areas of household air pollution research, including recommendations for future research that will translate into decision making on the ground. Specific aspects of this project include:

- (1) The discussion of the role poverty plays in adverse health outcomes due to household air pollution
- (2) The engagement of key energy stakeholders in Topic 3, including global organizations such as the International Finance Corporation and the World Health Organization who have the ability to transform household energy access. This will provide concrete scalable steps towards addressing household air pollution.
- (3) The inclusion of speakers and panelists from Latin America and Africa who can speak to feasible interventions in resource-limited settings
- (4) The inclusion of specific talks on poverty (Topic 2) and the incorporation of end-user perspectives in research design through qualitative studies (Topic 4)

\* D. All applicants must review a document development video (<https://www.thoracic.org/members/assemblies/about/assembly-project-application-resource-center.php>) and set of document-development vignettes prior to submitting this application.

Yes, I have review the document development video

E. FOR CME EDUCATIONAL PROJECTS/PRODUCTS ONLY: FOR MORE INFORMATION PLEASE SEE INSTRUCTIONS. PLEASE DESCRIBE THE FOLLOWING:

Not Applicable

## SECTION III - METHODOLOGY

\* A. Please describe the approach for creating the document. This section should demonstrate that the scope of work can be completed on time. There should be a clear plan for how tasks, such as paper writing, will be completed (e.g., how will writing tasks be divide? what are the opportunities for the committee to provide feedback?). Please include why you feel the selected document type is the most appropriate.

A steering committee composed of the project co-chairs will initially convene by web conference to



confirm working group participants, finalize the content of group meetings, and assign leadership roles for each of the four sections. Chairs will be assigned to lead each proposed section. Chairs will conduct a literature review of multiple electronic databases and clinical trials registration websites will be performed to retrieve relevant articles with the reference lists of retrieved articles examined in order to identify relevant publications and summarize key studies to be distributed to all speakers and panelists prior to each session. This will form the basis for identifying knowledge gaps and recommendations for research, as well as refining panel discussion questions. Meetings will take place as a series of four 2-hour web conference sessions which will take place in May 2022 in order to accommodate the participation of international members who may face challenges with international travel due to visa restrictions and the fluid travel policies surrounding COVID-19.

Each chair will take leadership responsibility for one of the four sessions, with activities prior to each session including delegating a note-taker, obtaining all speaker slides one week prior to each session, moderating the panel discussion session, summarizing areas of consensus, and oversight of the writing committee for each section. In order to finalize recommendations, a literature review performed prior to each session, panel discussion, and verification of consensus using a REDCap online survey to be deployed after each session will be deployed, with recommendations that receive endorsement from at least 80% of the panel as the criteria for making a specific recommendation.

The deliverable will be a 3,500 word print-version of the research statement that includes 10 specific recommendations and statements, as well as sections for background, description of methods, specific recommendations and statements, and salient discussion points. The 10,000 word online version of the research statement will additionally elaborate on each recommendation/statement focused on areas that required more in-depth discussion, and additionally include areas that did not reach endorsement from at least 80% of the panel, were considered less important, or were controversial.

Please see the **excel file** uploaded in **Section IIIB** with the detailed agenda of talks, assigned speakers, time allotment, and discussion questions for each session.

#### **Pre-meeting work:**

- In June 2021, a working group that included lead investigators in major household air pollution trials were convened in order to formulate the content of this proposal.
- In January of 2022, if this project is approved, the workshop chairs will hold a meeting via web conference in order to confirm working group participants, finalize the content of group meetings including talks and panel discussion questions, and assign leadership roles for each of the four

sections including identifying members of the writing committee

- From January to March 2022, chairs for each subsection will conduct a literature review. Scheduling of the dates for the four sessions to be conducted via web conference will also be finalized
- In April 2022, all workshop participants will meet via web conference to review the goals of this project, finalize roles for each participants, and discuss any outstanding issues that remain
- One week prior to the assigned session, all speakers will provide their slides

### **Workshop activities:**

- The workshop is constructed around four 2-hour web conference sessions focused on a specific topic area as detailed above. This allows for scheduling of workshop activities that works across multiple different time zones
- Each 2-hour session consists of four to six 15 minute presentations followed by 25 minutes of panel discussion and 5 minutes to summarize points of consensus
- After each session a RedCAP survey will be sent out to identify points of consensus
- At the fourth session, time will be delegated to reviewing points of consensus from all sessions as well as delegation of tasks to the writing committee and discussion of timelines and delegation of writing activities
- A notetaker will be assigned for each session

### **Post-meeting work:**

- June of 2022. Workshop chairs and participants will convene via web conference to finalize the outline of each section and confirm tasks to members of the writing committee.
- August 2022. Rough drafts of each section are due to workshop chairs. If writing committee participants are unable to provide the draft, then the responsibility for writing will fall on the chair of each session by this date
- September 2022. Workshop chairs will synthesize all sections to provide drafts (both the 3,500 word printed and 10,000 word online version) to disseminate to workshop participants for review and feedback. A web conference will be conducted to address any outlying questions after workshop participants have received the drafts
- October - November 2022. Further rounds of edits based on feedback.
- December 2022. First draft of the research statement will be submitted for peer review.
- February – March 2023. Revisions will be made based on peer review and revised draft shared with participants

- April 2023. Revised version resubmitted for publication

\* B. If you are requesting a face-to-face meeting, please provide a detailed agenda that includes:

- the topic/activity
- the presenter/discussant/group leader name(s),
- start time
- duration (if not clear from the next topic/activity's start time).

*Tip. In person meetings are most successful when there is ample time for discussion spread throughout the meeting. It is often helpful to document group/sub-group discussion as a separate topic/activity.*

[\[Talk\\_Schedule\\_HAP\\_20210907.xlsx\]](#)

\* If you have chosen to develop a Workshop Report as part of this project, please complete a draft agenda below for the workshop. Please click "add new" to add a new agenda item.

\* C. PROPOSED PARTICIPANTS - *Every guideline must have a methodologists. Please include all proposed participants. For more details contact ATS Documents Department [documents@thoracic.org](mailto:documents@thoracic.org)*

- Include a list of all planned participants. For '**area of expertise relevant to the project**', provide sufficient detail to justify the person's inclusion on this project and to demonstrate their role on the project. For example, this could include specific clinical or research expertise and/or prior experience with document development.
- Before beginning work on the project all participants will have their conflict of interest disclosures vetted by the ATS. If the project is co-sponsored by other societies or groups, there may be approvals required before a participant can be formally added to the project committee.

**Name :** [Peggy Lai](#)

**Institution :** [Harvard/Massachusetts General Hospital](#)

**"Role" on Project committee :** [Chair](#)

**Area of Experties relevant to project :** [HAP due to kerosene-based lighting](#)

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**Country :** [United States](#)

**Name :** [Uju Ozoh](#)

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**"Role" on Project committee :** [Co Chair](#)

**Area of Experties relevant to project :** Household kerosene use in Nigeria

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**Airfare :** International

**Country :** Nigeria

**Name :** William Checkley

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**Area of Experties relevant to project :** Global lung health including conducting multi-country LPG intervention trials in resource-limited settings

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**Airfare :** Domestic

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**Name :** John Balmes

**Institution :** UCSF

**"Role" on Project committee :** Co Chair

**Area of Experties relevant to project :** Broad expertise in conducting household air pollution intervention studies in global settings, climate change, and exposure assessment

**Email :** [john.balmes@ucsf.edu](mailto:john.balmes@ucsf.edu)

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**Name :** Nicholas Lam

**Institution :** Schatz Energy Center, Humboldt State University

**"Role" on Project committee :** Co Chair

**Area of Experties relevant to project :** Welfare impacts of residential energy use; renewable energy systems; pollutant inventories

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**Name :** Nigel Bruce

**Institution :** University of Liverpool

**"Role" on Project committee :** Speaker

**Area of Experties relevant to project :** Expertise in household air pollution research in the global context with additional expertise in barriers to uptake

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**Country :** United Kingdom

**Name :** Lisa Thompson  
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**"Role" on Project committee :** Discussant  
**Area of Experties relevant to project :** Expertise in conducting randomized controlled trials of improved biomass stoves in Guatemala with a focus on sustainability after the conclusion of trials  
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**Name :** Seyram Kaali  
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**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Household Air Pollution and Cardiorespiratory Health in Children with additional expertise in conducting RCTs of improved cookstoves in Ghana  
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**Airfare :** International  
**Country :** Ghana

**Name :** Kalpana Balakrishnan  
**Institution :** Department of Environmental Health Engineering, Chennai, India  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Leading global environmental health scientist in India focused on the health effects of household air pollution in urban and rural populations  
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**Country :** India

**Name :** Alison Lee  
**Institution :** Icahn School of Medicine at Mount Sinai  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Expertise in conduct of randomized controlled trials of cookstoves in Ghana with particular expertise in measurement of infant and toddler lung function in resource-limited settings  
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**Country :** [United States](#)

**Name :** [Kevin Mortimer](#)

**Institution :** [Liverpool School of Tropical Medicine](#)

**"Role" on Project committee :** [Speaker](#)

**Area of Experties relevant to project :** [Expertise in conducting randomized clinical trials in resource-limited settings including Malawi, as well as expertise in training the next generation of African scientist on respiratory research](#)

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**Airfare :** [International](#)

**Country :** [United Kingdom](#)

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**Institution :** [University of Chicago](#)

**"Role" on Project committee :** [Speaker](#)

**Area of Experties relevant to project :** [Expertise in studies to reduce global disparities in cardiopulmonary outcomes including experience conducting RCTs of cleaner-burning cookstoves in Nigeria](#)

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**Airfare :** [Domestic](#)

**Country :** [United States](#)

**Name :** [Ajay Pillarisetti](#)

**Institution :** [Emory University](#)

**"Role" on Project committee :** [Speaker](#)

**Area of Experties relevant to project :** [Expertise in exposure assessment and the application of lower-cost sensor-based technologies to the monitoring and evaluation of environmental pollutants and related behaviors in resource-limited settings](#)

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**Airfare :** [Domestic](#)

**Country :** [United States](#)

**Name :** [Iwona Bisaga](#)

**Institution :** [Loughborough University - Modern Energy Cooking Services](#)

**"Role" on Project committee :** [Speaker](#)

**Area of Experties relevant to project :** [Modern energy cooking and renewable energy systems integration; productive uses of cooking technologies in institutional and humanitarian settings](#)

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**Airfare :** International  
**Country :** United Kingdom

**Name :** Zoe Chafe  
**Institution :** Technical Lead for Air Quality - C40 Cities  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** City climate action plans and the role of household energy in low and middle income countries; city government engagement.  
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**Country :** United States

**Name :** Kat Harrison  
**Institution :** 60 Decibels  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Household energy technology end-user and market research; social impact investment  
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**Country :** United States

**Name :** Bill Gallery  
**Institution :** International Finance Corporation  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Scaling energy technologies in low and middle income countries; sector investment  
**Email :** bgallery@ifc.org  
**Airfare :** Domestic  
**Country :** United States

**Name :** Arne Jacobson  
**Institution :** Schatz Energy Research Center, Humboldt State University  
**"Role" on Project committee :** Speaker  
**Area of Experties relevant to project :** Quality assurance programs for off-grid technologies in low and middle income countries  
**Email :** Arne.Jacobson@humboldt.edu  
**Airfare :** Domestic  
**Country :** United States

**Name :** [Diarmid Campbell-Lendrum](#)  
**Institution :** [World Health Organization](#)  
**"Role" on Project committee :** [Speaker](#)  
**Area of Experties relevant to project :** [Coordinator of the climate change and health program at the World Health Organization with expertise in health implications of global environmental change](#)  
**Email :** [campbellendrumd@who.int](mailto:campbellendrumd@who.int)  
**Airfare :** [International](#)  
**Country :** [Switzerland](#)

**Name :** [Stella Hartinger Pena](#)  
**Institution :** [Cayetano Heredia University, Peru](#)  
**"Role" on Project committee :** [Speaker](#)  
**Area of Experties relevant to project :** [Expertise in clinical trials addressing environmental health problems in resource-limited settings with expertise in engaging local governments for subsidy support](#)  
**Email :** [stella.hartinger@unibas.ch](mailto:stella.hartinger@unibas.ch)  
**Airfare :** [International](#)  
**Country :** [Peru](#)

**Name :** [Tami Bond](#)  
**Institution :** [Colorado State University](#)  
**"Role" on Project committee :** [Speaker](#)  
**Area of Experties relevant to project :** [Climate impacts of residential solid fuel use; affects of aerosols on the climate system](#)  
**Email :** [Tami.Bond@colostate.edu](mailto:Tami.Bond@colostate.edu)  
**Airfare :** [Domestic](#)  
**Country :** [United States](#)

**Name :** [Kendra Williams](#)  
**Institution :** [Johns Hopkins University](#)  
**"Role" on Project committee :** [Speaker](#)  
**Area of Experties relevant to project :** [Qualitative research in household air pollution studies](#)  
**Email :** [kendra.williams@jhu.edu](mailto:kendra.williams@jhu.edu)  
**Airfare :** [Domestic](#)  
**Country :** [United States](#)

**Name :** [Neil Schluger](#)  
**Institution :** [New York Medical College](#)  
**"Role" on Project committee :** [Speaker](#)  
**Area of Experties relevant to project :** [Global expert in tuberculosis with experience engaging with non-governmental organizations to promote lung health and provide subspecialty training for pulmonary](#)



physicians in East Africa

**Email:** ns311@cumc.columbia.edu

**Airfare:** Domestic

**Country:** United States

**Name:** Anaite Diaz

**Institution:** University of the Valley of Guatemala

**"Role" on Project committee:** Speaker

**Area of Experties relevant to project:** Expertise in field-based intervention and epidemiology studies including conducting randomized controlled trials of improved biomass stoves in Guatemala

**Email:** adiaz@ces.uvg.edu.gt

**Airfare:** International

**Country:** Guatemala

**Name:** Thomas Clasen

**Institution:** Emory University

**"Role" on Project committee:** Discussant

**Area of Experties relevant to project:** Health impact evaluations of water, sanitation and household air pollution interventions in low-income countries

**Email:** thomas.f.clasen@emory.edu

**Airfare:** Domestic

**Country:** United States

\* D. The ATS encourages diversity and inclusion on all its committees and projects and has identified several groups that have been historically under-represented on ATS committees. It may not be possible or needed to include all these groups on this project and there is no expected quota for diversity and inclusion. To facilitate the review of the proposed committee, please complete this summary of diversity and inclusion. Please indicated if your proposed participants include any of the following [Underrepresented in Medicine Definition](#). Underrepresented in medicine means those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population. [Underrepresented Group](#) Group underrepresented in the biomedical, clinical, behavioral, and social sciences, such as people with disabilities, people from disadvantaged backgrounds, and underrepresented racial and ethnic groups such as blacks or African Americans, Hispanics or Latinos, American Indians or Alaskan Natives, and Native Hawaiians and other Pacific Islanders.

**Diversity:** International representatives

**How Many?:** 7

**Comments/Clarifications:** Includes 5 speakers from LMICs

<b>Diversity :</b> <a href="#">Women</a> <b>How Many? :</b> 12 <b>Comments/Clarifications :</b> <a href="#">12/25 of speakers are women</a>
<b>Diversity :</b> <a href="#">Underrepresented minorities in medicine</a> <b>How Many? :</b> 6 <b>Comments/Clarifications :</b> <a href="#">6/25 are URM</a>
<b>Diversity :</b> <a href="#">Non-MD/DO professionals</a> <b>How Many? :</b> 9 <b>Comments/Clarifications :</b> <a href="#">Includes one speaker with primary nursing background</a>
<b>Diversity :</b> <a href="#">Early career representatives</a> <b>How Many? :</b> 3 <b>Comments/Clarifications :</b> <a href="#">3/25 are early career representatives</a>

## SECTION IV - TIMELINE

Tentative timetable. Please provide a sufficiently detailed timeline to support that the necessary activities/tasks needed to complete the project will be completed within the expected timeframe (e.g., CPGs submitted for publications within 2 years; all other documents submitted within 1 year). This should include pre- and post meeting work, such as conference calls, in-person meetings, literature review, writing deadlines (outlines, first drafts, review by co-authors etc.). This section should NOT include meeting agendas. Please include a completion date for each task through submission for peer review (for document projects) or completion (for non-document projects)

<b>Activity/Task :</b> <a href="#">Pre-meeting of working group chairs</a> <b>Location/Communication modality :</b> <a href="#">Web Conference</a> <b># of Participants :</b> 6 <b>Anticipated Started Date (MM/DD/YYYY) :</b> <a href="#">01/10/2022</a> <b>Anticipated Completion Date (MM/DD/YYYY) :</b> <a href="#">02/01/2022</a>
<b>Activity/Task :</b> <a href="#">Literature review</a> <b>Location/Communication modality :</b> <a href="#">Email</a> <b># of Participants :</b> 10 <b>Anticipated Started Date (MM/DD/YYYY) :</b> <a href="#">01/10/2022</a> <b>Anticipated Completion Date (MM/DD/YYYY) :</b> <a href="#">03/01/2022</a>
<b>Activity/Task :</b> <a href="#">Pre-meeting all speakers</a> <b>Location/Communication modality :</b> <a href="#">Web Conference</a>

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 04/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 04/15/2022

**Activity/Task :** Workshop activities (4 sessions)

**Location/Communication modality :** Web Conference

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 05/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 05/31/2022

**Activity/Task :** Finalize writing outline

**Location/Communication modality :** Web Conference

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 06/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 06/30/2022

**Activity/Task :** Rough draft of sections due to chairs

**Location/Communication modality :** Email

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 08/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 08/31/2022

**Activity/Task :** Rough draft disseminated to all participants for feedback

**Location/Communication modality :** Email

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 09/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 09/30/2022

**Activity/Task :** Manuscript submission

**Location/Communication modality :** Email

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 12/01/2022

**Anticipated Completion Date (MM/DD/YYYY) :** 12/15/2022

**Activity/Task :** Manuscript revisions

**Location/Communication modality :** Email

**# of Participants :** 25

**Anticipated Started Date (MM/DD/YYYY) :** 02/01/2023

**Anticipated Completion Date (MM/DD/YYYY) :** 03/31/2023

**Activity/Task :** Manuscript revisions resubmitted  
**Location/Communication modality :** Email  
**# of Participants :** 25  
**Anticipated Started Date (MM/DD/YYYY) :** 04/01/2023  
**Anticipated Completion Date (MM/DD/YYYY) :** 04/30/2023

## SECTION V - BUDGETS

### FY2022 PROPOSED ATS BUDGET

- \* Round Trip Coach Airfare-Domestic (\$575 per person) Number of Persons? 0
- \* Round Trip Coach Airfare-International (\$2000 per person) Number of Persons? 0
- \* Hotel and per diem (Full Day Meeting at ATS Conference Fri & Sat Only) (\$425 per person) Number of Persons? 0
- \* Breakfast Meeting at ATS Conference (\$75.00 Per Person) Number of Persons? 0
- \* Lunch Meeting at ATS Conference (\$75.00 Per Person) Number of Persons? 0

Conference Calls (# of people x # minutes x 0.10)

- \* # of people 25
- \* # of minutes 600
- \* # of calls 1

\* Medical Librarian - This item requires approval and justifications from document development staff (up to \$5000) -- empty --

Other Project Expenses

- \* Other Expense Budget Amount 550
- \* Other Expense Justification  
Airtime for international participants from LMICs to participate in web conferences: \$500  
Publication submission fee: \$50

## SECTION VI - Conflict of Interest Management

ATS members and others participating in official ATS projects have diverse experiences and relationships that positively contribute to project development. Disclosure and consideration of potential “conflicts of interest” (COI) relationships and personal interests that could be perceived as unduly influencing a participant’s generation or assessment of evidence, and thereby potentially misinforming healthcare decision makers is

essential to assure that official ATS projects always reflect the best available evidence and scientific rigor. Therefore, for all proposed projects:

- Yes, I agree to follow COI rules

## SECTION VII - Chair Acknowledgement

*Submission of application constitutes Electronic signature. Electronic Signatures are considered binding.*

## SECTION VIII - Revising Application After Reviewer Feedback

*Please do not complete until Planning Committee reviews are received.*

- \* Revision - Tell us what revisions have been made and how reviews from Planning Committee were addressed

### **Comments from ATS Documents Committee:**

**1. A minor suggestion is to bold the phrases “overarching purpose” and “key questions” to bring attention to these points.**

Response: This has been done as suggested.

**2. The principle drawback of the proposal is that the methodology sounds more like a proposal for a workshop report than a research statement, whereas the deliverable sounds like a research statement. Specifically, it describes a workshop organized around speakers, discussion sessions, etc. Usually, a research statement is crafted with a longitudinal effort of multiple meetings, discussions, etc. that yield specific research recommendations. There is no reason that a research statement cannot be produced as proposed, but the risk is that the Program Review Subcommittee may become confused about the appropriate document type when reviewing the final proposal. Maybe include something like, "even though the methods involve workshop-like presentations followed by discussions, the final deliverable is a set of specific research recommendations, compatible with a research statement."**

Response: In the proposal, we have added the following: “In order to develop this research statement, disparate groups of stakeholders will need to start on common ground in order to have productive discussions. Therefore the methods involve workshop-like presentations followed by discussions, in order to generate the final deliverable which is a set of specific research recommendations, compatible with a research statement. The workshop will be structured with speakers and panel discussions around each topic, with the goal of obtaining consensus on the key questions.

### **Comments from ATS Planning Committee:**

**1. Make clear how regions of focus will be defined and how outcomes will be customized for regional differences.**

Response: For the fourth session, a talk has been added “After the trial: Influence of culture and perceptions on choice of cooking fuels” in order to incorporate local considerations that may impact interpretation of findings.

## **2. Writing out "LMICs" in the title**

Response: "LMIC" is a classification of countries based on data. The term used by the World Health Organization to divide countries based on gross domestic product data from the World Bank, and does not tend to have perjorative connotations, unlike other terms such as "Third World". Since the focus of this research statement is on household energy use across a range of countries that fall within the "LMIC" classification, it is difficult to find a better term. Household air pollution in high income countries is typically derived from other sources due to stronger national energy infrastructure that does not exist in LMICs thus it is important to make that distinction in the title.

## **3. Be more explicit about cookstove versus other interventions earlier on in the set-up of the proposal.**

Response: The challenge is that current published RCTs include only cookstove interventions. A trial of solar lighting by two of the co-chairs is currently under review. If published prior to the planned virtual sessions, then it will be incorporated more explicitly into the agenda. Currently Topic 4 has a talk focused on non-cookstove interventions focused on fuel-based lighting and diesel generators.

## **4. Highlight the novelty/timeliness of the proposal in the first part of the application.**

Response: We have added the following to the proposal: “This proposal is timely as two major RCTs of household energy interventions conducted in Ghana, Guatemala, Peru, India, and Rwanda focused on LPG, a cleaner cooking fuel, have recently been completed and are due for publication in early 2022(Le, et al. 2018, Clasen, et al. 2020). The principal investigators of these trials are speakers, panelists, or chairs of this Assembly Project proposal.”

## **5. Emphasize the expertise within the proposal.**

Response: The following has been added: “The principal investigators of these trials are speakers, panelists, or chairs of this Assembly Project proposal. Additional expertise present in this proposal include all principal investigators and key co-investigators for existing randomized controlled trials of household energy interventions, which include interventions targeted towards both cookstoves and fuel-based lighting.”

## **6. Emphasize why consensus is really needed for those conducting this type of research and how this work will be unique from meta-analyses available on the topic (if any).**

Response: We have added the following to the proposal: "While a number of meta-analyses have been published on the efficacy of household energy interventions in LMICs in changing personal exposure to pollution or on health effects, they do not include the large trials pending publication in 2022 (which this statement will incorporate) nor do they offer the opportunity for investigators of all major conducted trials as well as energy access practitioners to come to a consensus regarding the four major topics outlined in this research statement."

## **7. Make clear how literature reviews will be documented and distributed prior to the working group meetings**

Response: We have added the following to the proposal: Chairs will be assigned to lead each proposed section. Chairs will conduct a literature review of multiple electronic databases and clinical trials registration websites will be performed to retrieve relevant articles with the reference lists of retrieved articles examined in order to identify relevant publications and summarize key studies to be distributed to all speakers and panelists prior to each session.

**8. Reduce the number of potential recommendations to match the proposal discussion points (or fewer).** Response: We have reduced the number of potential recommendations to 10. We anticipate that between 2-3 recommendations will emerge from each session.

**9. Consider reducing the number of speakers and consolidating a few talks to be able to dedicate more time to discussion.**

Response: As noted in the response to the ATS Documents Committee, it is essential that all stakeholders in the area of household air pollution start on the same page before there can be fruitful discussion and areas of agreement.

**10. Consider adding some additional early career participants.** Response: 3 out of the 25 participants are early career participants. Although some of the international participants do not technically fall within the “early career” category, they have not had the opportunity to play key roles in formulating guidelines for international societies. We have 5 international speakers based in LMICs who will both benefit from participation in this proposal as well as significantly enhance the delivered product.

\* Can we share your application with ATS members if it is deemed a model application by the Program Review Subcommittee (PRS)?

Yes

## ATS BUDGET SUMMARY CHART

Line Item	Budget Parameters	Number of Persons	Total
<b>Round Trip Coach Airfare-Domestic</b> (\$575 per person)	\$575.00	0	N/A
<b>Round Trip Coach Airfare-International</b> (\$2000 per person)	\$2,000.00	0	N/A
<b>Hotel and per diem (Full Day Meeting at ATS Conference Fri &amp; Sat Only)</b> (\$425 per person)	\$425.00	0	N/A
<b>Breakfast Meeting at ATS Conference</b> (\$75.00 Per Person)	\$75.00	0	N/A
<b>Lunch Meeting at ATS Conference</b> (\$75.00 Per Person)	\$75.00	0	N/A
<b>Conference Calls</b> (# of people x # minutes x 0.10)	25 x 600 x 0.10 = \$1,500.00	<b>(# Calls)</b> 1	\$1,500.00
<b>Medical Librarian</b> – This item requires approval and justifications from document development staff (up to \$5000)	N/A	N/A	N/A
<b>Other Project Expenses</b> – Must provide Budget justification	\$550	N/A	\$550.00
<b>Note:</b> Your proposed budget may be adjusted by staff and/or PRS to comply with ATS budgetary Policies and Procedures.		<b>Total</b>	<b>\$2,050.00</b>