



MEETING AGENDA

Developing an Ethical Framework for Human Research in Private Spaceflight

December 9-12, 2022

The Banbury Center, Lloyd Harbor, New York

This meeting was organized by

Timothy Caulfield, University of Alberta

Jennifer Fogarty, TRISH, Baylor College of Medicine

In consultation with

Dorit Donoviel, Amy McGuire, and Vasiliki Rahimzadeh, Baylor College of Medicine

and funded by the

Translational Research Institute for Space Health (TRISH):

A NASA-funded virtual Institute based at Baylor College of Medicine with consortium partners California Institute of Technology and Massachusetts Institute of Technology

with additional funding from **Cold Spring Harbor Laboratory**

FRIDAY, DECEMBER 9

Afternoon Arrivals and check-in at Robertson House

6:00 pm Reception and dinner

SATURDAY, DECEMBER 10

7:15 am Breakfast

8:30 am **Welcome; Overview of Meeting, Goals**

Rebecca Leshan, The Banbury Center

Timothy Caulfield, University of Alberta

Jennifer Fogarty, TRISH, Baylor College of Medicine



- 9:00 am **SESSION 1: Setting the Stage**
Jennifer Fogarty, TRISH, Baylor College of Medicine
Emmanuel Urquieta Ordonez, TRISH, Baylor College of Medicine
- 10:50 am **SESSION 2: Commercial Spaceflight and Human Experimentation Opportunities**
Dorit Donoviel, TRISH, Baylor College of Medicine
Lucie Low, Axiom Space
Tara Ruttley, Blue Origin
- 12:15 pm Luncheon
- 2:15 pm **SESSION 3: Ethical Challenges of Commercial Spaceflight & Why Good Science Matters**
Hank Greely, Stanford University Law School
Paul Root Wolpe, Center for Ethics, Emory University
Holly Fernandez Lynch, University of Pennsylvania
- 4:00 pm **SESSION 4: End of Day Discussion**
- 6:00 pm Reception and dinner

SUNDAY, DECEMBER 11

- 7:15 am Breakfast
- 8:30 am **Day 1 Recap, Day 2 Objectives**
Jennifer Fogarty, TRISH, Baylor College of Medicine
Timothy Caulfield, University of Alberta
- 9:00 am **SESSION 5: Applications of Ethical Principles to Commercial Spaceflight Challenges**
Michael A. Williams, University of Washington School of Medicine
Glenn Cohen, Harvard Law School, Petrie-Flom Center
Jeremy Sugarman, Johns Hopkins University
Eric Meslin, Council of Canadian Academies
- 10:45 am **SESSION 6: Policies Relating to Commercial Spaceflights; where are the gaps?**
Pascal Borry, KU Leuven
Jessica Candia, Department of the Air Force
Vardit Ravitsky, University of Montreal & Harvard Medical School
- 12:10 pm Luncheon
- 2:15 pm **SESSION 7: Path Forward: Can We Use Existing Relevant Regulatory Frameworks and Laws?**
Michelle Hanlon, University of Mississippi School of Law
Marisa Covington, NASA
Rachael Seidler, University of Florida
- 4:00 pm **SESSION 8: End of Day Discussion**
- 6:00 pm Reception and dinner



MONDAY, DECEMBER 12

- 7:15 am** Breakfast
- 8:30 am** **SESSION 9: Developing the Framework**
Group Discussion
- 10:30 am** **SESSION 10: Action Items, Concluding Remarks**
Group Discussion: meeting synthesis, outputs/next steps
- 12:00 pm** Luncheon
- 1:30 pm** Participant Departures

PARTICIPANTS

Serena Auñón-Chancellor, Louisiana State University
Pascal Borry, KU Leuven, Belgium
Jessica Candia, Department of the Air Force
Timothy Caulfield, University of Alberta
Glenn Cohen, Harvard Law Sch., Petrie-Flom Center
Marisa Covington, NASA
Dorit Donoviel, TRISH, Baylor College of Medicine
Holly Fernandez Lynch, University of Pennsylvania
Jennifer Fogarty, TRISH, Baylor College of Medicine
Hank Greely, Stanford University
Michelle Hanlon, University of Mississippi
James Hatt, Federal Aviation Administration
Marina Koren, The Atlantic
Lucie Low, Axiom Space

Amy McGuire, Baylor College of Medicine
Jerry Menikoff, Dept of Health and Human Services
Eric Meslin, Council of Canadian Academies
Steven Platts, NASA-Johnson Space Center
Vasiliki Rahimzadeh, Baylor College of Medicine
Vardit Ravitsky, Univ. of Montreal; Harvard Med Sch
Tara Ruttley, Blue Origin
Rachael Seidler, University of Florida
Jeremy Sugarman, Johns Hopkins University
Emmanuel Urquieta Ordonez, TRISH, Baylor
College of Medicine
Michael A. Williams, Univ. of Washington Sch of
Med
Paul Root Wolpe, Center for Ethics, Emory Univ.