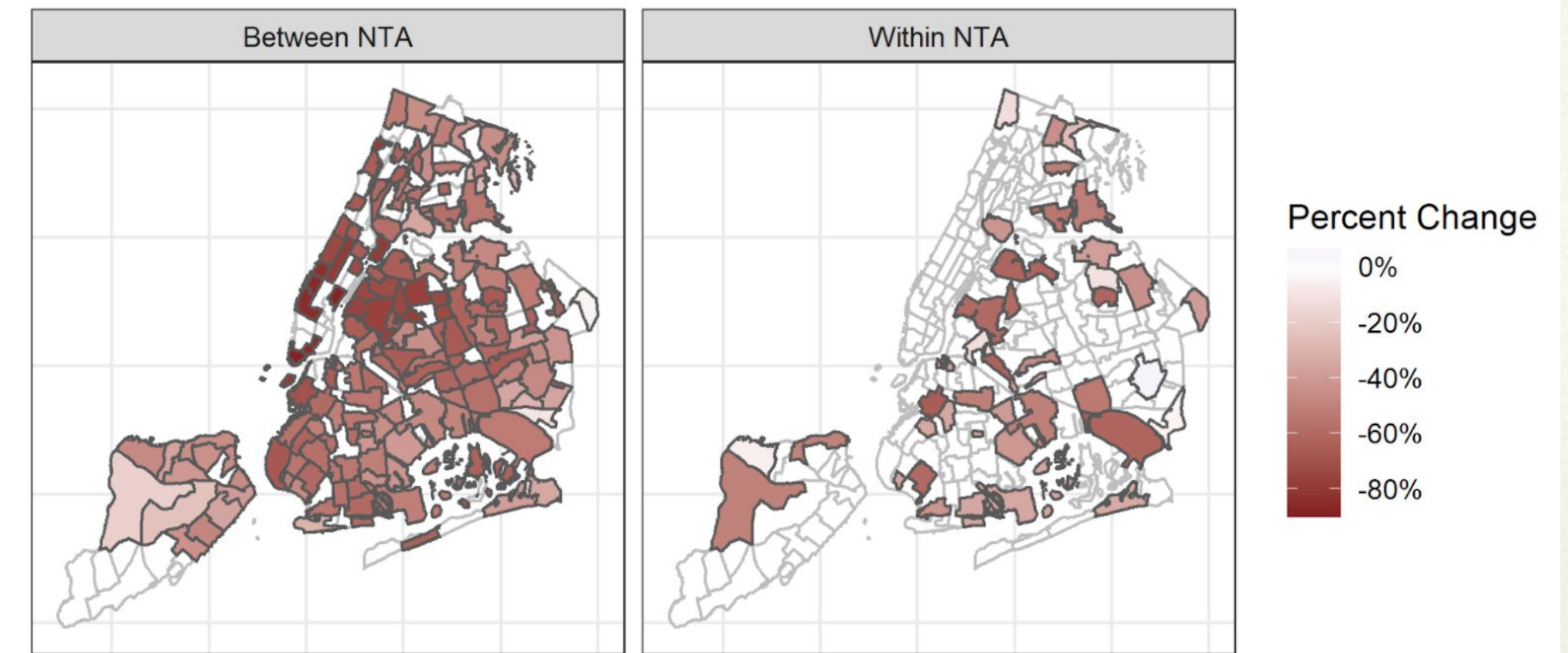


Improving the Usability and Value of COVID-19 Human Mobility Data for Future Disasters

Percent Change in # of trips - NYC - Tue, Mar 31



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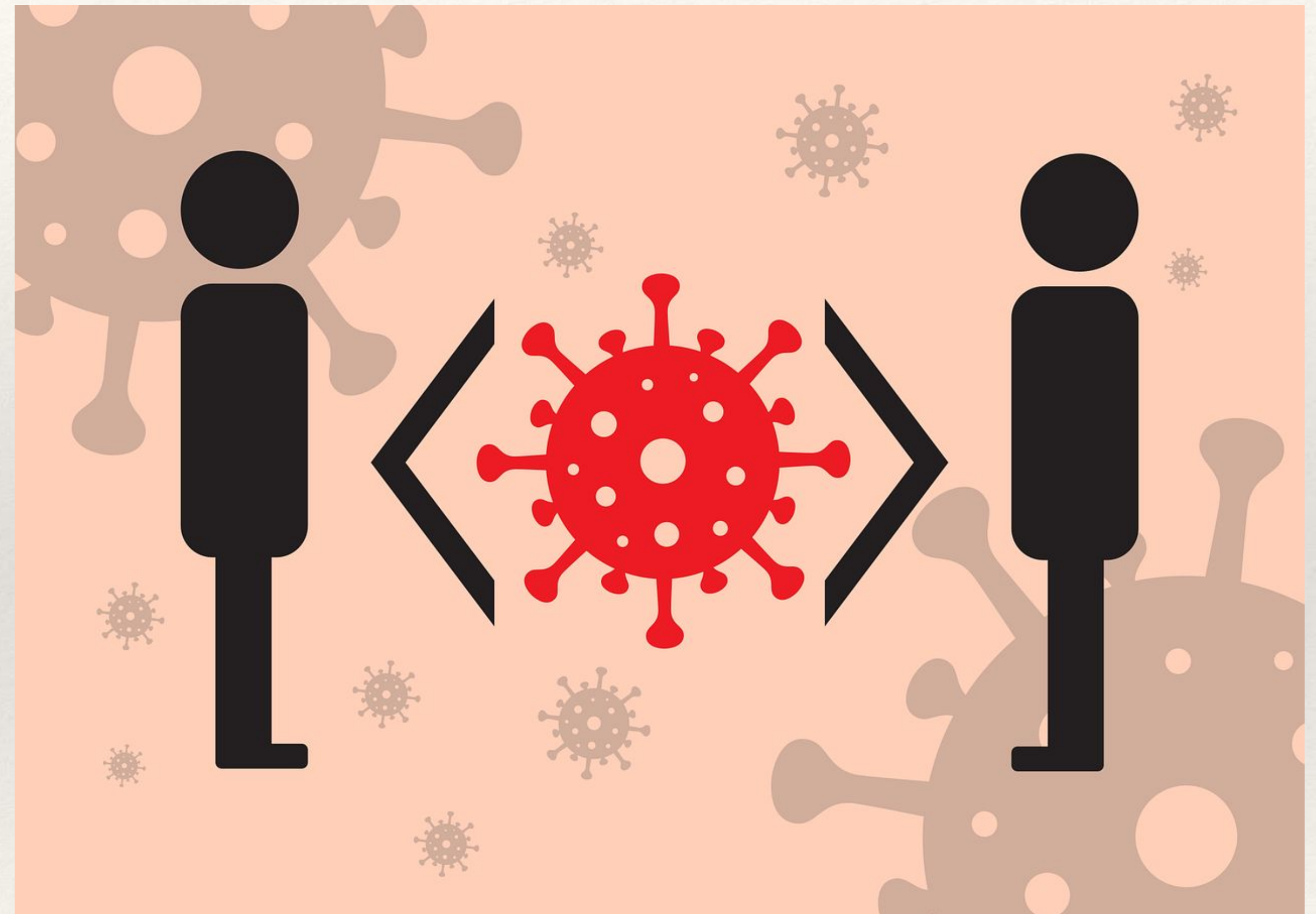
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Overview & Background

- Human Movement impacts the spread of COVID-19
- Social distancing policies aimed to mitigate the spread
- Leveraging data to inform policies and response is a complex process
- Digital devices could provide insights on human movement and may play a role in determining whether groups are following social distancing policies



Data in Disasters

- Disaster Data can influence the quality, efficiency, and ultimate impact of public health response activities
- Novel and non-traditional data streams can present new opportunities
- Using Big Data is more difficult than we think it is
- Human factors



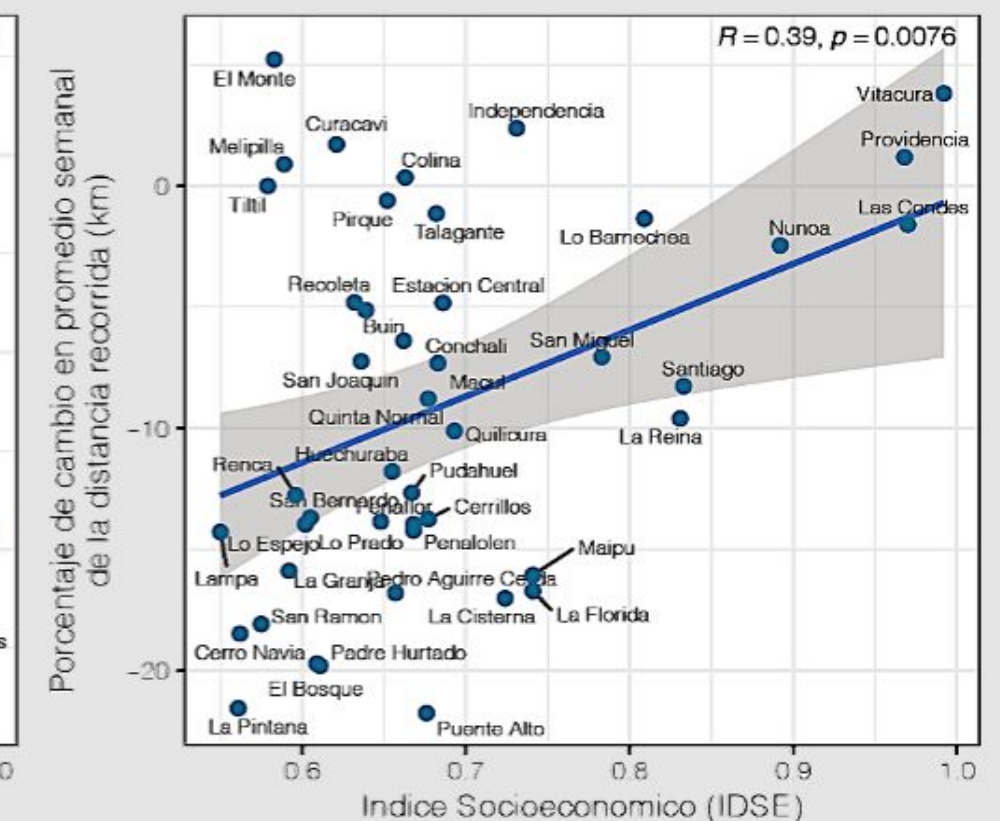
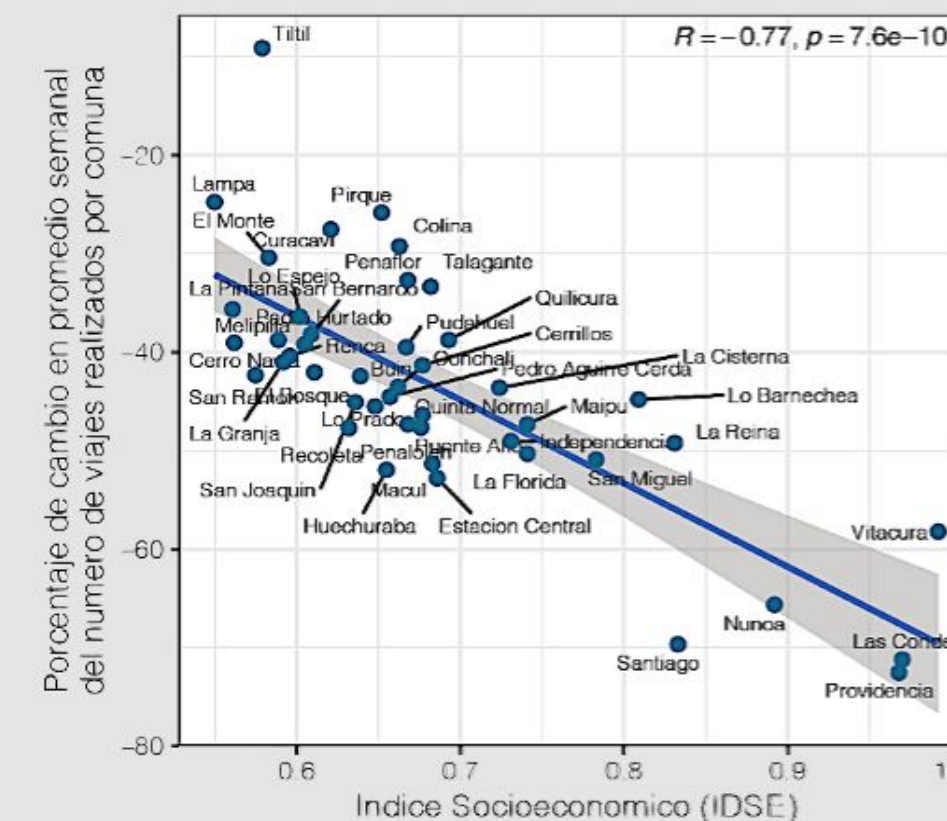
COVID-19 Mobility Data Network

transforming human mobility data
into policymaking and response planning

- 150+ researchers around world, connected to response planners & policymakers
 - scientific methods of analysis
 - adjusted approaches to address incomplete data sources
 - adaptation/iteration
- Data sources:
 - Facebook anonymized and aggregated data
 - Camber Systems mobility data
- Collaborators: Facebook Data For Good program

Syracuse County Interactive Dashboard

Analisis socioeconómico



Understanding Value & Use



who is using these results?

does this change policy?

is it valuable?

How are groups adapting to fit their needs?

Where are the failures?

Gain a more in-depth understanding of how members have designed, shared, and communicated social mobility findings to their respective public health policy decision-makers

Research Overview

Goal: Advance the understanding of how researchers, policymakers, and response planners used human mobility data during the COVID-19 pandemic (qualitative methods)

Aims:

1. investigate how public health practitioners, response planners, and researchers used human mobility data at the local, regional and national levels
1. learn the socio-behavioral elements that would make human mobility data more useful and valuable for public health practitioners, response planners, and researchers in future disaster and emergency settings

Methods

- **Sample:** Purposive convenience then snowball conducted Spring 2020
- **Interview:** Semi-structured to unstructured
- **Data Management:** De-identified transcripts from 41 interviews
- **Analysis:** Constant comparative and modified framework

Methods - Analysis

- Inductive approach
- Grounded theory/constant comparative method
 - Codebook creation: Modified in vivo coding (thematic) followed by review and addition of themes from prior work
- Framework analysis

Methods - Analysis

- Blind coding by two independent coders
- Example codes
 - **Data use in policy implementation:** Examples of ways the mobility data were used for policy implementation
 - **Data integration:** Incorporation of other data, defined as non-mobility data, into the processing, analysis, and translation to meet the data purpose goals of users.
 - **Data value-positive:** Usefulness or usability of mobility data by the user. This can include positive reflections of aspects of the data itself that made it useful or can refer to appropriateness or relevance to the goals the user had - their data purpose.

Methods - Analysis

- Code resolution
 - Identification of discordant code application
 - Discussion, resolution, application of decision
- Excerpt review and identification of themes
 - Initial: Coders
 - Complete: Full team

Methods - Analysis

- Continuing and next steps
 - Review of excerpts and themes
 - Framework analysis
 - Investigation of data by typology (researcher, public health practitioner, policy maker)

Framework Analysis

	Capacity	Data Value
Researcher	(workforce limitations)	
Public Health Practitioner	(expertise working with mobility data)	(are policies working?)
Response Planner/Policy Maker	(understanding mobility data)	

Early Study Findings

- Purpose
 - Excitement and high hopes for these data!
- Technical
 - Balance between useful granularity and responsible data practices
 - Use of other data is key as mobility data can't usefully stand alone, but actual integration is hard
- Communication/Adaptation
 - Key/Different fields that use different languages and cultures working together
- Translation
 - Simplicity/Power of data visualizations

Insights & Reflections

- Human mobility data was not as intuitive as anticipated.
- Data literacy was needed to help teams determine how best to use the data in practice.
- Close communication between scientists and practitioners improved the successful use of the data.
- Data translators played an instrumental role in success and learning.
- Some practitioners did not use the data, due to lack of time, capacity, determining a value-add question to answer, or strategic non-use.

Next Steps / Future Considerations

- Stakeholder presentation and feedback
- Collaboration is needed for translation and use of data. How do we think about working with response planners and leaders to effectively communicate and use this data in the future?
- Share ways that human mobility data can be more usable and valuable for public health practitioners, response planners, and researchers in disaster and emergency settings.

Discussion & Questions

Thank you!

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