Introducing Vivli

THE ENTITY

- Non-profit organization
- Convening function
  - Biomedical industry (pharma, bio, device)
  - Academia
  - Non-profit funders and foundations
  - Government (funders and regulators)
  - Patient/patient advocates
- Governance and policy
  - Harmonizing language & agreements
  - Move culture of data sharing
- Advocacy
  - Lowering barriers
  - Promoting incentives
- Oversight of Implementation

THE PLATFORM

- A user-friendly, secure, state-of-the-art data sharing and computing platform
- Serving the international community, including trials from any disease, country, sponsor, funder, or investigator
  - Open search
  - Robust security
  - Modern tools and technologies
Vivli by the numbers ...TODAY

- **5,300+ Trials**
- **2.9M Participants from 115 countries**
- **25 Members**
Vivli COVID-19 Portal
What data is shared on Vivli?

• Trial Protocol
• Statistical Analysis Plan (SAP)
• Individual Participant-Level data (anonymized raw data from each participant) - IPD data
• Data Dictionary
• Clinical study report (CSR)
How Vivli works for a data requester

**SEARCH**
Search Vivli platform for information about available studies.

**REQUEST**
Request IPD Data sets.
Each Data Request will be reviewed according to contributors' publicly stated requirements.

**ACCESS**
Data from approved requests can be accessed in Vivli's secure research environment or downloaded with permission.

**ANALYZE**
Use robust analytical tools to combine and analyze multiple data sets.

**DISSEMINATE**
Completed research results will be assigned a DOI.
Researchers may use the Vivli platform to meet their publication requirements.
Secure Environment Bridges Multiple Platforms

Vivli Secure Environment

30+ packages
- STATA
- MS Office
- R
- Jupyter Notebook
- Python
- SAS

example Vivli partner data sources

BYO data, scripts, software on request
Platform Infrastructure

Vivli Platform

Scientific Research

Data Sharing

Vivli

Microsoft
Potential Use Cases for Differential Privacy in the context of Vivli

- Differential Privacy could replace the burdensome / lengthy anonymization step

- Small data sets (e.g., rare diseases, early phase studies) that would lose scientific value if anonymized could be analyzed using these techniques

- Most uses of Vivli data amenable to DP: i.e., standard statistical analyses (regressions, etc)

Key Challenges to Implementation:
- Researchers need to inspect the raw data sets they integrate to align variables before performing analyses.
- No standard data dictionary for clinical trials, even within a domain
- Can results of DP analyses be used clinically without further validation?