Analysis Questions and Topics Addressed

The goal of the analysis was to identify prominent research organizations, specifically identify which organizations are publishing research on vaccinations, and identify where the organizations are located.

Methods and Approach

The data for this analysis comes from the publicly available COVID-19 dataset[[1]](#footnote-1) and Grid dataset[[2]](#footnote-2) found on GoogleBigQuery. SQL queries were used to limit the data to journal articles along with a number of other factors. A copy of the SQL query is included in the data packet for completeness. Data analysis was completed in python (version 3.9) and an interactive application has been deployed via Streamlit (please see <https://share.streamlit.io/desanti6/digital_science_app/main/app.py>). Identification of the prominent research organizations can be examined by several different metrics.

The organizations are compared based on the number of publications, the number of times an article by the research organization has been published, and on the Altmetrics store. Articles that cover research vaccines were identified by a text analysis from the preferred titles of the articles. The titles were examined for terms such as vaccine, vaccination, & antibodies. Abstracts were also considered as a source for text search but examination of several of the abstracts of articles that returned positive results showed several examples of articles that merely mentioned but did not research vaccines.

Analysis and Key Findings

Unsurprisingly, research in COVID-19 has increased continuously since the virus first emerged, as can be seen in the cumulative number of publications about COVID-19. There is little evidence of research efforts tapering off, despite the drop-off in publications in January of 2022. Vaccines and vaccinations are a key topic in COVID-19 research and with the continuing spread of COVID-19 variants (as seen in many news reports)[[3]](#footnote-3), it is necessary to continue funding vaccine research. The most prominent vaccine research organizations are generally located in first world countries and are mainly well known universities. The first three research organizations conducting vaccine research (when sorted by publications) are the University of Oxford, Imperial College London, and Harvard University, all three of which have well known medical schools. While it is somewhat of a self-fulfilling prophecy to suggest, continued funding to universities with medical schools will likely yield excellent advances in vaccine research.

Caveats

1. Proceedings and book chapters were not included as an initial examination of the dataset on COVID-19 research showed that the number of journal articles significantly outweighed the number of books and conference proceedings that were generated since the outbreak of the pandemic.

1. <https://console.cloud.google.com/marketplace/product/digitalscience-public/covid-19-dataset-dimensions> [↑](#footnote-ref-1)
2. <https://console.cloud.google.com/marketplace/product/digitalscience-public/grid-ac-database?project=elite-caster-300319> [↑](#footnote-ref-2)
3. https://www.nytimes.com/interactive/2021/health/coronavirus-variant-tracker.html [↑](#footnote-ref-3)