

# Benchmarking open access in publications with authors affiliated to pharma companies and universities

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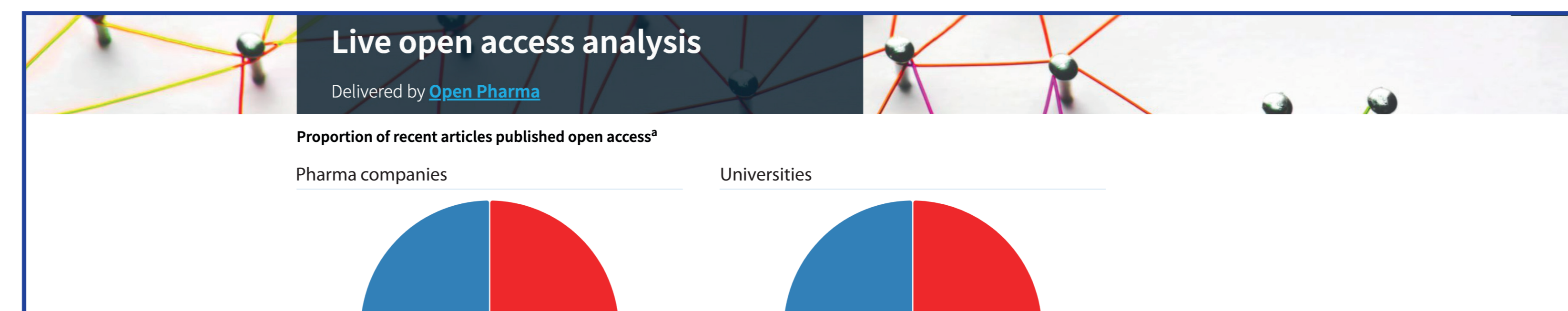
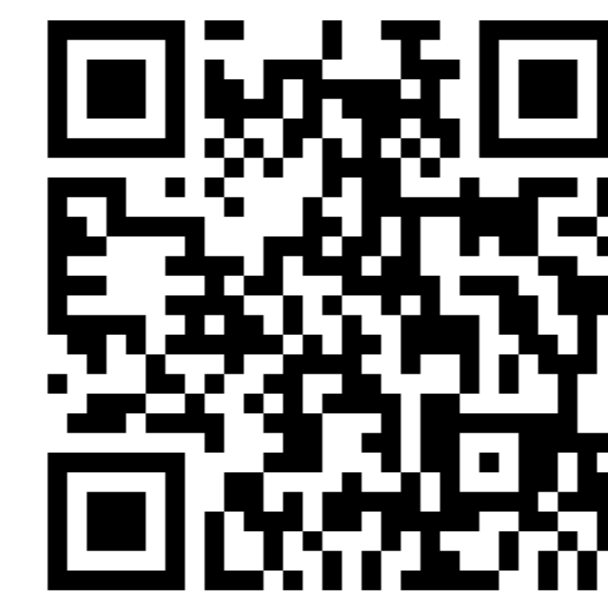
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## WHY WAS THIS NEEDED?

- Open access (OA) publishing can improve transparency and help to foster trust in research.
- Benchmarking the proportion of OA publications (OA rate) allows us to understand barriers to OA publishing and set objective targets for increasing OA across different medical research settings.
- We previously measured the OA rates of publications with authors from pharmaceutical companies. However, the process was manual, restricted to publications with pharma company authors and did not include publications with university authors as a comparator.

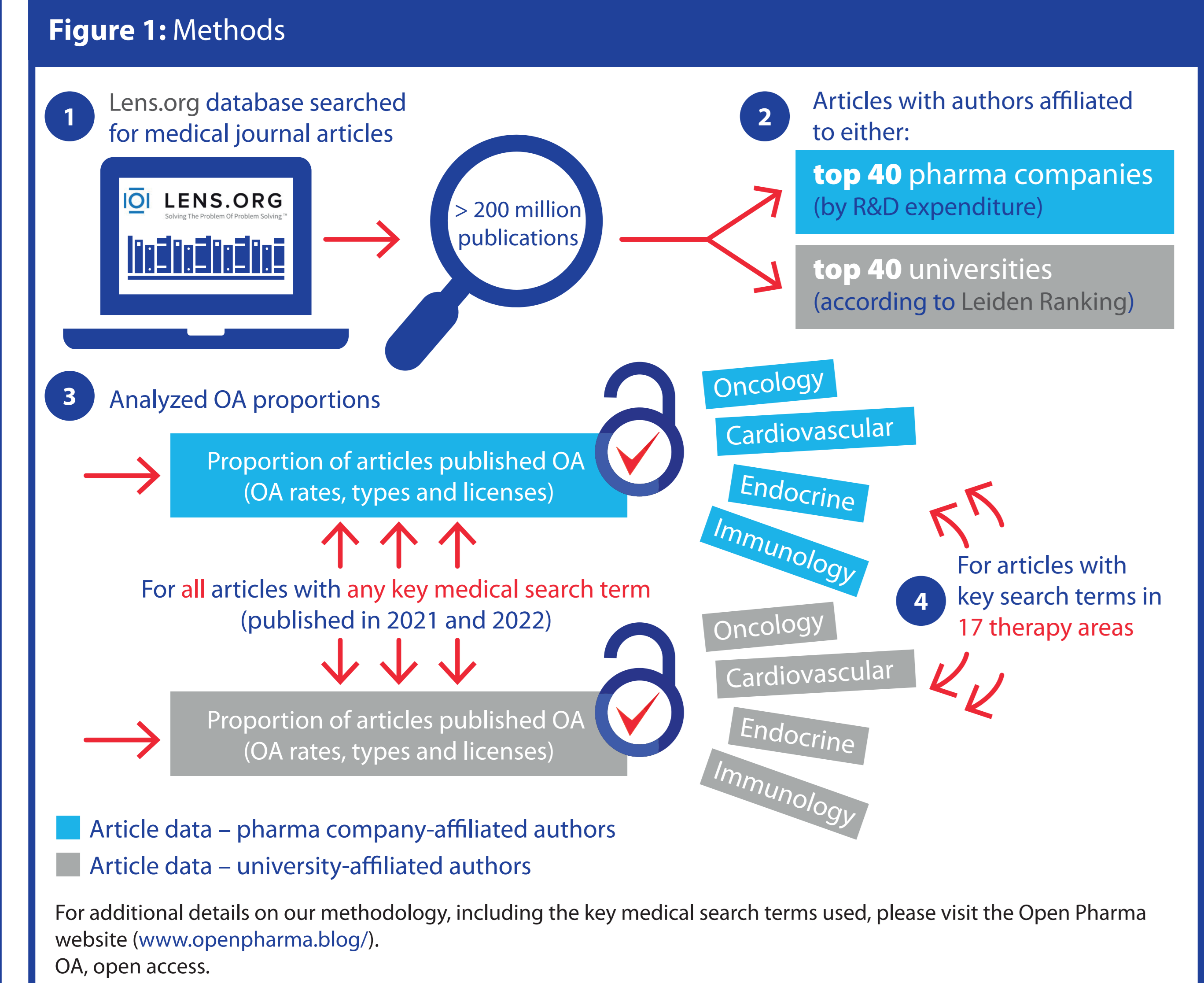
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## WHAT DOES THIS TELL US?

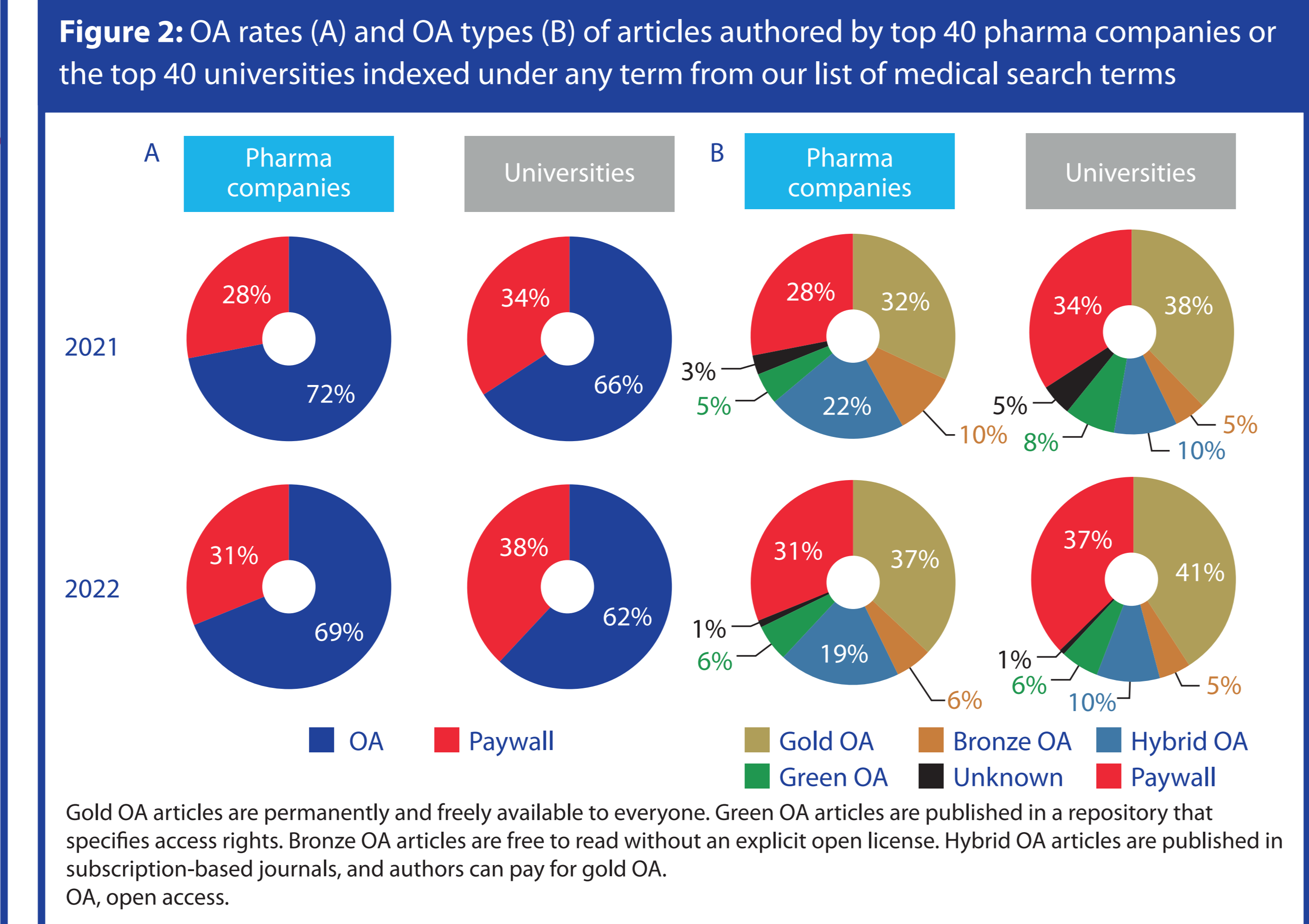
- About two-thirds of articles with authors affiliated to pharma companies and universities are OA.
- Articles with university-affiliated authors are published with the most permissive license (CC BY) more often than articles with pharma company-affiliated authors; however, our analysis is not designed to determine whether this difference is driven by journal or author policy.
- OA rates vary between therapy areas and between articles with authors affiliated to pharma companies and universities in different therapy areas.
- The bespoke dashboard we created for this comparison is free to use and is publicly available online.

## WHAT DID WE DO?



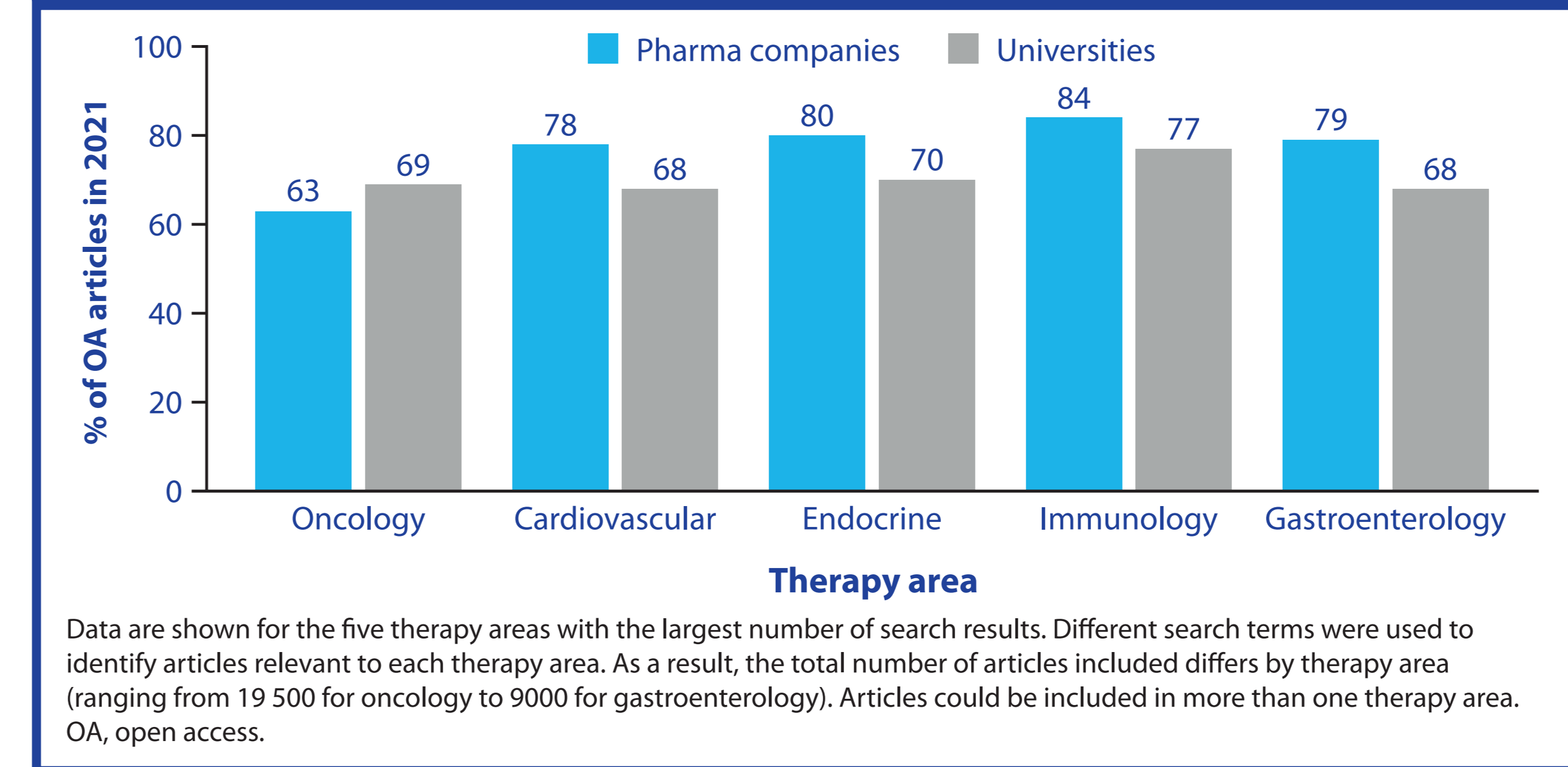
- We compared the OA rates of publications with authors affiliated to universities versus pharma companies using a large-scale, automated approach suitable for use in a live, online dashboard.
- OA rates, types and licenses were evaluated using the Lens ([www.Lens.org](http://www.Lens.org)) for published articles with authors affiliated to either (Figure 1):
  - the top 40 pharma companies (by R&D expenditure)
  - the top 40 universities (according to Leiden Ranking of scientific performance).
- The Lens aggregates > 200 million publications and uses artificial intelligence to assign 'field of study' indices to each repository citation.
- Using a combination of author consultation and test search queries in the Lens, we defined a list of key medical search terms and categorized these terms by therapy area.
- OA rates, types and licenses were then evaluated for all articles published in 2021 and 2022 that had a 'field of study' index matching with either (Figure 1):
  - any term from the full list of key medical search terms, or
  - any term from therapy area groupings of key medical search terms.

## WHAT DID WE FIND?

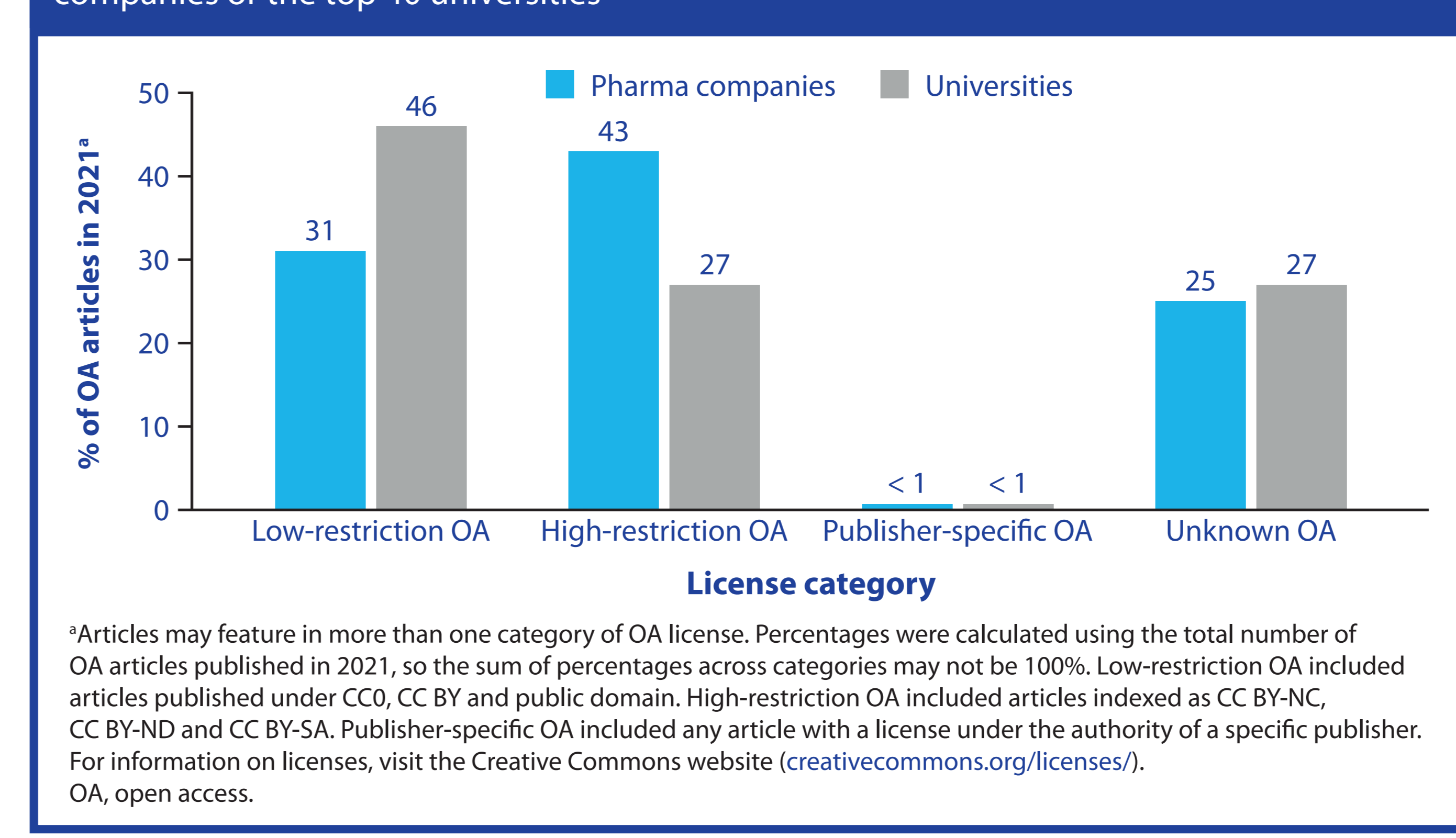


- We identified approximately 11 000 and 170 000 OA medical articles published each year that had authors affiliated to pharma companies and universities, respectively.
- The OA rates of publications with authors affiliated to pharma companies and universities were 72% and 66%, respectively, in 2021, and 69% and 62%, respectively, in 2022 (Figure 2A).
- The gold OA rates of articles with authors affiliated to pharma companies and universities were 32% and 38%, respectively, in 2021, and 37% and 41%, respectively, in 2022 (Figure 2B).
- Some therapy areas had lower OA rates overall than others (Figure 3). For example:
  - OA rates in 2021 were lower for oncology articles (pharma company authors, 63%; university authors, 69%) than for immunology articles (pharma company authors, 84%; university authors, 77%).
- For some therapy areas, OA rates differed between articles with authors affiliated to pharma companies and articles with authors affiliated to universities (Figure 3). For example:
  - the OA rates of cardiovascular articles in 2021 were 78% and 68% for articles with authors affiliated to pharma companies and universities, respectively.
- In 2021, the proportion of articles published with a low-restriction OA license (CC0, CC BY or public domain) was higher for articles with university-affiliated authors than for articles with pharma company-affiliated authors (46% and 31%, respectively) (Figure 4).

**Figure 3: OA rates of articles with authors affiliated to either the top 40 pharma companies or the top 40 universities across specific therapy areas**



**Figure 4: OA license category of articles with authors affiliated to either the top 40 pharma companies or the top 40 universities**



## LIMITATIONS

- The OA rates calculated for the past 18 months will change over time owing to repository update lag and embargo periods that affect the free availability of articles; therefore, the decline in OA rates in 2022 is likely to be an artifact.
- Publications are categorized into therapy areas and tagged as OA using an automated algorithm that may introduce inaccuracies.
- Publications with both pharma company- and university-affiliated authors will contribute to the OA rates of both data sets.
- Our method does not enable analysis of whether universities publish different types of articles than pharma companies and whether article type influences OA rates.

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## ROLE OF FUNDER

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## DISCLOSURES

At the time of abstract development, LM was an employee and shareholder of, or held stock or stock options in, Alexion Pharma, Boston, USA. All other authors are employees of their respective affiliations, and VP, SB, TJK and TR are shareholders, or hold stock or stock options, for their respective affiliations.

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