Open access policies of leading medical journals: a cross-sectional study

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Open access policies of leading medical journals: a cross-sectional study

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- Authors
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- Objective of the study
  - Academic and not-for-profit research funders increasingly require that the research they fund must be published open access, with some insisting on publishing with a CC BY licence to allow the broadest possible use
  - We aimed to clarify the open access variants provided by leading medical journals and record the availability of the CC BY licence for commercially funded research
Disclosures

• This research arose thanks to our involvement in Open Pharma, a multi-stakeholder project that aims to advance medical publishing by the pharmaceutical industry

• Funding
  – This research was funded by Oxford PharmaGenesis

• Competing interests
  – Tim Ellison, Tim Koder and Christopher Winchester are employees of Oxford PharmaGenesis, Oxford, UK
  – At the time of the research and writing of this manuscript, Laura Schmidt and Amy Williams were employees of Oxford PharmaGenesis, Oxford, UK, and are currently employed by Comradis and dna Communications, respectively
  – Christopher Winchester is also a Director and a shareholder of Oxford PharmaGenesis Holdings Ltd
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What is open access?

‘Open access’ refers to peer-reviewed, full-text research articles that have been accepted for publication and are available:

- on demand online
- to read without charge to end users

There are varying restrictions on reuse of article content as specified by the copyright licence used, and the debate as to how open access should best be defined is ongoing.

Open Pharma educational materials – open access. Available from: https://openpharma.blog/wp-content/uploads/2019/03/Open-Pharma-Educational-Materials-Open-Access.pdf
(Accessed 29 September 2019)
Benefits of open access

• Open access articles:
  – encourage viewing of more articles than partial access\(^1,2\)
  – appear to be downloaded more and receive more citations than subscription articles, indicating a greater academic impact\(^3–6\)
  – appear to have a broader societal impact based on altmetric data\(^6–8\)
  – can facilitate public and commercial reuse of research results (depending on the restrictions of the licence), which is beneficial for collaboration, education and innovation\(^6\)
  – increase transparency of research results\(^6,9–11\)
  – are no different in terms of quality when compared with subscription articles\(^12,13\)

1. Maggio LA et al. BMJ Open 2016;6:e012846; 2. Moorhead LL et al. PLoS One 2015;10:e0129708; 3. Davis PM et al. BMJ 2008;337:a568; 4. Ottaviani J. PLoS One 2016;11:e0159614; 5. Piwowar H et al. PeerJ 2018;6:e4375; 6. Tennant JP et al. F1000Res 2016;5:632; 7. Wang X et al. Scientometrics 2015;103:555–64; 8. Allen HG et al. PLoS One 2013;8:e68914; 9. Hopewell S et al. Lancet 2008;371:281–3; 10. Barbour V et al. Bull World Health Organ 2006;84:339–424; 11. Leung PTM et al. N Engl J Med 2017;376:2194–5; 12. Pastorino R et al. PLoS One 2016;11:e0154217; 13. Tahim A et al. J Maxillofac Oral Surg 2016;15:517–20
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- Some Creative Commons licences allow more sharing and reuse than others

Examples

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APC, article processing charge; BY, Attribution; CC, Creative Commons; NC, Non-Commercial; ND, No Derivatives
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The CC BY licence

• Recommended by:
  – the Budapest Open Access Initiative¹
  – the Berlin Declaration²
  – the Bethesda Statement³
  – the Directory of Open Access Journals (DOAJ)⁴
  – the Open Access Scholarly Publishers Association (OASPA)⁵
  – cOAlition S⁶

• Required by academic and not-for-profit research funders, including:
  – the Wellcome Trust
  – the Bill & Melinda Gates Foundation⁷,⁸
Open access policies applied by medical journals

| Open access with a Creative Commons licence | Free-to-read access without a licence at the time of publication |
|-------------------------------------------|---------------------------------------------------------------|
| • Facilitated by an APC                   | • Typically involve an embargo period before the published articles are freely accessible |
| • Following payment by the research author, institution or funder, articles are usually made available on the journal’s website at the time of publication in the publisher’s typeset format (VoR) | • May allow access only to the accepted manuscript (a version that has not been edited and typeset by the journal), which is made available on the author’s institutional website, PubMed Central or Europe PubMed Central without a requirement for payment |

APC, article processing charge; VoR, version of record
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An increasing trend towards open access publishing

~ 50% of journal articles were published open access in 2015\(^1\)

69.2% of global health research articles published in 2010–2014 were not freely available on the journal’s website\(^2\)

Many academic and not-for-profit research funders now require the research they fund to be published open access\(^3–9\)

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1. Piwowar H et al. *PeerJ* 2018;6:e4375; 2. Smith E et al. *Health Res Policy Syst* 2017;15:73; 3. Tennant JP et al. *F1000Res* 2016;5:632; 4. Wellcome Trust. Open access policy. Available from: https://wellcome.ac.uk/funding/managing-grant/open-access-policy (Accessed 14 October 2019); 5. Charity Open Access Fund. COAF guidelines. Available from: https://wellcome.ac.uk/funding/guidance/charity-open-access-fund (Accessed 14 October 2019); 6. Bill & Melinda Gates Foundation. Available from: https://www.gatesfoundation.org/how-we-work/general-information/open-access-policy (Accessed 14 October 2019); 7. Collins E. *BMJ Open* 2013;3:e004171; 8. Marchington J et al. Available from: http://www.caudec.com/downloads/OA_survey_EU_ISMPP_2017_poster_15.pdf (Accessed 14 October 2019); 9. Medical Research Council UK. Available from: https://mrc.ukri.org/research/policies-and-guidance-for-researchers/open-access-policy/ (Accessed 14 October 2019)
Open access policies of commercial research funders

• Commercial research funders, which fund approximately half of all medical research,\(^1\)\(^–\)\(^3\) have been more hesitant to require open access publishing but now commonly pay for open access when the option is available\(^4\)

• The proportion of articles authored by large pharmaceutical companies that were published open access doubled between 2009 and 2016\(^5\)

Shire (now part of Takeda) requires all research manuscripts it funds to be published open access\(^6,7\)

Ipsen commits to making its published scientific research freely accessible to everyone\(^8\)

Commercial research funders are defined here as pharmaceutical companies and other medical industries that fund research for commercial purposes

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1. Moses H et al. JAMA 2015;313:174–89; 2. Dorsey ER et al. JAMA 2010;303:137–43; 3. Hakoum MB et al. BMJ Open 2017;7:e015997; 4. Collins E. BMJ Open 2013;3:e004171; 5. Yegros-Yegros A, van Leeuwen T. SocArXiv 2019. Available from: https://doi.org/10.31235/osf.io/z6kc (Accessed 11 October 2019); 6. ISMPP MAP Newsletter. Available from: https://ismpp-newsletter.com/2018/01/30/shire-announces-new-open-access-policy/ (Accessed 14 October 2019); 7. Shire. Available from: https://www.shire.com/en/newsroom/2018/01/shire-announces-new-open-access-policy/ (Accessed 14 October 2019); 8. Ipsen. Available from: https://www.ipsen.com/ipsen-commits-to-making-all-its-published-scientific-research-freely-accessible-to-everyone/ (Accessed 14 October 2019)
Study methodology (1/2)

For each journal, we recorded the following information:

- **For immediate open access**, whether a CC BY licence or other Creative Commons licence was provided.
- **For delayed open access**, the length of embargo period for open access.
- **For both immediate and delayed open access**, which version of the article would be available (published VoR or accepted).

CC BY, Creative Commons Attribution licence; VoR, version of record
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**Study methodology (2/2)**

For journals that provided a CC BY licence, we collected additional information on:

- the requirements for obtaining a CC BY licence (e.g. dependence on funding source)
- APCs

- We confirmed our findings with the journals’ editorial offices by email.
- Once open access variants were recorded, we categorized the most open variant provided by each included journal using our own classification:

| Category | Version of article available | Embargo period* | CC BY licence offered by the journal? |
|----------|------------------------------|-----------------|--------------------------------------|
| 1        | Published                    | None            | Yes                                  |
| 2        | Published                    | None            | No                                   |
| 3        | Published/accepted           | ≤12 months      | No                                   |

APC, article processing charge; CC BY, Creative Commons Attribution licence
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Flow chart of journals included in the study

N = 53
Journals with an impact factor of ≥ 15.0

n = 35
Journals included in the analysis

n = 18
Journals removed that did not meet inclusion criteria
Journals that exclusively publish review articles (n = 16)
Non-medical journals (n = 2)

Email contact round one
Journals that were contacted to clarify information missing/not clear from journal websites (14/15 journals provided confirmation)

Email contact round two
Journals that were contacted to confirm tabulated results (34/35 journals replied and provided confirmation)
Medical journals categorized by impact factor and their most open variant of open access available (n = 35)

A

Impact factor ≥15.0

37% (n=13)

60% (n=21)

3% (n=1)

B

Number of journals

16

14

12

10

8

6

4

2

0

15.0–19.9

20.0–29.9

≥30.0

Impact factor range

Category 1: published version of record available upon publication with a CC BY licence

Category 2: published version of record free to read upon publication (no Creative Commons licence)

Category 3: published version of record or accepted version first available 6–12 months after publication (no Creative Commons licence)

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Article processing charges of journals that offer immediate open access with a CC BY licence (n = 21)

- 62% (n=13)
- 14% (n=3)
- 5% (n=1)
- 5% (n=1)
- 5% (n=1)
- 10% (n=2)
- Unknown*

*Details on processing fees are provided at acceptance
CC BY, Creative Commons Attribution licence; GBP, Great British pounds; USD, United States dollars
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Access policies of journals with high impact factors that do not provide open access with Creative Commons licences

| Publisher | Organisation status | Journals included (n=14) | Open access variants available* | Embargo period† | Version of article available |
|-----------|----------------------|--------------------------|--------------------------------|-----------------|----------------------------|
| American Association for Cancer Research Journals | Non-profit society | Cancer Discov | None | VoR‡ | Accepted |
| American College of Physicians | Nonprofit society | Ann Intern Med | 6 months | Accepted | |
| American Medical Association | Non-profit society | JAMA | None | VoR§ | VoR |
| Massachusetts Medical Society | Non-profit society | N Engl J Med | 6 months | VoR | |
| Nature Publishing Group | Commercial | Nature; Nat Biotechnol; Nat Cell Biol; Nat Genet; Nat Immunol; Nat Mater; Nat Med; Nat Methods; Nat Neurosci | 6 months | Accepted | |
| Wiley-Blackwell | Commercial | World Psychiatry | 12 months | Accepted | |

*Available under the terms specified on the journal website. ¹None = immediate open access; > 0 months = delayed open access. ‡On payment of US$3500 AuthorChoice fee.
§Available to read on JAMA Network Reader
VoR, version of record
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Examples of open access policies of journals with high impact factors that offer immediate open access with the CC BY licence (n = 21)

| Publisher                           | Organisation status | Journals included (n=21) | Open access variants available* | Funding requirements for obtaining open access with a CC BY licence |
|-------------------------------------|---------------------|--------------------------|--------------------------------|---------------------------------------------------------------|
| American Association for the Advancement of Science | Non-profit society | Science; Sci Transl Med | None None 6 months 12 months | The American Association for the Advancement of Science will allow authors funded by the Bill & Melinda Gates Foundation to publish their research with a CC BY licence† |
| American Society of Clinical Oncology | Non-profit society | J Clin Oncol | None 6 months 12 months | Creative commons licences available only if funders are ‘academic institutions, not-for-profit organisations, philanthropical foundations or government agencies’ |
| BMJ Publishing Group                | Non-profit society | BMJ | None | CC BY licences available only to authors covered by a funding body agreement† (these non-commercial funding bodies are listed on the journal websites) |
| Cell Press                          | Commercial         | Cancer Cell; Cell; Cell Metab; Cell Stem Cell; Immunity | None None 12 months | Accepted manuscripts can be self-archived and are required to attach a CC BY-NC-ND licence |

*Available under the terms specified on the journal website. †None = immediate open access; > 0 months = delayed open access. ‡The American Association for the Advancement of Science’s pilot open access partnership with the Gates Foundation concluded on 30 June 2018.

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The take-home message of our research

Out of 35 top-ranked journals included in the analysis, 21 allowed immediate open access with a CC BY licence (the other 14 allowed some form of open access either immediately or after a delay of up to 12 months).

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Summary and conclusions

• The availability of open access options depends on the funding source
  – Although 60% of high-impact medical journals provide immediate open access under the gold standard Creative Commons Attribution (CC BY) licence, 95% of these journals offered this option only to authors funded by non-commercial organizations

• Journals currently restrict access to medical research funded by the pharma industry

• If pharma joined non-commercial funders in requiring open access under a gold standard CC BY licence, then leading journals would need to change their policies or stop publishing industry research

• As a result of this research, Oxford PharmaGenesis updated its publication policy to commit to publishing its own research open access under a CC BY licence
