



## Publication by association: the Covid-19 pandemic reveals relationships between authors and editors

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**Title:**

**Publication by association: the Covid-19 pandemic reveals relationships between authors and editors**

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**Abstract:**

During the COVID-19 pandemic, the rush to scientific and political judgments on the merits of hydroxychloroquine was fuelled by dubious papers which may have been published because the authors were not independent from the practices of the journals in which they appeared. This example leads us to consider a new type of illegitimate publishing entity, “self-promotion journals” which could be deployed to serve the instrumentalisation of productivity-based metrics, with a ripple effect on decisions about promotion, tenure, and grant funding.

## Main Text:

The hydroxychloroquine saga was perhaps the most mediatized scientific controversy of the first 100 days of the COVID-19 pandemic. This controversy originated from Didier Raoult, a microbiologist and director of the *Institut Hospitalo-Universitaire Méditerranée Infection* in France, who with his team published a highly questionable study in the *International Journal of Antimicrobial Agents* (1). Despite major concerns highlighted in 17 Pubpeer comments, the study and its coverage in the media and by politicians – such as Donald Trump and Emmanuel Macron (2) – ignited (i) a wave of research waste with more than 150 clinical trials across the world exploring the efficacy of chloroquine and/or hydroxychloroquine (3), (ii) shoddy science, including the highly mediatized retraction of the *Lancet*'s Surgisphere paper (4) and (iii) science that is highly likely to be non-reproducible. One aspect of this germinal paper is remarkable. Jean-Marc Rolain, the Editor-in-Chief of the *International Journal of Antimicrobial Agents*, works in Raoult's institute [and reports to him] and is also a signatory of the paper. This may or may not be a problem, but without explicit mitigation it certainly gives the impression of potential conflicts of interest. The peer review of this paper was unusually fast, as it was expedited in one day. Such speed, even in a pandemic, is reminiscent of what one might expect from a predatory journal. The International Society of Antimicrobial Chemotherapy (ISAC), which owns the journal, quickly expressed its concerns, stating that “the article [did] not meet the Society's expected standard, especially relating to the lack of better explanations of the inclusion criteria and the triage of patients to ensure patient safety” (5). However, ISAC also stated that the peer review process did adhere to the peer review rules in the field, highlighting that full responsibility for the manuscript's peer review process was delegated to an Associate Editor (6). The journal has not implemented an Open Peer Review; we asked the authors to share the peer reviews, but were unsuccessful. The team published four other papers (see **Supplementary table 1**), below general research standards, in journals where members of the team were part of the editorial board or indeed editors-in-chief. Among these, a so-called meta-analysis on the therapeutic efficacy of hydroxychloroquine (7) was published in *New Microbes and New Infections* (NMNI), and is at odds with all best practices in the field of meta-analyses (for instance it includes a withdrawn preprint, and it pooled different outcomes extracted from the same studies), and it received 7 critical comments on Pubpeer. The methods and results are not reproducible. NMNI's editor-in-chief also works for Raoult. Six additional associate editors of the journal also work for Raoult. The scope of the journal is to serve the field “as a peer-reviewed, open access journal for rapid dissemination of the latest research, with a particular focus on new genomes, new microbes, and new technology applied to the diagnosis of infectious/tropical diseases” (8), an unusual definition for publishing a meta-analysis on a therapeutic issue.

## A highway to publication

In its 2017 report on Didier Raoult's unit, the French “*Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur*”, an independent authority that inspects French research units, noted that the “creation of this journal which serves to publish papers rejected by other journals is a somewhat desperate initiative”. A careful inspection of the NMNI publication output (see **Supplementary table 2**) revealed that the journal, created in 2013, published 728 papers up to June the 25<sup>th</sup> 2020. Of these 231 (32%) were published by at least one author on the

current editorial board, 226 (31%) by one editor from Marseille, and 235 (32%) by Didier Raoult, who is not part of the editorial board.

Computing the proportion of contributions published in a journal by any single author can provide a very rough index to spot problematic journals. We explored scientific journals specialized in infectious diseases selected from the National Library of Medicine (NLM) Catalog using NMNI's MeSH terms (see **Supplementary Methods**). Among these 789 journals, 241 published at least 50 papers between 2015 and 2019. **Figure 1 (panel A)** displays this indicator for the most prolific author for each journal in relation to the volume of the journal's published output. NMNI is a strikingly clear outlier, with both a large proportion of published papers by the same author (36.6%) and a large publication volume over the last 5 years (N=598 articles). We explored the 13 journals with an Index value > 10.7% corresponding to the 95<sup>th</sup> percentile threshold. The key features of these journals are displayed in **Table 1**. **Figure 1 (panel B)**, shows the distribution of the index for each author, among the 5 journals ranking respectively at the minimum, 1<sup>st</sup> quartile, median, 3<sup>rd</sup> quartile and maximum, over the 5 years, by year. Details for the whole sample of journals are presented in **Supplementary figure 1**). NMNI appears constantly as an outlier over the five last years.

### **Self-promotion journals: a new type of illegitimate publishing entity?**

Of course, to avoid publication bias it is expected that all researchers transparently submit all outputs of their research. However, successful publication presumes that the research is sound enough and that a rigorous, unbiased peer-review actually took place. NMNI cannot be suspected of being a predatory journal (9). It is indexed in the Directory of Open Access Journals (DOAJ) and undertakes to adhere to Elsevier's editorial standards. However, Elsevier's general policies explicitly state that "the editor must not be involved in decisions about papers which s/he has written him/herself, or which have been written by [...] colleagues." In application of this policy, more than 40% of published papers should not have been handled by Michel Drancourt, the Editor-in-Chief. It is a very large proportion for the editor, supposed to be responsible for the whole journal content. It is also expected that an editor of a journal should publish editorials delineating the agenda of the journal. However, such a high proportion of this type of article raises questions of plurality of viewpoint and independence of the journal. A similar case was described in 2008 with Elsevier's theoretical physics journal Chaos, Solitons and Fractal, whose Editor in Chief M.S. El Nashie published 332 papers in the journal as an author (10).

In contrast with the El Nashie case, NMNI appears to prioritize the productivity of a larger network of editors/authors. We suggest that (1) a constantly high proportion of papers published by a group of authors, (2) particularly in the presence of relationships between the editors and these authors, and (3) publication of low-quality research, are key characteristics of a new type of illegitimate publishing entity, i.e. "self-promotion journals", which deserve further investigation. "Self-promotion journals" could be deployed to game productivity-based metrics, with a ripple effect on decisions about promotion, tenure, and grant funding. COVID-19 has clearly shown the detrimental effects of such practices: authorizations issued in March 2020 for chloroquine and hydroxychloroquine for emergency use, were suspended by the Food and Drug Administration three months later (11). Didier Raoult implicitly acknowledged using his publication capacity as clout in his own research ecosystem, even threatening to go on strike over the signing of his own publications (12). Indeed, in France, hospitals are rewarded according to the volume of publications. Various initiatives including the Declaration on Research

Assessment (DORA) (13) warn about the use of incentives based on scientific productivity which can easily be gamed and could be related to a kind of natural selection of bad science (14). In the case of NMNI, it is not possible to ascertain the integrity or quality of the peer review process because the journal does not have an open peer-review policy.

### Rewarding integrity instead of productivity

Authorship is an important component of scientific integrity, it entails responsibilities (15) and any doubts on actual authorship call into question the trustworthiness of science. Publishers such as Elsevier can easily screen their catalogue using the indicators we propose to detect outliers such as NMNI and to audit the specific processes in these journals. Independent researchers can explore and refine the index we propose on the basis of an exhaustive study across a broad range of scientific journals to explore its validity and possible variations according to the field. It is indeed time to reward scientific integrity instead of productivity, institutions, journals, or publishers. This affords a good opportunity to determine which values matter: productivity-based metrics, research quality, or the societal consequences of research.

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**Author contributions:** *Writing – Original Draft:* CL and FN wrote the first draft. *Writing – Review & Editing:* The original draft was circulated to DM and IC for critical review and was revised accordingly. CL, FN synthesized all comments. All authors approved the final manuscript.

**Competing interests:** CL, DM, IAC, FN, declare no competing interests.

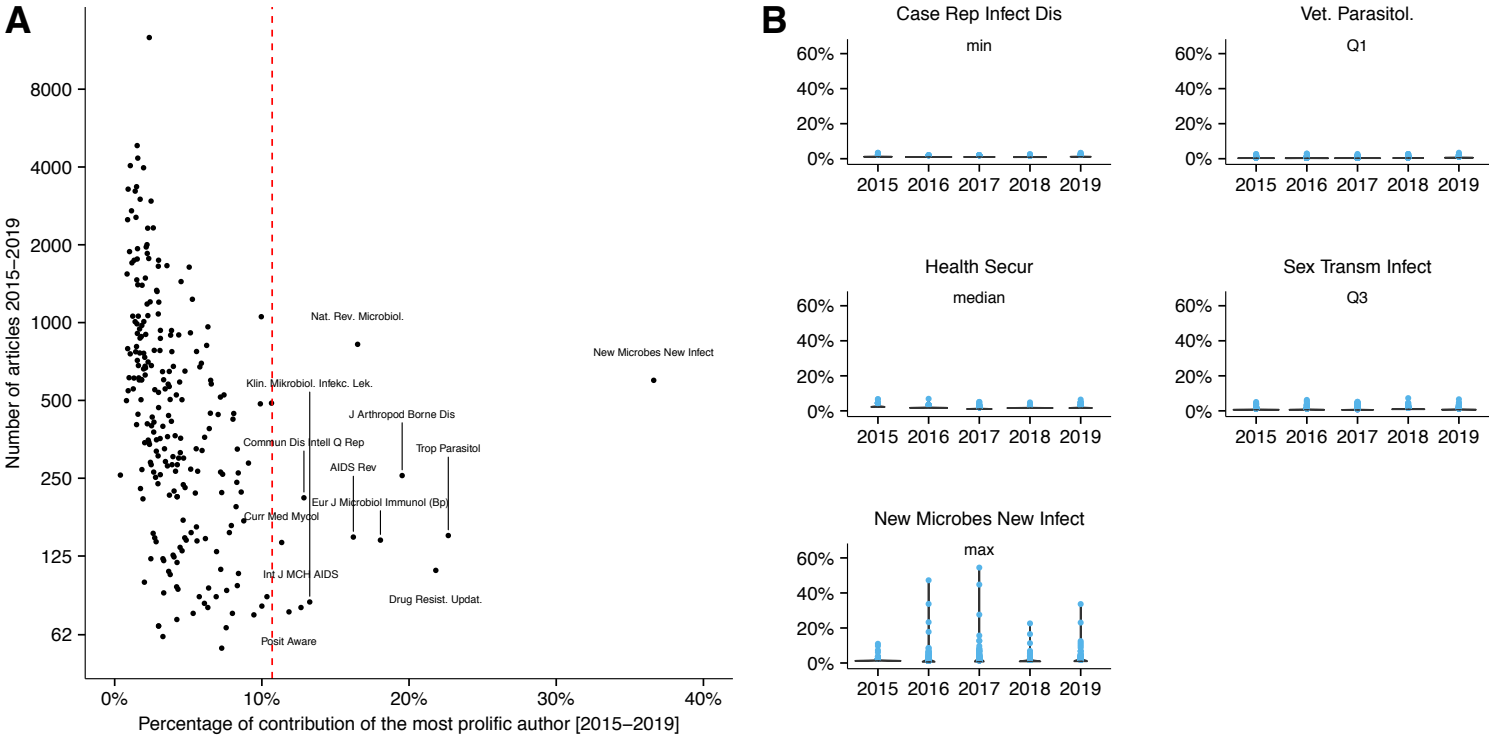
**Data and material availability:** Data and the code to reproduce the figure have been made available on the Open Science Framework [<https://osf.io/jqc3w/>].

**Figure 1. Description of contributions of prolific authors across 241 infectious disease journals that published at least 50 papers between 2015 and 2019**

**Panel A:** Percentage of contributions of the most prolific authors and number of published outputs for all journals (2015-2019)

**Panel B:** Distribution of the contributions of each author, across the 5 journals ranking respectively at the minimum, 1<sup>st</sup> quartile, median, 3<sup>rd</sup> quartile and maximum (over 2015-2019)

All analyses were performed using the RISmed library in R. The code to reproduce this analysis is available here: <https://osf.io/jqc3w/>





**Table 1.** Description of journals with a 5 year index > 95 percentile. DOAJ: Directory of Open Access Journals.

| Journal                       | Publisher / country                                                                                       | 5 year Index | Number of published outputs | Number of authors with index > 95th percentile | Status on the board of the most prolific author                                    | Open Access | Indexed in DOAJ   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------|--------------|-----------------------------|------------------------------------------------|------------------------------------------------------------------------------------|-------------|-------------------|
| Iran J Parasitol              | Tehran University of Medical Sciences                                                                     | 10.7%        | 488                         | 1                                              | Member of the editorial board, same affiliation as the Editor-in-Chief             | Yes         | No                |
| Curr Med Mycol                | Mazandaran University of Medical Sciences                                                                 | 11.3%        | 141                         | 1                                              | Editor-in-Chief                                                                    | Yes         | Yes [19 Feb 2016] |
| Posit Aware                   | The Network                                                                                               | 11.8%        | 76                          | 1                                              | Not clear whether there are associate editors                                      | Yes         | No                |
| Int J MCH AIDS                | Global Health and Education Projects                                                                      | 12.7%        | 79                          | 1                                              | Editor-in-Chief                                                                    | Yes         | Yes [1 May 2013]  |
| Commun Dis Intell Q Rep       | Health Protection Policy Branch, Office of Health Protection, Australian Government, Department of Health | 12.9%        | 210                         | 1                                              | NA                                                                                 | Yes         | No                |
| Klin. Mikrobiol. Infekc. Lek. | TRIOS                                                                                                     | 13.3%        | 83                          | 3                                              | NA                                                                                 | No          | No                |
| AIDS Rev                      | Permanyer Publications                                                                                    | 16.2%        | 148                         | 1                                              | Editor-in-Chief                                                                    | Hybrid      | No                |
| Nat. Rev. Microbiol.          | Nature Pub. Group                                                                                         | 16.5%        | 824                         | 2                                              | Associate editor, however these editors are professional editors and not academics | No          | No                |
| Eur J Microbiol Immunol (Bp)  | Akadémiai Kiadó                                                                                           | 18.1%        | 144                         | 4                                              | Co-Editor-in-Chief                                                                 | Yes         | No                |
| J Arthropod Borne Dis         | Tehran University of Medical Sciences                                                                     | 19.5%        | 256                         | 2                                              | Editor-in-Chief                                                                    | Yes         | Yes [27 Nov 2012] |
| Drug Resist. Updat.           | Churchill Livingstone                                                                                     | 21.8%        | 110                         | 2                                              | Editor-in-Chief                                                                    | Yes         | No                |
| Trop Parasitol                | Medknow Publ.                                                                                             | 22.7%        | 150                         | 2                                              | Editor-in-Chief                                                                    | Yes         | No                |
| New Microbes New Infect       | Elsevier                                                                                                  | 36.6%        | 598                         | 5                                              | Same affiliation as the Editor-in-Chief                                            | Yes         | Yes [23 Jul 2015] |

## **Supplementary method**

Search chain to identify journals on NLM Catalog using NMNI Mesh terms:

((Communicable Diseases[Mesh] OR Infections[Mesh] OR Microbiological Phenomena[Mesh]) AND ncbijournals[All Fields])

**Supplementary table 1. IHU-Méditerranée Infection papers on hydroxychloroquine**

| <b>Title</b>                                                                                                                                                                        | <b>Journal</b>          | <b>Received</b> | <b>Received in revised form</b> | <b>Accepted</b> | <b>Accepted in</b> | <b>Editor from IHU-Méditerranée Infection</b> | <b>Role in the editorial board</b>         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|---------------------------------|-----------------|--------------------|-----------------------------------------------|--------------------------------------------|
| Hydroxychloroquine and azithromycin as a treatment for COVID-19: results of an open-label non-randomized clinical trial                                                             | Int J Antimicrob Agents | 16 March        | NP                              | 17 March        | 1 day              | Rolain JM<br>Lagier JC<br>Colson P            | Editor-in-Chief<br>Editor<br>Editor        |
| Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: A pilot observational study. | Travel Med Infect Dis   | 03 April        | NP                              | 04 April        | 1 day              | Gautret P                                     | Associate Editor                           |
| Early treatment of COVID-19 patients with hydroxychloroquine and azithromycin: A retrospective analysis of 1061 cases in Marseille, France.                                         | Travel Med Infect Dis   | 20 April        | 30 April                        | 01 May          | 11 days            | Gautret P                                     | Associate Editor                           |
| Clinical Efficacy of Chloroquine derivatives in COVID-19 Infection: Comparative meta-analysis between the Big data and the real world                                               | New Microbes New Infect | 08 May          | 28 May                          | 04 June         | 27 days            | Fournier PE<br>Rolain JM                      | Deputy Editor-in-Chief<br>Associate Editor |
| Outcomes of 3,737 COVID-19 patients treated with hydroxychloroquine/azithromycin and other regimens in Marseille, France: A retrospective analysis                                  | Travel Med Infect Dis   | 27 May          | 12 June                         | 14 June         | 18 days            | Gautret P                                     | Associate Editor                           |

NP: not provided

**Supplementary table 2. Contribution of the editorial board and Didier Raoult in the New Microbes and New Infections (June 25, 2020)**

| PubMed requests                                                          | Editor/author     | Affiliation                 | Position               | Records | %    |
|--------------------------------------------------------------------------|-------------------|-----------------------------|------------------------|---------|------|
| ('New microbes and new infections'[Journal])                             | NA                | NA                          | NA                     | 725     | 100% |
| ('New microbes and new infections'[Journal]) AND (Drancourt, M[au])      | Drancourt, M      | Marseille, France           | Editor-in-Chief        | 15      | 2%   |
| ('New microbes and new infections'[Journal]) AND (Fournier, PE[au])      | Fournier, PE      | Marseille, France           | Deputy Editor-in-Chief | 173     | 24%  |
| ('New microbes and new infections'[Journal]) AND (Abrahão, J[au])        | Abrahão, J        | Belo Horizonte, Brazil      | Associate Editor       | 3       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Alanio, A[au])         | Alanio, A         | Paris, France               | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Ayyadurai, S[au])      | Ayyadurai, S      | Raleigh, United States      | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Baron, S[au])          | Baron, S          | Marseille, France           | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Bouam, A[au])          | Bouam, A          | Marseille, France           | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Wuguo, C[au])          | Wuguo, C          | Chapel Hill, United States  | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (de Lamballerie, X[au]) | de Lamballerie, X | Marseille, France           | Associate Editor       | 2       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Eremeeva, ME[au])      | Eremeeva, ME      | Statesboro, United States   | Associate Editor       | 1       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Kernif, T[au])         | Kernif, T         | Dely Ibrahim, Algeria       | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (La, V[au])             | La, V             | Philadelphia, United States | Associate Editor       | 0       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Mediannikov, O[au])    | Mediannikov, O    | Marseille, France           | Associate Editor       | 22      | 3%   |
| ('New microbes and new infections'[Journal]) AND (Opota, O[au])          | Opota, O          | Lausanne, Switzerland       | Associate Editor       | 2       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Polkinghorne, A[au])   | Polkinghorne, A   | Maroochydore DC, Australia  | Associate Editor       | 1       | 0%   |
| ('New microbes and new infections'[Journal]) AND (Rolain, JM[au])        | Rolain, JM        | Marseille, France           | Associate Editor       | 33      | 5%   |

|                                                                                                                                                                                                                     |                                     |                   |                  |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------|------------------|-----|-----|
| ('New microbes and new infections'[Journal]) AND (Yang, R[au])                                                                                                                                                      | Yang, R                             | Beijing, China    | Associate Editor | 0   | 0%  |
| ('New microbes and new infections'[Journal]) AND (Raoult, D[au])                                                                                                                                                    | Raoult, D                           | Marseille, France | NA               | 235 | 32% |
| ('New microbes and new infections'[Journal]) AND ((Drancourt[au] OR Fournier[au] OR De Lamballerie[au] OR Ereemeeva[au] OR Mediannikov[au] OR Polkinghorne[au] OR Rolain[au] OR Yang[au] OR Opota[au]))             | At least one editor                 |                   | NA               | 255 | 35% |
| ('New microbes and new infections'[Journal] AND (Drancourt[au] OR Fournier[au] OR De Lamballerie[au] OR Mediannikov[au] OR Rolain[au]))                                                                             | At least one editor from Marseilles | Marseille, France | NA               | 228 | 32% |
| ('New microbes and new infections'[Journal]) AND (Drancourt[au] OR Fournier[au] OR De Lamballerie[au] OR Ereemeeva[au] OR Mediannikov[au] OR Opota[au] OR Polkinghorne[au] OR Rolain[au] OR Yang[au] OR Raoult[au]) | At least one editor                 |                   | NA               | 317 | 44% |

**Supplementary figure 1:** Distribution of the contributions of each author, across the 241 journals specialized in infectious that published at least 50 papers between 2015 and 2019.



