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 hydroxycholoroquine (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 25th 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 95th 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, 1st quartile, median, 3rd 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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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, 1st quartile, median, 3rd 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/

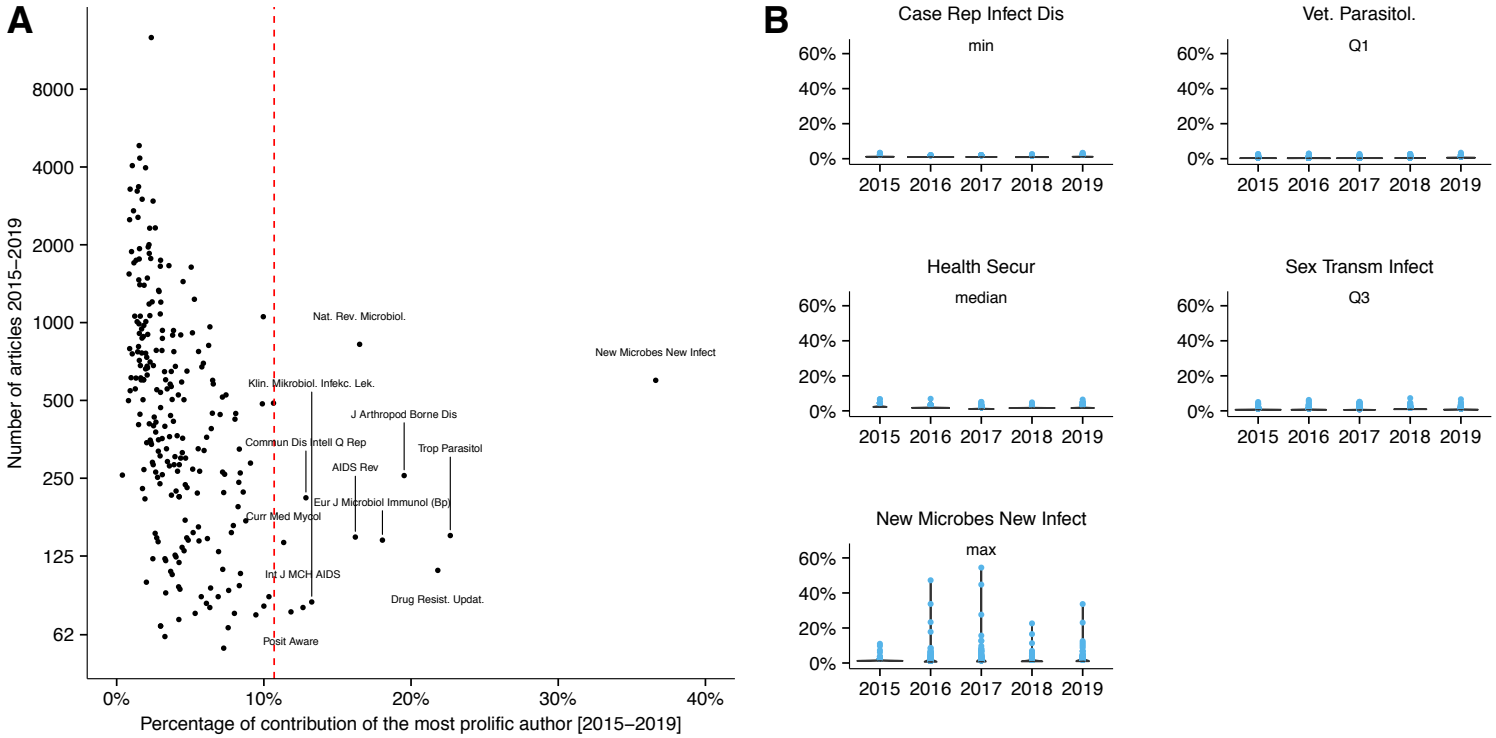


Table 1. Description of journals with a 5 year index > 95 percentile. DOAJ: Directory of Open Access Journals.

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

Title	Journal	Received	Received in revised form	Accepted	Accepted in	Editor from IHU-Méditerranée Infection	Role in the editorial board
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 Lagier JC Colson P	Editor-in-Chief Editor 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 Rolain JM	Deputy Editor-in-Chief 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

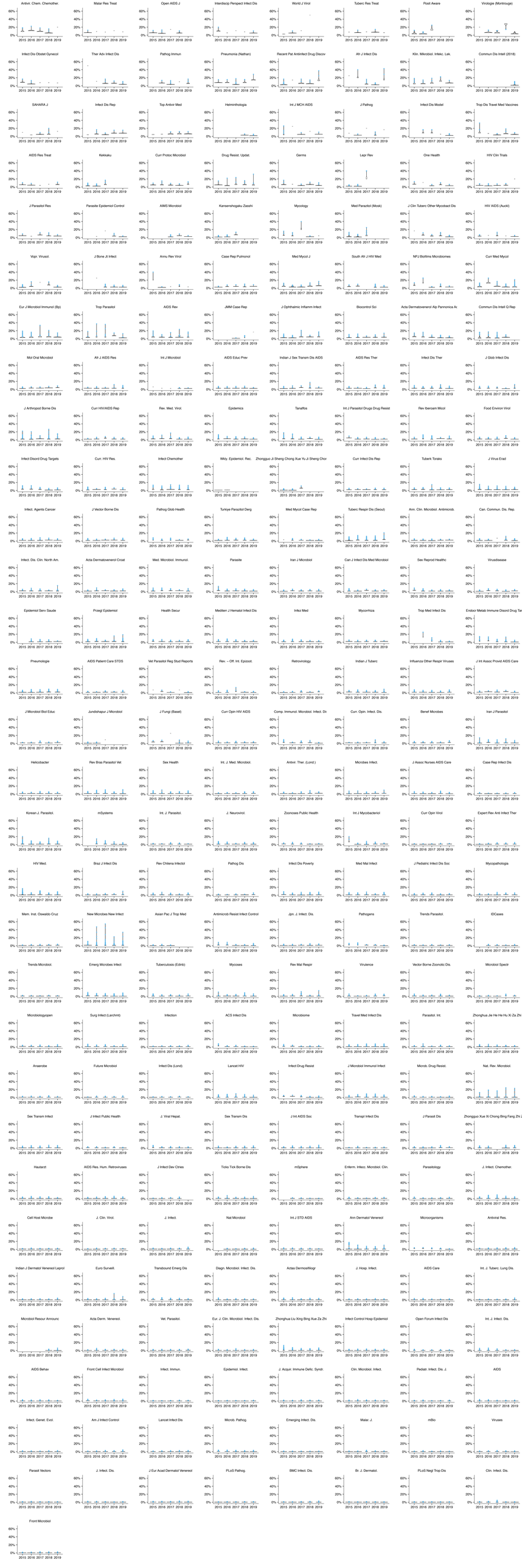
NP: not provided

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 Eremeeva[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 Eremeeva[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.


Antivir. Chem. Chemother.
Malar Res Treat
Open AIDS J
Interdiscip Perspect Infect Dis
World J Virol
Tuberc Res Treat
Posit Aware
Virologie (Montrouge)
Infect Dis Obstet Gynecol
Ther Adv Infect Dis
Pathog Immun
Pneumonia (Nathan)
Recent Pat Antiinfect Drug Discov
Afr J Infect Dis
Klin. Mikrobiol. Infekc. Lek.
Commun Dis Intell (2018)
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Infect Dis Rep
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Helminthologia
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J Pathog
Infect Dis Model
Trop Dis Travel Med Vaccines
AIDS Res Treat
Kekkaku
Curr Protoc Microbiol
Drug Resist. Updat.
Germs
Lepr Rev
One Health
HIV Clin Trials
J Parasitol Res
Parasite Epidemiol Control
AIMS Microbiol
Kansenshogaku Zasshi
Mycology
Med Parazitol (Mosk)
J Clin Tuberc Other Mycobact Dis
HIV AIDS (Auckl)
Vopr. Virusol.
J Bone Jt Infect
Annu Rev Virol
Case Rep Pulmonol
Med Mycol J
South Afr J HIV Med
NPJ Biofilms Microbiomes
Curr Med Mycol
Eur J Microbiol Immunol (Bp)
Trop Parasitol
AIDS Rev
JMM Case Rep
J Ophthalmic Inflamm Infect
Biocontrol Sci
Acta Dermatovenerol Alp Pannonica Ad
Commun Dis Intell Q Rep
Mol Oral Microbiol
Afr J AIDS Res
Int J Microbiol
AIDS Educ Prev
Indian J Sex Transm Dis AIDS
AIDS Res Ther
Infect Dis Ther
J Glob Infect Dis
J Arthropod Borne Dis
Curr HIV/AIDS Rep
Rev. Med. Virol.
Epidemics
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Int J Parasitol Drugs Drug Resist
Rev Iberoam Micol
Food Environ Virol
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Curr. HIV Res.
Infect Chemother
Wkly. Epidemiol. Rec.
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J Virus Erad
Infect. Agents Cancer
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Tuberc Respir Dis (Seoul)
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Can. Commun. Dis. Rep.
Infect. Dis. Clin. North Am.
Acta Dermatovenerol Croat
Med. Microbiol. Immunol.
Parasite
Iran J Microbiol
Can J Infect Dis Med Microbiol
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Przegl Epidemiol
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Endocr Metab Immune Disord Drug Tar
Pneumologie
AIDS Patient Care STDS
Vet Parasitol Reg Stud Reports
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Retrovirology
Indian J Tuberc
Influenza Other Respir Viruses
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J Microbiol Biol Educ
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J Fungi (Basel)
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Curr. Opin. Infect. Dis.
Benef Microbes
Iran J Parasitol
Helicobacter
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Sex Health
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Antivir. Ther. (Lond.)
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Case Rep Infect Dis
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Infect Dis Poverty
Med Mal Infect
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Asian Pac J Trop Med
Antimicrob Resist Infect Control
Jpn. J. Infect. Dis.
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IDCases
Trends Microbiol.
Emerg Microbes Infect
Tuberculosis (Edinb)
Mycoses
Rev Mal Respir
Virulence
Vector Borne Zoonotic Dis.
Microbiol Spectr
Microbiologyopen
Surg Infect (Larchmt)
Infection
ACS Infect Dis
Microbiome
Travel Med Infect Dis
Parasitol. Int.
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Future Microbiol
Infect Dis (Lond)
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Infect Drug Resist
J Microbiol Immunol Infect
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Nat. Rev. Microbiol.
Sex Transm Infect
J Infect Public Health
J. Viral Hepat.
Sex Transm Dis
J Int AIDS Soc
Transpl Infect Dis
J Parasit Dis
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Cell Host Microbe
J. Clin. Virol.
J. Infect.
Nat Microbiol
Int J STD AIDS
Ann Dermatol Venereol
Microorganisms
Antiviral Res.
Indian J Dermatol Venereol Leprol
Euro Surveill.
Transbound Emerg Dis
Diagn. Microbiol. Infect. Dis.
Actas Dermosifiliogr
J. Hosp. Infect.
AIDS Care
Int. J. Tuberc. Lung Dis.
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Int. J. Infect. Dis.
AIDS Behav
Front Cell Infect Microbiol
Infect. Immun.
Epidemiol. Infect.
J. Acquir. Immune Defic. Syndr.
Clin. Microbiol. Infect.
Pediatr. Infect. Dis. J.
AIDS
Infect. Genet. Evol.
Am J Infect Control
Lancet Infect Dis
Microb. Pathog.
Emerging Infect. Dis.
Malar. J.
mBio
Viruses
Parasit Vectors
J. Infect. Dis.
J Eur Acad Dermatol Venereol
PLoS Pathog.
BMC Infect. Dis.
Br. J. Dermatol.
PLoS Negl Trop Dis
Clin. Infect. Dis.
Front Microbiol
2015 2016 2017 2018 2019
0% 20% 40% 60%