Identifying appropriate journals in which to publish original research on vaccines against human infectious diseases

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Abstract

The most effective way of communicating new research findings is by publishing them in a peer-reviewed journal which is widely read and highly respected. To ensure that important new data are shared with the appropriate audience in a timely manner, a number of important considerations need to be taken into account when choosing a suitable journal. This article provides an analysis of journals which publish original articles describing studies of vaccines against human infectious diseases. A search of PubMed identified over 80 journals which recently published vaccine-related studies. These journals were filtered according to impact factor and number and percentage of vaccine-related studies published from 2006 to 2010, resulting in a core of 32 journals which frequently publish studies of vaccines against human infectious diseases. A survey was then undertaken to gather additional information with respect to acceptance rate, average time needed from manuscript submission to acceptance and from acceptance to publication. This dataset should provide a useful source of metrics which can help ensure that manuscripts are submitted to the most appropriate journal.

Keywords: Vaccine, Infectious diseases, Journal metrics, Impact factor, Acceptance rate

Publishing in a peer-reviewed journal which is widely read and highly respected in the scientific and medical communities is the primary goal when seeking to communicate important new study findings. Readers can expect that data published in a high-quality journal will have undergone rigorous scrutiny and that the study conclusions will be of considerable importance to the field. In practice, however, the vast majority of manuscripts submitted to the top-ranking journals are not accepted for publication. Rejection will mean, in most cases, a requirement to re-structure and re-format the manuscript before it can be submitted to an alternative journal. In the worst case, the manuscript will have undergone a lengthy review process; this delay may result in a loss of data novelty and the context of the manuscript may need substantial revision. Re-writing and updating the manuscript will involve further lost time and this could result in a considerably diminished impact when the article is eventually published. This scenario can be avoided by a more appropriate initial choice of target journal.

The key processes involved in identifying suitable target journals have been recently described as part of a detailed 'Authors' submission toolkit' published by members of the pharmaceutical industry and biomedical journals.[1] Important considerations include matching the focus of your study with that of the journal, assessing whether and how often the journal has published similar types of study in the recent past, restrictions on word, figure and table counts, impact factor (IF), rejection/acceptance rates (ARs), and times between submission, acceptance, and publication. Much of this information can be gathered from journal websites, citation databases and individual publications; however, this is a cumbersome task and would be impracticable to undertake for each new submission. The purpose of this article is to provide a database of journal metrics which will help authors to make informed decisions about where to submit manuscripts which focus on original research in the field of vaccines against human infectious diseases.

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Methods

To identify an initial list of potential target journals suitable for an international audience, an advanced search for English-language vaccine-related original research articles was done on PubMed[2] using the algorithm:

((((((((((((((((((((("2006"[Publication Date] : "2010"[Publication Date]) NOT "comment" [Publication Type]) NOT "corrected and republished article"[Publication Type]) NOT "duplicate publication"[Publication Type]) NOT "editorial"[Publication Type]) NOT "guideline" [Publication Type]) NOT "historical article"[Publication Type]) NOT "interview" [Publication Type]) NOT "news"[Publication Type]) NOT "published erratum"[Publication Type]) NOT "retracted publication" [Publication Type]) NOT "retraction of publication" [Publication Type]) NOT "review" [Publication Type]) NOT "letter"[Publication Type]) AND vacc*[Title]) NOT vaccini*[Title]) NOT vaccr*[Title]) NOT vacca*[Title]) NOT vaccinol*[Title]) NOT vaccen*[Title]) NOT vaccina[Title]) NOT vaccinal*[Title]) NOT vaccinos*[Title]) AND "english"[Language].

As a second step, the list of retrieved articles was sorted by journal and all journals publishing at least five articles between 2009 and 2010 (i.e. over 2 years) were selected. Next, the PubMed algorithm was extended to include AND 'x' [Journal], where 'x' represents one of the journals identified in step two, to retrieve an estimate of the number of original research articles published on vaccine-related studies over the 5-year period from 2006 to 2010 (V). To estimate the equivalent total number of original research articles published in these journals (T), the following PubMed search algorithm was used to query each journal:

((((((((((((((((((((("2006"[Publication Date] : "2010"[Publication Date]) NOT "comment" [Publication Type]) NOT "corrected and republished article"[Publication Type]) NOT "duplicate publication"[Publication Type]) NOT "editorial"[Publication Type]) NOT "guideline" [Publication Type]) NOT "historical article"[Publication Type]) NOT "interview" [Publication Type]) NOT "news"[Publication Type]) NOT "published erratum"[Publication Type]) NOT "retracted publication" [Publication Type]) NOT "retraction of publication" [Publication Type]) NOT "review" [Publication Type]) NOT "letter"[Publication Type]) AND "english"[Language].

These data were then used to calculate an estimate for the proportion of vaccine-related studies as a percentage of all original research studies in each journal (%V).

Three different databases which provide a measure of journal and article impact were then mined to extract the following journal metrics: Journal Citation Reports 2010 Impact Factor (IF), 5-year impact factor (5 Yr IF), and Immediacy Index,[3] Eigen Factor Article Influence (EF AI),[4] SCImago Journal Rank (SJR) and Cites/doc (CD).[5] To distill a core of higher ranking journals which regularly publish vaccine-related studies, a ranking filter was utilized with the following cut-off criteria: IF <2.0 OR V < 15 OR %V <0.5% OR (IF < 3.5 AND V < 35 AND %V < 3.0).

The abstracts of articles retrieved for the remaining journals with <25 vaccine articles for 2006–2010 were then manually inspected to remove inappropriate articles such as non-research articles, studies which did not actually investigate vaccines, purely epidemiological studies, case studies, historical studies, opinion, surveys, etc. A final manual inspection removed journals which publish vaccine studies focusing exclusively or almost exclusively on cancer, AIDS, or veterinarian vaccines.

Additional information on the journal such as focus with respect to infectious disease type (general, viral, non-viral, or diseases primarily affecting tropical or developing countries) and research stage (preclinical or clinical) and abridged aims and scope relevant to vaccine studies were gathered from journal websites. To gain information on AR, time from submission to acceptance, time from acceptance to publication, and open access (OA) status/options, a short questionnaire was sent to an email contact on the journal website. To unify reported time units to half week intervals, months were converted to weeks by multiplying by 4.333, days were converted to weeks by dividing by 7, and numbers were rounded up or down accordingly. When a range was reported, the median of this range was used. If there was no response within 1 month, follow-up telephone calls were made. If these data were not available or journals did not respond or were unwilling to supply the data, this was recorded as NA.

Results and discussion

A total of 2 818 596 original research articles were estimated to have been published in the 5-year period between 2006 and 2010, and, of these, 15 230 (approximately 0.5%) were judged to be vaccine related, as defined by the respective PubMed search algorithms. Table 1 describes the journals which met all of the criteria to be included in further analyses after filtering on the basis of IF, number, and percentage of vaccine-related articles published between 2006 and 2010, and the type of study published. A selection of journals which were considered initially but did not qualify for further analysis are listed in the Appendix.

Thirteen journals published in excess of 100 vaccine-related articles within the 5-year analysis period: *Vaccine* (3122), *Clinical and Vaccine Immunology* (287), *Human Vaccines* (271), *Journal of Infectious Diseases* (270), *PLoS ONE* (241), *Infection and Immunity* (232), *Pediatric Infectious Diseases Journal* (227), *Journal of Virology* (221), *Journal of Immunology* (216), *Pediatrics* (166), *Clinical Infectious Diseases* (120), *PNAS USA* (103), and *Virology* (101).

The top 10 ranked journals with respect to the percentage of vaccine-related articles published (%V) were *Human Vaccines* (77%), *Vaccine* (64%), *Influenza and Other Respiratory Viruses* (23%), *Clinical and Vaccine Immunology* (21%), *Pediatric Infectious Diseases* (18%), *Journal of Infectious Diseases* (12%), *Infection and Immunity* (7%), *Clinical Infectious Diseases* (6%), *FEMS Immunology and Medical Microbiology* (6%), and *Microbes and Infection (6%).*

Four of the top five ranked journals with respect to IF were general medical journals (*New England Journal of Medicine*, *The Lancet*, *Journal of the American Medical Association*, *Lancet Infectious Diseases and the British Medical Journal*), which publish exclusively clinical research and reported very low ARs (5–9%). Most other journals reported ARs between 10 and 35%, with no specific relationship between AR and IF for these journals. A small number of journals reported ARs of 50% or higher.

With respect to the average time required from submission to acceptance, and from acceptance to publication, these ranged from 4 to 24 weeks and <1 to 28 weeks, respectively; there was no clear relationship between IF and times required between submission and acceptance and between acceptance and publication.

The majority of the journals had OA options (i.e. these journals usually require payment from readers but the author can pay a fee upfront for the article to be made freely available online) and a small number were online-only journals which only publish OA articles.

This analysis is intended only as guide and there are a number of limitations to the study. The analysis was not sensitive enough to distinguish between all vaccine-related and non-vaccine studies as demonstrated by the %V score of 77 and 64% for *Human Vaccines* and *Vaccines*, respectively, which only publish vaccine-related studies. Particularly the data provided by the journals with respect to average times between submission and acceptance and between acceptance and publication can only be used as guidelines as these are likely to vary to some extent from year to year and at different times of year, for example, it may be difficult to find reviewers during holiday seasons. In most cases, the length of time required from submission to acceptance will be highly dependent on the quality of the manuscript and the time taken for the authors to complete revisions, should they be required. In addition, direct comparisons between ARs and average times from submission to acceptance/acceptance to publication are difficult to make between journals as in most cases journals did not report how these are calculated; there are likely to be a number of differences in this respect, for example, use of mean or median, definition of submission date and acceptance date, definition of publication date, etc. Finally, this study did not include very new journals which have published too few articles to meet the criteria as defined by the PubMed search algorithm and filter or which do not yet have an IF. As an example, the publishers of *Vaccine* have recently announced that they have launched a new journal, *Trials in Vaccinology*, which, as the name suggests, will be specifically dedicated to the publication of vaccine clinical trials.

In summary, the results of the analysis of journal metrics reveal large differences between journals with respect to the number and proportion of vaccine-related studies, published ARs and reported average times required from submission through to publication. Although the dataset has several caveats, it should prove a useful tool to help authors of manuscripts describing studies of vaccines against human infectious diseases to choose the most appropriate target journal for each submission.

Table 1: Peer-reviewed journals which frequently publish studies of vaccines against human infectious diseases

Journal	Publisher	IF 2010	5 Yr IF	Imm. Index	EF AI	SJR	Cites/ doc	V 06–10	T 06–10	%V 06–10	Disease	Stage	AR (%)	S to A (weeks)	A to P (weeks)[a]	OA[b]	Aims/scope relevant to vaccine studies
NEJM	MMS	53.5	52.4	10.7	19.9	4.01	33.9	59	2839	2.1	G	C	<6	22	11	No	Original clinical research
Lancet	Elsevier	33.6	32.5	10.9	10.9	1.65	14.2	57	2288	2.5	G	C	5	NA	NA	No	Any original contribution that advances or illuminates medical science or practice
JAMA	AMA	30.0	29.3	7.2	11.4	2.06	19.2	25	2111	1.2	G	C	9	7.5	5	No	All subjects that relate to the practice of medicine and the betterment of public health worldwide
[c]**Lancet Inf. Dis**	Elsevier	16.1	15.5	3.4	5.2	1.54	15.0	5	163	3.1	G	C	6	NA	NA	No	Any original research contribution that advocates change in or illuminates infectious disease clinical practice
BMJ	BMA	13.5	11.9	6.8	4.2	0.13	3.6	30	2400	1.3	G	C	7	2.5 (D)	9	Yes	Trials asking an original research question that aids doctors' decisions. Priority given to phase III or IV head-to-head effectiveness trials
PNAS USA	PNAS	9.8	10.6	1.9	4.9	2.24	9.5	103	17 824	0.6	G	P/C	19	3 (D)	4.5	O	Cutting-edge research reports. Biological, physical, and social sciences

Continued

Table 1: *Continued*

Journal	Publisher	IF 2010	5 Yr IF	Imm. Index	EF AI	SJR	Cites/ doc	V 06–10	T 06–10	%V 06–10	Disease	Stage	AR (%)	S to A (weeks)	A to P (weeks)[a]	OA[b]	Aims/scope relevant to vaccine studies
PLoS Pathogens	PLoS	9.1	9.7	1.5	4.1	1.58	7.9	27	1496	1.8	G	P	22	18	7	Yes	Articles that significantly advance the understanding of pathogens and how they interact with their host organisms. Topics include rational vaccine design
Clin Infect Dis	IDSA/ OUP	8.2	7.9	2.5	2.6	0.96	8.2	120	2147	5.6	G	C	10	24	12	O	Prevention of infection, the evaluation of current and novel treatments, and the promotion of optimal practices for diagnosis and treatment
Mol Ther	NPG	7.1	6.5	1.9	2.0	1.04	6.6	56	1192	4.7	G	P/C	<33	14	3	O	Vector development and design, vaccine development, safety/ efficacy studies, and clinical trials
J Inf Dis	IDSA/ OUP	6.3	6.1	1.7	2.1	0.97	6.6	270	2347	11.5	G	P/C	17	16	17	O	Microbiology, immunology, pathogenesis, diagnosis, and treatment of infectious diseases
J Immunol	AAI/ HighWire	5.7	5.9	1.0	2.2	1.57	5.6	216	8965	2.4	G	P/(C)	40	5 (D)	<7.5	No	All areas of experimental immunology
Pediatrics	AAP/ HighWire	5.4	5.9	1.0	1.9	0.51	5.6	166	3621	4.6	G	C	13	4	6	No	Original research in the field of pediatrics, as broadly defined

J Virol	ASM	5.2	5.3	1.3	1.6	1.07	5.2	221	6689	3.3	Vi	P	NA	NA	NA	O	The nature of the viruses, virus–cell interactions, cellular responses to infection, gene delivery, viral pathogenesis and immunity, and vaccines
Eur J Immunol	Wiley	4.9	4.7	1.1	1.9	1.32	4.9	44	1675	2.6	G	P	35	3.5 (D)	1	O	Basic immunology research including, cellular immune response, immunity to infection, molecular immunology, clinical immunology, and new technology
[d]**PLOS Negl Trop Dis**	PLoS	4.8	4.8	0.6	1.7	0.47	4.4	16	696	2.3	T	P/C	47	17	8	Yes	Pathobiology, epidemiology, prevention, treatment, and control of neglected tropical diseases
PLoS ONE	PLoS	4.4	4.6	0.5	1.9	0.81	4.1	241	15 111	1.6	G	P/C	64	14	4.5	Yes	Primary research from any scientific discipline
Infection Immunity	ASM	4.1	4.1	0.9	1.3	0.69	4.2	232	3330	7.0	NV	P	NA	NA	NA	O	Mechanisms of host-pathogen interactions. Development of vaccines against nonviral pathogens
[d]**Influenza Other Resp**	Wiley	3.8	3.3	0.6	0.6	0.34	3.5	31	135	23.0	Vi	P/C	50	12	5	O	Exclusively influenza and other respiratory viruses including prevention by vaccines and clinical studies
Vaccine	Elsevier	3.6	3.5	0.7	0.9	0.45	3.6	3122	4902	63.6	G	P/C	NA	NA	NA	O	All areas of vaccine research, vaccination, and vaccinology

Continued

Table 1: *Continued*

Journal	Publisher	IF 2010	5 Yr IF	Imm. Index	EF AI	SJR	Cites/ doc	V 06–10	T 06–10	%V 06–10	Disease	Stage	AR (%)	S to A (weeks)	A to P (weeks)[a]	OA[b]	Aims/scope relevant to vaccine studies
J Gen Virol	SGM/ HighWire	3.6	3.4	0.9	1.0	0.51	3.4	59	1940	3.0	Vi	P	NA	NA	NA	O	All aspects of viruses, molecular biology and immunology, virus–host interactions
Virology	Elsevier	3.3	3.3	0.8	1.6	0.52	3.3	101	2665	3.8	Vi	P	NA	NA	NA	O	Basic research in all branches of virology, molecular biology of virus multiplication, molecular pathogenesis, molecular aspects of the control and prevention of viral infections
Pediatr Inf Dis J	WKH/ LWW	3.1	3.3	0.7	1.0	0.38	3.3	227	1275	17.8	G	C	20	21.5	28	O	Infectious diseases in children, diagnostic techniques, effective therapies and treatment
J Med Virol	Wiley	2.9	2.7	0.5	0.8	0.35	2.9	41	1351	3.0	Vi	P/C	NA	NA	NA	O	Fundamental and applied research concerning viruses affecting humans. Characterization, diagnosis, epidemiology, immunology and pathogenesis of human virus infections
BMC Infect Dis	BMC	2.8	3.0	0.5	0.9	0.31	2.9	53	1046	5.1	G	C	45	6 (D)	2	Yes	All aspects of the prevention, diagnosis and management of infectious diseases in humans

Microbes Infect	Elsevier	2.7	2.9	0.5	1.0	0.43	3.1	48	880	5.5	G	P	NA	NA	NA	All fields of infection and immunity, in particular vaccine development, including novel strategies and adjuvants
Clin Vaccine Immunol	ASM	2.5	2.6	0.4	0.7	0.31	2.5	287	1339	21.4	G	P/C	NA	NA	<1	O	Understanding the immune response in health and disease. Development of vaccines, human and animal immune responses to vaccines, vaccine vectors, adjuvants
Int J Infect Dis	Elsevier	2.5	2.6	0.3	0.7	0.18	2.1	31	696	4.5	Dev	C	NA	NA	NA	O	Treatment and control of infectious diseases with particular emphasis placed on those diseases that are most common in less-developed countries
Immunol Letters	Elsevier	2.5	2.5	0.4	0.9	0.51	2.4	30	598	5.0	G	P	NA	NA	NA	O	All aspects of molecular and cellular immunology
FEMS Imm Med Microbiol	Blackwell	2.5	2.2	0.4	0.7	0.24	2.8	36	638	5.6	NV	P	35	14	4.5	O	Immunology, medical microbiology and cell biology of infectious diseases and the biochemistry, molecular biology and genetics of pathogen

Continued

Table 1: *Continued*

Journal	Publisher	IF 2010	5 Yr IF	Imm. Index	EF AI	SJR	Cites/ doc	V 06–10	T 06–10	%V 06–10	Disease	Stage	AR (%)	S to A (weeks)	A to P (weeks)[a]	OA[b]	Aims/scope relevant to vaccine studies
Virol J	BMC	2.5	n.a.	0.3	1.0	0.30	2.5	30	959	3.1	Vi	P	70	13	3	Yes	All aspects of virology research including molecular aspects of the control and prevention of viral infections with vaccines and the use of viruses as gene therapy vectors
Am J Trop Med Hyg	ASTMH/ HigWire	2.4	2.9	0.5	0.9	0.31	2.3	49	2003	2.5	T	P/C	50	6 (D)	13	O	Emphasis on tropical medicine, parasitology, immunology, infectious diseases, prevention and control methodologies. Topics include molecular biology of vaccine development
[e]**Hum Vaccines**	Landes	2.0	n/a	0.5	0.8	0.24	2.5	271	350	77.4	G	P/C	NA	NA	NA	O	Bacterial or viral diseases. Therapeutic vaccines, immunotherapeutics

[a]If times were reported for both online and print publication, the shorter is used.
[b]Open access refers to journals which publish all articles online free of charge to all readers worldwide. Optional open access refers to journals which provide open access in exchange for an author fee. Some journals also grant open access to users or institutions in developing countries and/or make selected articles or older articles freely available online.
[c]*Lancet Infectious Diseases* has published original research articles since 2010.
[d]Published since 2007.
[e]From January 2012, Human Vaccines and Immunotherapeutics.
IF, Journal Citations Reports (JCR) impact factor; 5 Yr IF, 5-year JCR impact factor; Imm. Index, JCR immediacy index; EF AI, Eigen Factor Article Influence; SJR, SCImago Journal Rank; Cites/doc, SJR citations per document; V, vaccine-related original research articles; T, total original research articles; %V, percentage of total original research articles which are vaccine-related; AR, acceptance rate; S to A, average time from submission to acceptance (A); D, average time to first decision when time to acceptance not available; A to P, average time from acceptance (A) to publication (P) either online (O) or in print (P); OA, open access; O, optional open access; NA, data not available; UO, unedited proof online only. Disease classification: G, general; Vi, viral; T, tropical; NV, non-viral; Dev, primarily affecting developing countries. Stage: C, clinical; P, pre-clinical.

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Appendix

Selected journals (with 2010 JCR IF) which were included in the initial analysis and which also publish vaccine-related studies but which were omitted from further analyses due to the filter criteria:

Acta Virologica (0.5), *Advances in Experimental Medicine and Biology* (1.4), *AIDS* (6.3), *AIDS Research and Human Retroviruses* (2.1), *American Journal of Infection Control* (3.0), *American Journal of Preventive Medicine* (4.1), *Antiviral Research* (4.4), *Archives of Virology* (2.2), *Biochemical and Biophysical Research Communications* (2.6), *Biologicals* (1.8), *Clinical and Experimental Immunology* (3.1), *Clinical Immunology* (3.9), *Clinical Therapeutics* (2.6), *Emerging Infectious Diseases* (6.9), *Clinical Microbiology and Infection* (4.8), *Epidemiology and Infection* (2.3), *European Journal of Clinical Microbiology and Infectious Diseases* (2.6), *Gene Therapy* (4.5), *Human Gene Therapy* (4.8), *Immunity* (24.2), *Immunobiology* (4.1), *Infection* (2.2), *Journal of Biological Chemistry* (5.3), *Journal of Clinical Immunology* (3.3), *Journal of Clinical Investigation* (14.1), *Journal of Clinical Microbiology* (4.2), *Journal of Experimental Medicine* (14.8), *Journal of Immunotherapy* (3.6), *Journal of Infection* (3.8), *Journal of Medical Microbiology* (2.4), *Journal of Pediatrics* (4.0), *Journal of Translational Medicine* (3.5), *Microbiology and Immunology* (1.2), *Molecular Immunology* (2.9), *Nature* (36.1), *Nature Biotechnology* (31.1), *Nature Medicine* (25.4), *PLoS Medicine* (15.6), *Scandinavian Journal of Immunology* (1.9), *Scandinavian Journal of Infectious Diseases* (1.6), *Science* (31.4), *Vector Borne Zoonotic Diseases* (2.7), *Viral Immunology* (1.9), *Virus Genes* (1.7), *Virus Research* (2.9), *Viruses* (1.0).

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