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## **EDUCATING AUTHORS OF BIOMEDICAL PUBLICATIONS TO THE BENEFITS OF OPEN ACCESS JOURNALS**

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### **Introduction**

The scientific research community worldwide is gradually adopting the Open Access (OA) publishing model in order to gain wide visibility and impact of its research output. The number of OA articles is rapidly increasing together with the awareness of the benefits of this movement considered as a real cost-effective alternative to the traditional publishing model represented by biomedical commercial and learned society publishers of major STM journals.

In spite of the advantages of this new generation of journals (OA journals) some reluctance to support the OA concept still persists among scientific authors. This is mainly due to the lack of or low value of impact factor (IF) of OA journals which leads researchers to consider them as no high quality sources. Some OA journals are however quickly gaining IF and thus they are becoming more "appealing".

Educating scientific authors regarding the benefits of OA is the core purpose of an ongoing initiative aimed at establishing a pilot group of Istituto Superiore di Sanità (ISS, Italian National Institute of Health) researchers supporting the OA paradigm: their activity as starters of an innovative publishing policy is targeted to favouring OA principles among ISS research staff.

The publishing practice of ISS researchers with respect to OA journals is being investigated with the objective to find the best strategy to educate authors and foster this new model of publication that guarantees free access to research results in favour of the entire scientific community.

### **ISS profile and publishing activities**

The Istituto Superiore di Sanità is the leading research organisation in Italy in all fields related to public health. The Library, Documentation and Publishing Units provide the necessary information support services for the Institute's research laboratories and offices. This system makes it possible to promote cooperation between multidisciplinary teams (librarians, documentalists, editors, publishers, health

professionals and researchers) so as to meet user needs and develop appropriate facilities.

The ISS performs a two-fold role as publisher and producer of scientific literature. Scientific knowledge produced by ISS is disseminated through institutional publications available on the Internet through its web site (<http://www.iss.it/>), that is:

*Annali dell'Istituto Superiore di Sanità* (the official quarterly science journal also indexed in Medline; since 2007, all papers submitted for publication in *Annali* must be in English);

*Notiziario dell'Istituto Superiore di Sanità* (a monthly newsletter, in Italian, reporting current information on research and other institutional activities);

*Rapporti and Congressi Istisan* (series of technical reports, in Italian and English) publishing studies, research and technical protocols, conference proceedings and abstracts).

The ISS is of course the copyright owner in all this material.

The ISS research staff (over 700 scientists) publish their findings also on scientific journals (subscription-based journals) issued by traditional commercial publishers. The Institute increasing research output amounts to approximately 1600 publications per year, mostly journal articles. All the publications are indexed in a bibliographic archive – based on a relational SQL/server database – which generates and updates the list of researchers' publications on the ISS web site. Bibliographic items recorded in the database are also included in the annual official report of the ISS activity. All the records stored in this database are processed for gradual migration to the institutional repository based on the free open source software DSpace ([www.dspace.iss.it](http://www.dspace.iss.it)) to be harvested and globally disseminated.

DSpace ISS<sup>1</sup> currently holds about 16,900 items. The bulk of the collection (over 14,300 items) are represented by metadata referring to papers published by ISS researchers on commercial journals, while about 1,600 refer to scientific works published in the series issued by the Institute and are available in full-text dating from 2001 onwards. The other stored material consists of metadata relating to papers produced by partner institutions acting in the public health field in Italy. Their data are periodically sent to the ISS DSpace central repository.

DSpace software is conceived to store research material (text documents), as well as learning objects, in digital repositories so that the whole scientific output produced by a research community may become accessible in an integrated workflow<sup>2</sup>.

## **ISS actions to educate research staff and strengthen OA principles**

Over the last couple of years the ISS research community has been stimulated to consider the benefits of the OA publishing model in order to maximise the impact of their research output. Educating scientific authors is fundamental to develop among researchers the awareness of the importance of OA publishing. Therefore,

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<sup>1</sup> Available from: <http://dspace.iss.it/dspace>. Last visited: 20 April 2007.

<sup>2</sup> An example of multimedia material produced by ISS researchers is shown in Paizis G, Leoni A, Mosello P, Santini E, Della Seta M, Pizzarelli S, Cassone A, Donatelli I. *Avian flu: information provided by means of an audiovisual training programme* (poster presented at the EAHIL Workshop 2007. Pathways to new roles: the education, training and continuing development of the health library & information workforce)

comprehensive educational programs was started, some years ago, with the objective of spreading knowledge of the general concept of OA and develop all possible actions to allow its implementation.

The most relevant actions developed within this program are reported.

#### *Spreading background information on OA concept*

The OA movement can be seen as a “publishing reform” which is upsetting the traditional system of scientific communication<sup>3</sup>. Formal definitions of OA are contained in milestone documents worldwide known as the Budapest OA Initiative, the Bethesda Statement on OA publishing and the Berlin Declaration. According to Alma Swan<sup>4</sup> the basic concept of OA results in the “Provision of free, immediate and permanent access to research results for anyone to use, download, copy and distribute”.

The only constraints on reproduction and distribution are: a) the proper attribution of the author and b) the assurance of the integrity of the work.

Such fundamental information was often ignored or underestimated by the internal research staff and, on any possible occasion, the ISS library and editorial staff has been engaged in providing information and advice.

#### *Developing specific actions to promote the OA paradigm*

An internal survey was carried out in 2005 to identify researchers’ opinions towards the publication and distribution of academic material, following both the traditional and OA models. The Berlin Declaration was signed by the President of ISS in 2006 marking the engagement of our institution towards the adoption of an internal policy defining OA strategies (i.e. the practice of self-archiving scholarly works in the ISS institutional repository).

An international conference on Institutional archives for research was organised at the end of 2006 to share projects and experiences on the establishment of institutional repositories The Proceedings of the Conference showing great interest in these themes, are available on the ISS website<sup>5</sup>.

#### *Training researchers on OA principles*

*Ad hoc* lessons on the advantages of the open access model were included in ongoing educational activities. In particular, the Institute has been carrying out courses on scientific writing where the new publishing models could be better explained to both young and senior researchers to increase their awareness about some crucial aspects of the publishing process (copyright management, journal IF, self-archiving, etc.).

#### *Pushing authors towards self-archiving practice*

A further action was performed to help authors track their literature production. All the scientific works of the ISS researchers have to be authorised by the President of

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<sup>3</sup> The implications of Open Access for the future of academic publishing are efficaciously reviewed in Collins J. The future of academic publishing: what is open access? *J Am Coll Radiol* 2005; 2(4): 321-6.

<sup>4</sup> Swan A. Overview of scholarly communication. In: Jacobs N, editor. *Open access: key strategic, technical and economic aspects*. Oxford: Chandos Publishing, 2006

<sup>5</sup> De Castro P, Poltronieri E (Ed). *Conference Institutional archives for research: experiences and projects in Open Access. Istituto Superiore di Sanità, Rome 30 November -1 December 2006. Proceedings*. Roma: Istituto Superiore di Sanità (Rapporti ISTISAN 07/12) available from <http://www.iss.it/binary/publ/cont/07-12.1183020754.pdf> Last visited July 16, 2007.

the Institute prior to their publication. This internal procedure involves ISS authors since the early phase of submitting a paper for publication. They are required to fill in an electronic form providing all descriptive data of a manuscript (Fig 1).



### *Approaching publishers on copyright matters*<sup>6</sup>

The agenda of actions favouring ISS researchers in their publishing practice includes the matter of intellectual rights. DSpace ISS full-text collections include only published works as scientific papers appeared in print or e-journals and in volumes. Pre-prints and post-prints are at present excluded because archiving pre-publication material still raises problems for both publishers and authors. Authors are generally used to sign over copyright to the publisher as they do not care the legal aspects connected with the use of the work. Our aim, instead, is that of supporting them when dealing with copyright rules by encouraging agreements between authors and publishers. Therefore ISS has prepared an application form to be filled in by authors when applying to publishers for permission to place their papers in the DSpace ISS repository (Fig 2).

### **Publishing on OA/NON OA Journals: preferences of the ISS research staff**

A study aimed at investigating the ISS researchers' attitudes about the choice of the scholarly journals where to publish was recently carried out. The survey focused on articles published over the years 2003-2007 by the research staff of the ISS Department of Infectious, Parasitic and Immuno-mediated Diseases which performs activities at a level of excellence in the field and represents a highly productive branch of ISS in terms of publication rate per year. As regards 2007 data include both published and in-press items counted at the end of June 2007. The papers examined were a selection of those described in the internal bibliographic database which records on a regular basis the overall research output of ISS researchers. Only the articles appeared on ISI Thomson indexed journals were considered in the study. The number of papers appearing on traditional journals during the mentioned time-span was compared with the amount of those published on OA journals over the same period.

The study results showed a prevalent number of research papers published on traditional journals compared with a poor quantity of articles available on OA journals: 34 OA articles against 617 non-OA ones and 9 OA against 221 non-OA ones (Table 1).

**Table 1-** Comparison between OA and non-OA publications produced by the ISS Department of Infectious, Parasitic and Immuno-mediated Diseases during 2003-2007 (January-June).

| Type of Journals | Journals No | Articles No. |
|------------------|-------------|--------------|
| OA               | 9           | 34           |
| Non-OA           | 221         | 617          |
| Total            | 230         | 651          |

<sup>6</sup> An ISS proposal for approaching publishers on copyright matters was described in Poltronieri E, Ferrara R. Free on the Net: accessing digital research output with no barriers. In: *Proceedings of INFORUM 2006: 13<sup>th</sup> Conference on Professional Information Resources*; 2007 May 22-24; Prague; 2007. Available from: <http://www.inforum.cz/pdf/2007/poltronieri-elisabetta.pdf> Last visited 13 July 2007

**DETAILS OF APPLICANT**

Copyright-owner \_\_\_\_\_  
 author  
 person acting on behalf of the author  
(i.e. member of staff in charge of archiving material in the institutional repository of the author's employer institution)

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Author's employer Institution \_\_\_\_\_  
Institution address \_\_\_\_\_

The applicant requests permission to deposit the electronic full-text version of the published document described below in the DSpace ISS institutional repository (www.dspace.iss.it) and undertakes the following:  
- to provide a complete citation of the publication  
- to insert a link to the publisher's web site

**Details of material to be archived**

Author(s) or Corporate name (i.e. Study group/Research group) \_\_\_\_\_  
Title \_\_\_\_\_

Type of publication

Journal article  
Journal title \_\_\_\_\_  
Year \_\_\_\_\_ volume \_\_\_\_\_ issue \_\_\_\_\_ pages \_\_\_\_\_  
URL \_\_\_\_\_  
DOI \_\_\_\_\_

Monograph, book chapter, conference paper, technical report  
Place of publication \_\_\_\_\_  
Publisher \_\_\_\_\_  
Date of publication \_\_\_\_\_  
Pages \_\_\_\_\_  
Total number of pages \_\_\_\_\_  
URL \_\_\_\_\_  
DOI \_\_\_\_\_  
Date \_\_\_\_\_

Applicant's signature \_\_\_\_\_

**REPLY FROM THE PUBLISHER**

Authorisation granted provided that the following conditions are fulfilled:  
\_\_\_\_\_

Allowed format of material to be archived

- PDF
- HTML
- XML
- RTF
- Publisher layout
- Others

Authorisation not granted

Notes \_\_\_\_\_

Date \_\_\_\_\_

Publisher's signature \_\_\_\_\_

Fig 2 - Application form for permission to freely archive published content and reply from the publisher.

On one hand this reveals the strong adhesion of a qualified part of ISS researchers to well established habits oriented to subscription-based journals. On the other hand, the increase, even very low, of OA journals (3 new titles) and OA articles (6 OA papers until June 2007 against 9 throughout all 2006) opens an encouraging perspective towards an innovative trend in the publishing habits of a group of ISS researchers. The results, after all, revealed a gradual but progressive shift of these authors' attitudes towards some OA journals identified as valuable in a specific discipline. Data collected from this analysis seem to suggest that the climate is ripe for fostering researchers to embrace the idea of OA publishing model in order to broaden the exposure to their work in terms of citation impact. Nevertheless the action of spreading the advantage of OA concepts remains a challenging and demanding task as the majority of ISS authors will likely continue to rely on the traditional publishing system.

### **The author's point of view: how to cope with OA perspectives**

The process of knowledge production is a cumulative process. How researchers communicate each other and how they disseminate findings are crucial for the progress of scientific knowledge. It is not a secret that for most areas of research, the single most important and predictive measure of research impact is the impact factor of the journal publishing the study. There is a hierarchy of peer-reviewed journals, from those with the highest quality standards at the top, grading down to the lowest quality journals. The IF of journals are very influential since they are considered as a measure of the importance and uptake of that research and have been used to evaluate the researcher production and its quality, to decide whether or not authors get promoted, or are awarded a grant. In some countries, government funding of entire institutions is dependent on the number of publications in journals with high IF.

However, it is also true that a published research should be weighted not only on the basis of the IF of the journal in which it appears, but also by the impact produced on the scientific community. A paper may have a much higher or lower impact than the average impact of the journal in which it is hosted, being widely cited by other papers. Thus an alternative method to assess the research impact could be based on estimating the true impact of a research by the individual article citations, rather than using the journal IF. The majority of authors are interested in knowing how frequently their articles are accessed online and how frequently their articles are being cited. Since a journal IF is derived from citations to all articles in a journal, this parameter says nothing about how well read and discussed is a particular article and the influence and impact it had within the scientific community, nor of the quality of the work of any individual author.

Authors feel that OA could have a dramatic effect on the extent of a research impact increasing research visibility, by taking full advantage of its accessibility. Articles which benefit of instant free access on the journal site could have higher impact than other articles, being more immediately recognized and cited, thus accelerating the dissemination and uptake of the research findings. Several relevant journals are not entirely free accessible to the general public, but they are available to the vast majority

of their target audience. A journal accessible to its intended audience, with a high profile of the editorial board, attracts excellent articles and will continue to be dominant so that the access by all or most of its intended audience is enough to maintain its prestige.

OA in itself is not automatically associated to more citations because increasing the potential journal readership and enlarging the audience, do not change the fundamental value and relevance of specific articles. OA journals can have impact factors equivalent to other journals but the expansion of potential readership in itself does not necessarily transform the impact of a journal. Scientific authors understand the potential opportunity to maximise the visibility of their research. Yet they are still reluctant to fully adopt the new publishing practice, due to the low value of IF of many OA journals currently available. This leads the researchers consider them as no authoritative sources to place their findings.

On the author's point of view it could be important to reconsider the whole process of paper publication with the hope to gain open access for all post-print articles, including those appearing in relevant traditional journals, as soon as they are accepted for publication. This would mean to improve access to scientific information, since faster and wider access to research results in a better fruition, use and impact of science.

## **Final remarks**

The initiatives undertaken by the ISS and its preliminary experiences in the field of OA have proved both useful and efficient for the institution's internal research staff. A pilot group of researchers declared they would consider positively publishing on OA journals provided that their established habits are not undermined. This implies that subscription journals with high Impact factor values continue to exert a strong appeal on the authors and affect the choice of where to place research results.

Nevertheless, other key factors as the speed with which research output can be made public should be taken into account when deciding where to publish. The instant access to information allowed by the OA publishing model through the web should represent a priority in order to rapidly distribute scientific results. This seems to be much more evident in case of research activities sustained by public funds.

Education still remains a fundamental step to develop awareness and find possible alternatives to traditional publishing models. It would be advisable and useful to monitor the publishing habits of researchers together with their need for rapid and efficient access to publications and adjust education programs in this respect.

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