

Visual abstracts to disseminate research on social media

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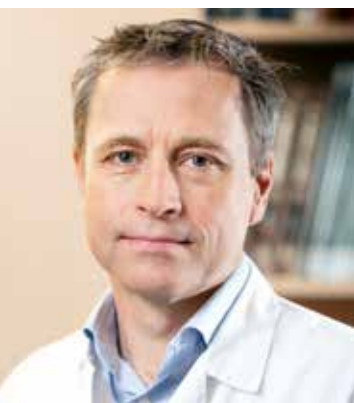
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Dieses Jahr werden zum ersten Mal Visual Abstracts (VA) am SCS-Jahreskongress der Chirurgie verwendet und ersetzen die traditionellen Poster. Dieser Artikel beschreibt, wie VAs am besten gestaltet werden sollten, damit die wissenschaftliche Arbeit optimal präsentiert wird und in Kürze die wichtigsten Resultate und Informationen ersichtlich sind.

Cette année, les Visual Abstracts (VA) seront utilisés pour la première fois au congrès annuel de chirurgie SCS et remplaceront les posters traditionnels. Cet article décrit la meilleure façon de présenter les VAs afin d'optimiser la présentation du travail scientifique et de faire apparaître rapidement les résultats et les informations les plus importants.



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Summary

Social Medias (SoMe) are now part of our daily lives, and they have changed the way scientists communicate and interact. An interesting way to disseminate research is to use visual abstracts (VA). A VA is a graphic summary that captures the main findings of a research. Its attractive design is ideal for sharing on SoMe, thereby allowing authors, journals, and surgical societies to disseminate research and facilitate discussion.

Introduction

Each year around 3 million scientific papers are published, and it becomes more and more difficult for clinicians to keep up-to-date with the scientific literature of their specialty¹. Indeed, a vast majority of articles may never be disseminated, cited or read, other than by the authors, the peer-reviewers and the editor of the accepting journal². In order to improve the dissemination of research, journals and scientists have tried to apply new methods to share knowledge within the scientific community, in an effective and efficient way. One such important innovation has been the introduction of the visual abstract (VA). In our digitalized world, it seemed obvious that the best mean to share VAs was to use social medias (SoMe). SoMe have remarkably changed how people communicate in the medical field. They provided numerous modalities through which professionals have been able to present and exchange scientific information through virtual communities and platforms³.

This review focuses on VAs, their structure and role within research dissemination, and summarizes their limitations and future directions need. In addition, a stepwise approach for preparing a good quality VA is suggested.

What is a visual abstract?

The first VA was introduced in July of 2016 by Andrew Ibrahim, the Creative Director of Annals of Surgery, via social media using the hashtag #VisualAbstract⁴. Since then, numerous journals and institutions have adopted its use in their SoME strategy to disseminate scientific research. A VA in an infographic style format, coupled with a shortened, limited word summary detailing the key question, methodology, findings and take home message of the research study¹. This process allows to transform scientific information into an attractive graphic format that can be distributed promptly in SoMe, with the aim to allow rapid visualization, interpretation, and

retention³. Such image-focused summaries provide scientists with a snapshot of current research findings¹. It has been shown that VAs improve memorability in comparison to verbal representation, and leads to the enhancement of cognition by means of visual thinking⁵. Furthermore, it may persuade the viewer to examine the research in greater depth by retrieving the full article, depending on research interests.

How to create a visual abstract?

There is variation in the layout and structure of VAs currently shared on SoMe. Guidelines to standardise VAs for scientific research have been published and used regularly in the literature⁴. A majority of journals now provide their own guidelines to help standardise the design before submission. There are however some general concepts that can be recommended for the preparation of a good article. Table 1 summarizes the steps to follow in preparing VA, with some tips and tricks.

Visual abstract structure

Microsoft PowerPoint is the preferred tool to create VAs, and recommended by most journals, as it is the most widespread and easy to use tool. In order to have a VA that is easy to read and understand, it is essential to condense information and represent it logically and coherently into three main sections encompassing the methods, the main findings and conclusions of the research study¹. Most articles have many findings or outcomes, but the VA should focus on the primary findings of the article, between one to three. Short comparative sentences can be included, but numeric values should be provided for each of the findings (values, units, statistical significance). The aim is also to allow readers to interpret the findings themselves.

Not all scientists are artists, and complicated illustrative software or extensive graphics skills are not required. It only requires a minimum of creativity, with the help of co-authors, possibly more comfortable in representing results using visual icons. For ease of reading, the VA should have a clear start and end, preferably from left to right. The authors should try to reduce distracting elements and remove details as much as possible, and it is recommended to avoid including all of the study's findings, while avoiding oversimplification at the same time. A rule of thumb is to prioritise the content included in the abstract of the main article, as this is what have

deemed most important. It is also important that the findings does not deviate from that contained in the original article. An example of a VA and a description of its different components is proposed in Fig. 1.

Research dissemination

VAs can be shared and widely disseminated using SoMe platforms such as Twitter, Facebook, LinkedIn and Research Gate. Most are accompanied by a link that provides access to a link to download the full article. Indeed, one study showed that the release of a research article in SoMe increased the number of people who view or download that article⁶. A survey showed that healthcare professionals had a preference for VAs rather than conventional written abstracts when communicating via SoMe, insofar as they allow for a quicker, more efficient read and that they were also more likely to facilitate long-term, factual retention^{1, 7}. The effectiveness of adding a VA as a research dissemination strategy has also been demonstrated in several studies. A first prospective study found that there was a 8-fold increase in the number of retweets, and a 3-fold increase in the number of article visits when the article was tweeted with a VA compared with a title alone⁹. This was confirmed by other prospective studies, thus adding evidence that VAs have an impact in increasing the SoMe presence of an article, particularly through Twitter^{3, 9, 10}.

Although VAs have become popular primarily through SoMe, its format can be adopted for other forms of research dissemination

such as poster presentations at academic meetings and conferences. During the Swiss College of Surgeons (SCS) Annual Meeting 2023, VAs will make their appearance by means of printed poster, thereby permitting presenters to engage in interactive discussion with interested participants.

Limitations

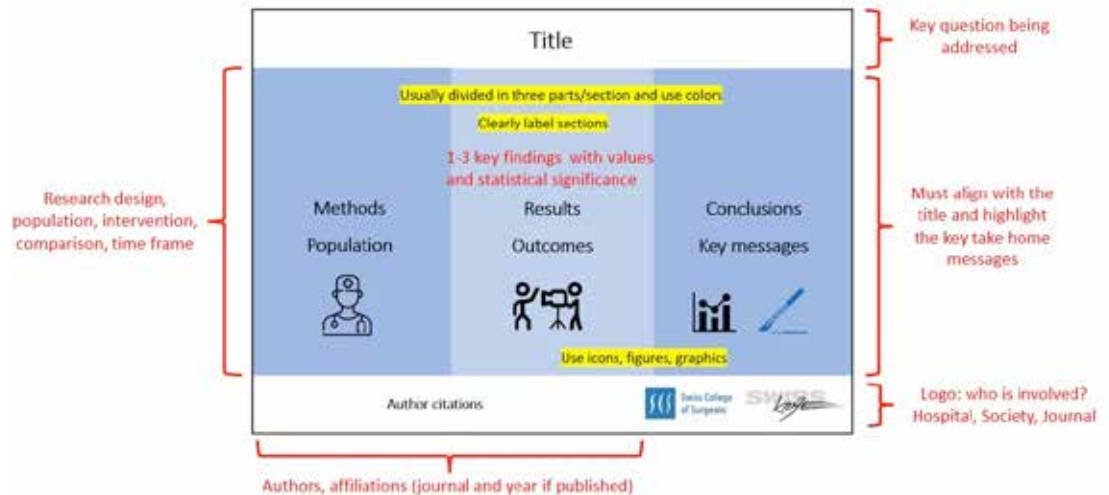
It has been suggested that if research findings are presented in a over simplified manner in a VA, the outcomes could be potentially misleading with respect to the strength and significance of the study¹. In addition, due to space limitations, authors may only focus on the positive findings of the study and omit non-significant or negative results, thus introducing bias. It is important to note that the VA is not meant to replace the full-text article, but serves to generate reader interest. Indeed, because a good VA can provide an adequate summary of a study, readers may opt not to read the full article, thinking that the overview provided by the VA is sufficient³. Although tempting, especially when VAs are widely distributed, this systematic practice should be discouraged.

Anyone can create a VA, even a third party without scientific dedicated knowledge. In these cases, the VAs may be more susceptible to inaccuracies, bias, or misrepresentation of the data being presented³. It is therefore absolutely essential to maintain a high level of quality control within the editorial teams of the journals which offer the possibility of disseminating a VA.

Table 1. Steps to create a visual abstract

<p>1. Read your study and identify the following points</p> <hr/> <ul style="list-style-type: none"> • Study design: retrospective, randomized controlled trial, case-control study • Population: number of patients (N), key characteristics, inclusion/exclusion criteria • Intervention or investigated condition, comparison • Outcomes/Results (1-3 key points)
<p>2. Prepare the visual abstract</p> <hr/> <ul style="list-style-type: none"> • Use a program (easy to use: Microsoft Powerpoint). • Some journals or conferences provide a basic VA template (check before you start), but they may allow room for creativity and adaptation. • Divide the VA into sections: title, methods/population, outcomes/results, conclusions. • Add the pertinent data for each of the sections, and avoid excessive detail (keep text to a minimum). • Include the author citations and journal logo. • Exclude trade names, logos, or images of trademarked items.
<p>3. Visual Display</p> <hr/> <ul style="list-style-type: none"> • Use one Font (Times/Arial/Calibri) and avoid underlining (can be confusing with hyperlinks). • Choose the slide color scheme. • One icon should be used to illustrate one key point. • Icons used should be free of copyright restrictions (e. g. of free icons available: https://pixabay.com, https://www.flaticon.com).
<p>4. General rules</p> <hr/> <ul style="list-style-type: none"> • The visual abstract should be a true reflection of the manuscript content and they should not be used to promote authors' promotion which could impact on research groups' credibility (1, 5). • Ensure the reader is oriented and directed to follow the flow of information. • Before submitting, share your visual abstract with your professional or private entourage to get feedback.

Figures 1. Visual abstract and its different components



Future prospects

The format of VAs continues to evolve, hence there is room for flexibility and innovation in their design¹. Several journals now offer to submit a VA at the time of article submission, with the aim of distributing it within SoMe if the paper is accepted for publication. It is thus possible to combine article and VA in a more systematic way, but it remains to be seen whether it will replace the traditional 250-word abstract in the future. Furthermore, dedicated editors have been appointed to create or review the visual abstracts³.

Live VAs coupled with tweeting have also appeared at congresses to promote the main findings and key messages from presentations to a wider audience⁴. This approach can encourage discussion online and enhance medical education. VAs can also be incorporated into speakers' slide decks during live presentation. Another way to use VAs, and which did not seem to be a motivation for their creation initially, is its diffusion during a journal club, whether in person or virtually. They are used to draw attention to the article and the journal club by making it more playful and attractive^{3, 4, 11}. Indeed, VAs may provide a quick summary to the participants who were unable to read the article before the meeting, and complex methodologies can be understood more easily.

An essential point that remains to be elucidated is who will create the VAs in the future. This can be the request of the authors, or be presented to them as an option when submitting an article. Alternatively, a journal can form a team of VAs editors who can create visual abstracts for articles that have been accepted for publication, or improve VAs submitted by authors³. Regardless of how a journal chooses to implement the use and dissemination of VAs, there must be opportunities for improvement, and feedbacks should be collected in order to make changes and maintain the quality of published research.

Finally, because of the exponential number of VAs, it will be important to create repositories and dedicated websites to organize and collect them⁸. This would allow easier access, by surgical specialties and areas of interest for example.

Conclusions

Visual abstracts are innovative tools with high potential for knowledge dissemination in the scientific community. It is however important to keep in mind that a VA is not a substitute for reading the full article and should not be used as the sole information for drawing findings from research. Standardized guidelines for the creation and diffusion of VAs are needed to maintain scientific rigor.

References

1. Millar BC, Lim M. The Role of Visual Abstracts in the Dissemination of Medical Research. *Ulster Med J.* 2022;91(2):67-78
2. Henriksen D MP. Innovations in the dissemination of action research: Rhetoric, media, and communication. CA M, editor: Medford: John Wiley & Sons; 2019
3. Ramos E, Concepcion BP. Visual Abstracts: Redesigning the Landscape of Research Dissemination. *Semin Nephrol.* 2020;40(3):291-7
4. Ibrahim AM. Seeing is Believing: Using Visual Abstracts to Disseminate Scientific Research. *Am J Gastroenterol.* 2018;113(4):459-61
5. Nayak S, Iwasa JH. Preparing scientists for a visual future: Visualization is a powerful tool for research and communication but requires training and support. *EMBO Rep.* 2019;20(11):e49347
6. Allen HG, Stanton TR, Di Pietro F, Moseley GL. Social media release increases dissemination of original articles in the clinical pain sciences. *PLoS One.* 2013;8(7):e68914
7. Turck CJ SM, Tremblay SR, Sachse SL. Preliminary study of health care professionals' preferences for infographics versus conventional abstracts for communicating the results of clinical research. *J Contin Educ Health Prof.* 2014;34(S1):S36-S8
8. Ibrahim AM, Lillemo KD, Klingensmith ME, Dimick JB. Visual Abstracts to Disseminate Research on Social Media: A Prospective, Case-control Crossover Study. *Ann Surg.* 2017;266(6):e46-e8
9. Lindquist LA, Ramirez-Zohfeld V. Visual Abstracts to Disseminate Geriatrics Research Through Social Media. *J Am Geriatr Soc.* 2019;67(6):1128-31
10. Koo K, Aro T, Pierorazio PM. Impact of Social Media Visual Abstracts on Research Engagement and Dissemination in Urology. *J Urol.* 2019;202(5):875-7
11. Colbert GB, Topf J, Jhaveri KD, Oates T, Rheault MN, Shah S, et al. The Social Media Revolution in Nephrology Education. *Kidney Int Rep.* 2018;3(3):519-29

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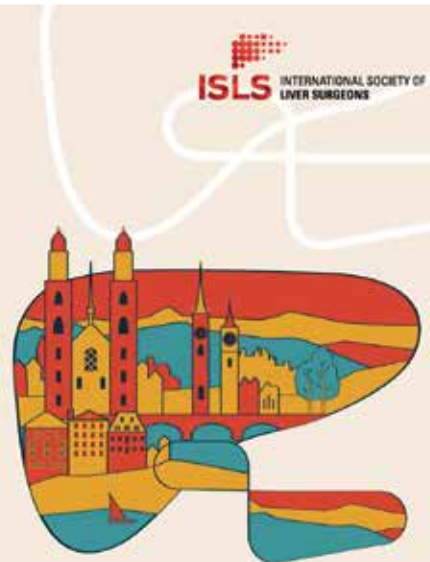
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ISLS 2023 ZÜRICH

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Dear colleagues and friends,

It is our great pleasure and honor to welcome you to the **5th Congress of International Advanced HBP Surgery (ISLS 2023)** on behalf of the International Society of Liver Surgeons to be held from October 18 (Wed)–21 (Sat), 2023 at Kongresshaus Zurich, Switzerland.

Following the success of our previous symposiums, ISLS has continued to grow both quantitatively and qualitatively, and decided to shift from an annual symposium to a biennial congress. Therefore, the regular meeting has been officially renamed as the „Congress of International Advanced HBP Surgery“ starting from the Zurich meeting.

We are preparing a comprehensive and exciting scientific program covering a wide range of hot topics, new advancements, and latest findings in the field of liver and HBP surgery for the upcoming congress including live demonstrations, video sessions,

and freepaper presentation sessions. The congress will provide all participants not only with a great opportunity to hear renowned speakers and delegates, but also share their thoughts and ideas with the world's experts in person after the long break caused by the global Covid-19 pandemic.

We believe that you will enjoy your participation in the congress not only from a scientific point of view, but also from the variety of natural, cultural, and entertainment possibilities and experiences that Zurich has to offer.

We will devote our utmost effort to prepare a most meaningful and enjoyable congress, and hope to welcome you in Zurich in October 2023!

Yours sincerely,
Henrik Petrowsky, M.D., FEBS, FACS
Congress President, ISLS 2023
Professor, University Hospital Zurich, Switzerland

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