Abstract 및 Graphical Abstract

김창수

YMJ Editor-in-Chief

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초록의 작성

- Short summary of completed research
- Description of research without going into detail
- Abstracts should be;
  - **Self-contained** and concise
  - Explaining your work as briefly and clearly as possible

Abstract format: Structured Vs. Unstructured

Deaths due to overdose and suicide together comprise an urgent public health challenge. Using VHA electronic health records, we identified patients with high-risk Emergency Department (ED) visits related to suicidality or overdose between January 2010–September 2019 using diagnostic codes from the *International Classification of Diseases.* We calculated standardized mortality ratios (SMR) for 90-day all-cause and cause-specific mortality associated with high-risk VHA ED visits compared with other VHA ED users, all VHA users, and the US general population. Among 20,382,060 ED visits from 3,705,984 unique Veterans, we identified 318,950 high-risk ED visits. The 90-day all-cause mortality rate among Veterans with high-risk ED visits was 2.81 times the expected rate (95%CI:2.72, 2.92) for other VHA ED users after adjusting for sex, race, and age. Rates remained elevated compared to all VHA users and the US general population. By race, mortality rates were markedly elevated among veterans identified as Asian or Pacific Islander (SMR=3.50, 95%CI:2.86,4.24) compared to other VHA ED users. The 90-day cause-specific SMRs were most pronounced for suicide, overdose, and accidents or unintentional self-harm. These results suggest that high-risk ED visits should trigger assertive, continued mental health care directed at reducing acute mortality through structured suicide prevention programs.

(American Journal of Epidemiology)

Importance Metformin and glyburide monotherapy are used as alternatives to insulin in managing gestational diabetes. Whether a sequential strategy of these oral agents results in noninferior perinatal outcomes compared with insulin alone is unknown.

Objective To test whether a treatment strategy of oral glucose-lowering agents is noninferior to insulin for prevention of large-for-gestational-age infants.

Design, Setting, and Participants Randomized, open-label noninferiority trial conducted at 25 Dutch centers from June 2016 to November 2022 with follow-up completed in May 2023. The study enrolled 820 individuals with gestational diabetes and singleton pregnancies between 16 and 34 weeks of gestation who had insufficient glycemic control after 2 weeks of dietary changes (defined as fasting glucose >95 mg/dL [>5.3 mmol/L], 1-hour postprandial glucose >140 mg/dL [>7.8 mmol/L], or 2-hour postprandial glucose >120 mg/dL [>6.7 mmol/L], measured by capillary glucose self-testing).

Interventions Participants were randomly assigned to receive metformin (initiated at a dose of 500 mg once daily and increased every 3 days to 1000 mg twice daily or highest level tolerated; n = 409) or insulin (prescribed according to local practice; n = 411). Glyburide was added to metformin, and then insulin substituted for glyburide, if needed, to achieve glucose targets.

Main Outcomes and Measures The primary outcome was the between-group difference in the percentage of infants born large for gestational age (birth weight >90th percentile based on gestational age and sex). Secondary outcomes included maternal hypoglycemia, cesarean delivery, pregnancy-induced hypertension, preeclampsia, maternal weight gain, preterm delivery, birth injury, neonatal hypoglycemia, neonatal hyperbilirubinemia, and neonatal intensive care unit admission.

Results Among 820 participants, the mean age was 33.2 (SD, 4.7) years). In participants randomized to oral agents, 79% (n = 320) maintained glycemic control without insulin. With oral agents, 23.9% of infants (n = 97) were large for gestational age vs 19.9% (n = 79) with insulin (absolute risk difference, 4.0%; 95% CI, −1.7% to 9.8%; *P* = .09 for noninferiority), with the confidence interval of the risk difference exceeding the absolute noninferiority margin of 8%. Maternal hypoglycemia was reported in 20.9% with oral glucose-lowering agents and 10.9% with insulin (absolute risk difference, 10.0%; 95% CI, 3.7%-21.2%). All other secondary outcomes did not differ between groups.

Conclusions and Relevance Treatment of gestational diabetes with metformin and additional glyburide, if needed, did not meet criteria for noninferiority compared with insulin with respect to the proportion of infants born large for gestational age.

(JAMA)

Abstract : ICMJE

- Structured abstract: OA, SR, and meta-analyses
- Abstract should state;
  - Study's purpose, basic procedures (selection of study participants, settings, measurements, analytical methods)
  - Main findings (giving specific effect sizes and their statistical and clinical significance, if possible), and principal conclusions.
  - Emphasize new and important aspects of the study or observations
  - Important limitations
  - Overinterpret findings (X)

Abstract의 중요성

- Context or background for the study
- The only substantive portion of the article indexed in many electronic databases. The only portion many readers read.
- Authors need to ensure that they accurately reflect the content of the article. Unfortunately, information in abstracts often differs from that in the text.
- **The clinical trial registration number at the end of the abstract.**
  - The ICMJE also recommends that, when a registration number is available, authors list that number the first time they use a trial acronym to refer to the trial they are reporting or to other trials that they mention in the manuscript.
  - If the data have been deposited in a public repository and/or are being used in a secondary analysis, authors should state at the end of the abstract the unique, persistent data set identifier, repository name and number.

Graphical (or Visual) Abstract : History

Leading Edge

Editorial

Cell

2010: A Publishing Odyssey

With this first issue of the year, *Cell* launches a new format for online presentation of all research articles. This "Article of the Future" initiative reflects our commitment to evolve the concept of a scientific publication in step with the development of new technologies and functionalities both now and into the future.

The first print issue of *Cell* in 1974 established a highly recognizable format and presentation, and this *Cell* "look" has remained largely unchanged in the intervening years. The transition to online publishing in the mid-1990s brought many new opportunities for scientific journals. It revolutionized searchability and information discovery, dramatically increased the breadth and ease of access, and allowed for the inclusion and distribution of online supplemental materials such as movies and large datasets that could not be captured in print. In addition, many journals, *Cell* among them, took advantage of online technologies to add new functionalities around the core article, including commenting features and related citations links. But few have tackled the issue of how best to bring the powers of the new technologies to bear on the structure, organization, and presentation of the article itself. Thus, for most journals the online article of today remains essentially an electronic facsimile of the traditional print article.

Over the past year, *Cell* has taken this challenge to heart. In conjunction with our authors and readers, we have worked to develop an online format that breaks free from the restraints of paper and allows each reader to create a personalized path through the article's content based on his or her own interests and needs. Underlying the "Article of the Future" is a new approach to structuring the traditional sections of the article, moving away from a strictly linear organization required by print toward a more integrated and linked structure. Tabbed and hyperlinked navigation through the Introduction, Results, Figures, Experimental Procedures, and Discussion allows subject-area experts to quickly access in-depth information on a particular experiment while providing more general readers an opportunity to absorb the conceptual insights without being overwhelmed by additional details.

Within this overall architecture are a number of exciting functionalities. For example, the Data tab, a film strip of thumbnails for all of the figures in the paper (including supplemental figures), allows a reader to rapidly scan through the data and then connect from an individual figure to the related textual discussion of the findings. The Results tab lets the reader view a zoomable figure, the legend, and associated Results text easily on a single screen. Highlights and a Graphical Abstract on the landing page of each article complement the traditional Summary text and promote article browsing by creating a visual summary and bullet points that easily convey the main take-home message of the paper. And the online display fully integrates supplemental information including multimedia content within the context of the main article and facilitates more fluid navigation between the two. Of course if you prefer to read the classic version, it remains accessible as a printable PDF with options to view and print either the core paper or the core paper plus supplemental information.

As with any new initiative, moving a concept through an experimental prototype to a fully scaleable production version takes the collaborative efforts of many. We would like to thank the readers who provided valuable, constructive, and encouraging feedback on the prototypes and the authors in the first few issues of this year for their enthusiasm and forbearance in working with us to bring this new format to fruition. We are tremendously excited by the new opportunities that the "Article of the Future" initiative brings to our authors and readers, and as the name implies, we seek to continually evolve and improve how our articles are presented online to best serve the needs of the scientific community. So we invite you to fully explore the HTML versions of the articles in this issue and welcome your feedback at article2010@cell.com. Best wishes for a happy, healthy, and productive new year from everyone at Cell!

Emilie Marcus

Marcus, E. *Cell* **140,** 9 (2010)

The art of abstracts

Including pictorial summaries of each article on the table-of-contents p
that little bit easier to browse — rather than search — the scientific lite

The concept of a graphical abstract — a visual summary of a scientific paper that appears on a journal's table of contents (TOC) — will probably be familiar to most of the readers of this Editorial. Such images are commonplace in both the print and online TOC pages of many chemistry journals. In other disciplines, however, the graphical abstract is a much rarer phenomenon.

Consider, for example, the *Nature* journals — only *Nature Chemical Biology* and *Nature Chemistry* feature graphical abstracts. The other journals typically adorn the print/PDF versions of their TOC pages with eye-catching images associated with just a few of the papers in any given issue, but these pictures are there more for reasons of page design than anything else — after all, they are nowhere to be found in the online TOCs. Similarly, looking further afield at high-profile journals such as *Science* and *PNAS* also reveals a lack of graphical abstracts. It seems that outside of chemistry-specific publications, online TOC pages consist of row-upon-row of text — titles, author lists, publication dates and links.

With scientific publishers constantly striving to make the most of web technologies in their effort to present scholarly articles in new and innovative ways to their readers, the graphical abstract might be about to go mainstream. The Editorial in the first issue of *Cell* in 2010 announced[1] their 'Article of the Future' concept, describing changes in how research articles would be presented online — and this included the introduction of graphical abstracts. Other journals are also getting in on the act and there have been some positive responses[2,3] in the blogosphere.

Far from being driven by the rise of the internet and the opportunities it affords more formal — and somewhat staid — unchanging covers for many years and took their time to catch up with these publishing innovations, in what was (and some would say still is) a conservative industry.

Tetrahedron Letters introduced graphical abstracts in 1986, back in the days when articles could be published in English, French or German, and a large part of the front cover of the journal was devoted to the text-only version of the TOC. It wasn't until 1994 that graphical abstracts graced the pages of *Chemical Communications*, and readers of the *Journal of the American Chemical Society* (*JACS*) had to wait until 2002 before being presented with them.

A graphical abstract should be eye-catching and relatively simple to interpret.

Perhaps it is no surprise that chemistry embraced the graphical abstract so ardently — and did so before many other fields — because it is such a visual subject. In particular, much of chemistry, especially the organic and inorganic sub-disciplines, relates to structure. Taking just one example, the total synthesis of a natural product can come alive through an illustration of the target compound and some of the key intermediates; compare that with a 15-word title and a 100-or-so-word abstract trying to describe the same thing. In fact, depending on the complexity of the natural product in question, it might take most of those 100 words to just adequately describe its structure. In some cases a picture really is worth 1,000 words.

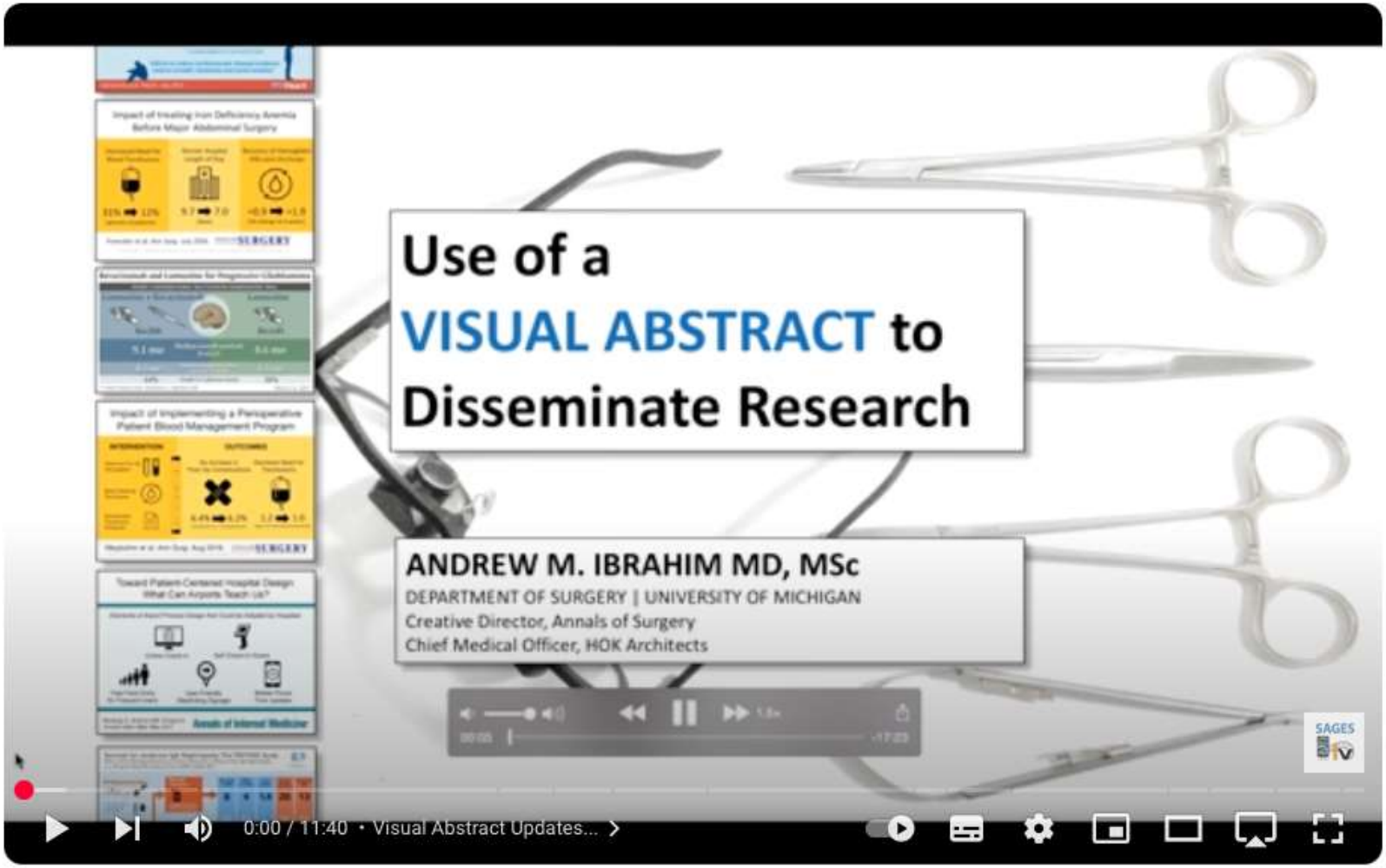
The art of abstracts. *Nature Chem* 3, 571 (2011)

Graphical (or Visual) Abstract

- **CDC**
  - ✓ Visual summary of the key findings of an article.
  - ✓ The most essential points in a shorter format
  - ✓ Generate reader interest.

  - ❖ Compared to text-only tweets promoting a published article, tweets with a visual abstract had **7-fold higher impressions, 8-fold higher retweets, and nearly 3-fold higher article visits** on the publisher website (Ibrahim AM et al., Ann Surg 2017)

- **Elsevier**
  - It could either be the concluding figure from the article or better still a figure that is specially designed for the purpose, which captures the content of the article for readers at a single glance



How To Make A Visual Abstract from Andrew Ibrahim MD

SAGES - Minimally Invasive Surgery Videos
구독자 9.48만명

구독 | 195 | 공유 | 저장 | ⋯

출처 미국 공인 의료 서비스 교육기관
National Academy of Medicine(미국 의학 한림원) 저널에서 전문가들이 보건 정보 출처를 어떻게 정의했는지 알아보세요.

Why do you need a Graphical Abstract

- A graphical abstract gives VISIBILITY
  - ✓ It is like an advert for your paper
  - ✓ It offers a way in to discover your research
  - ✓ It is a way to spark curiosity
  - ✓ It improves the social reach of new scientific publications
  - ✓ It helps to widen the impact of your research

- A graphical abstract creates a unique OPPORTUNITY
  - ✓ to stand out from the crowd
  - ✓ to help readers identify relevant papers
  - ✓ to effectively communicate science
  - ✓ to contribute to the advancement of science

European Heart Journal

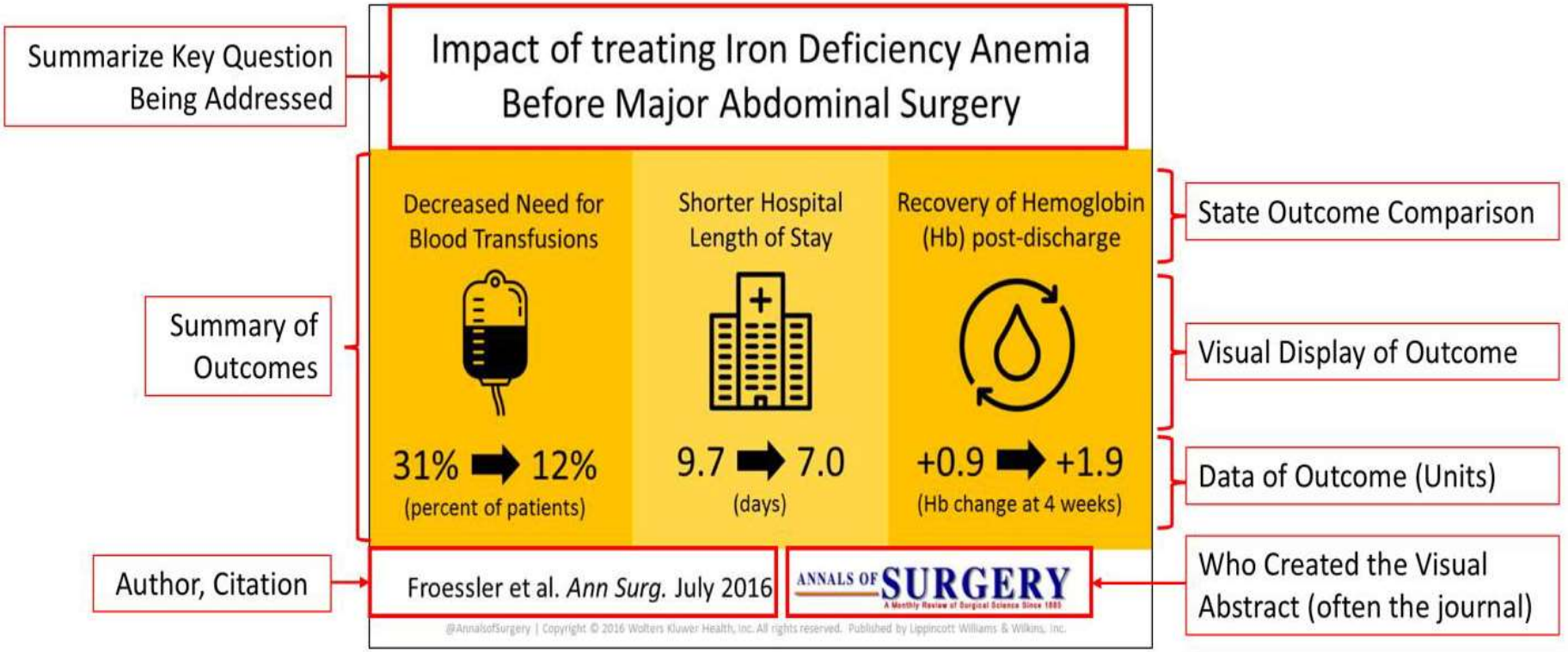
Graphical Abstract의 필수 요소

- A graphical abstract should:
  - ✓ Be a newly designed and unique figure
  - ✓ Have a clear start and end, preferably "reading" from top-to-bottom or left-to-right
  - ✓ Summarize the main message of the manuscript focusing on the new findings of the research
  - ✓ Not include excess details from published literature or conclusions/data that are more speculative

European Heart Journal

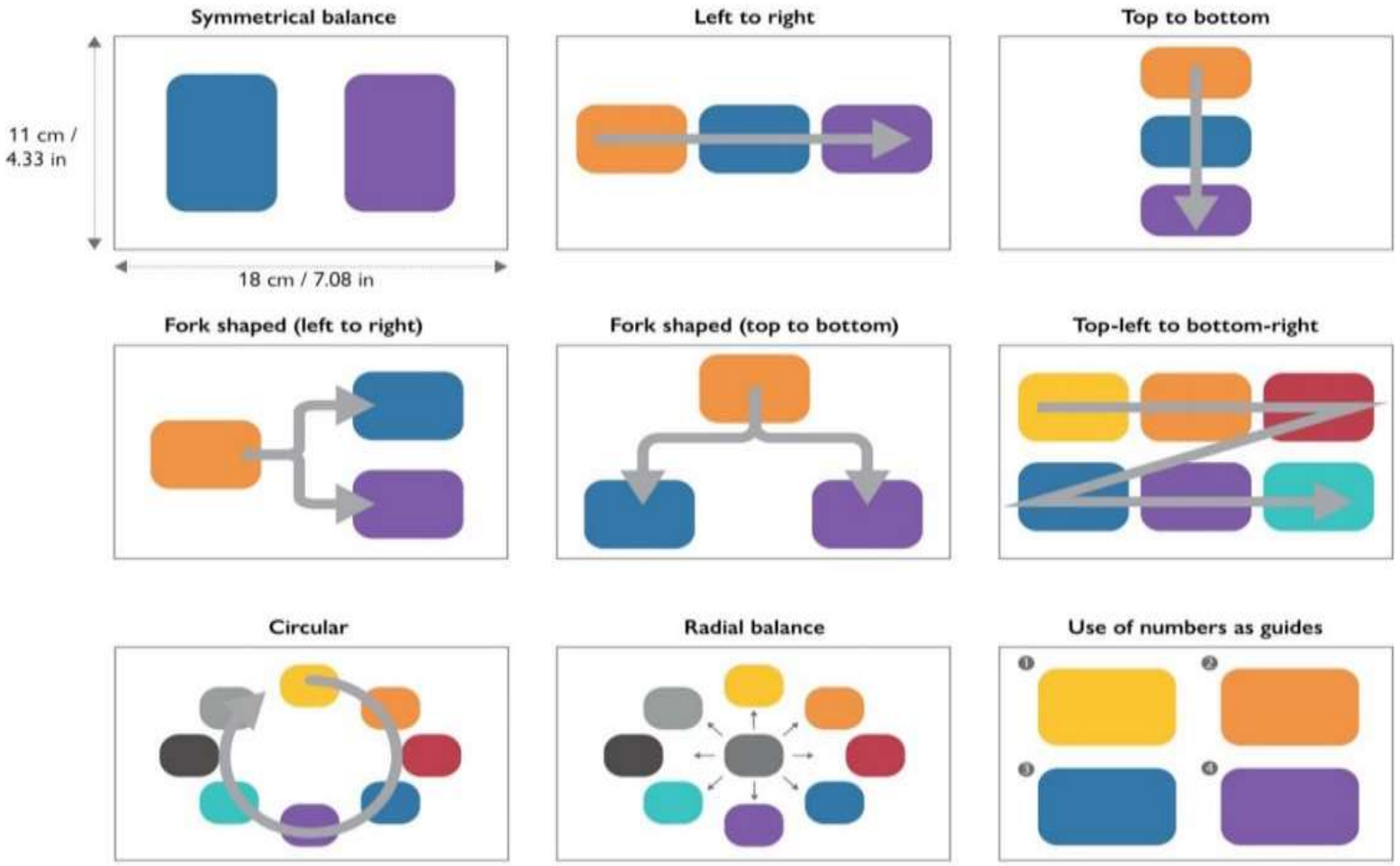
Components of an Effective Graphical Abstract

" Visual summary of the information contained in the abstract."



Andrew M. Ibrahim. Use of a VISUAL ABSTRACT to Disseminate Scientific Research. 2018

Graphical Abstract: Design



European Heart Journal

Introduce the context of your research or make your first point here

Here is where you showcase your methodology or make the second point

Finally this panel is for explaining the main outcome of your work or hosting the third point

Elsevier Author Team

Tancock, C.M., University of Oxford

elsevier.com/authors/tools-and-resources/graphical-abstract

Steps in Creating a Graphical Abstract

1. Select the article
2. Read the article and identify the following:
   a. What is the study design? Retrospective cohort? Randomized controlled trial? Case-control study?
   b. Describe the cohort. The N, key characteristics, inclusion/exclusion criteria
   c. What is the intervention?
   d. What are the outcomes? Primary outcome and noteworthy secondary outcomes
3. Build the slide
   a. Use a program such as Microsoft Powerpoint (Microsoft Corp, Redmond, WA) or Keynote (Apple Inc, Cupertino, CA)
   b. Divide slide into sections: title, methods/cohort, results, conclusions
   c. Choose the slide color scheme and add colored panels
   d. Choose icons for each of the key components of the study: the cohort, the intervention, the outcomes; use an image repository such as Noun Project (thenounproject.com) or Iconfinder (iconfinder.com) as the source for icons; ensure copyright permission has been obtained
   e. Add the pertinent data for each of the sections using text boxes; pay attention to alignment and justification
   f. Include the citation of the article
4. Share the draft with others to get feedback
5. Save the final version as a picture image

Ramos E, Concepcion BP. Visual Abstracts. *Semin Nephrol*. 2020 May;40(3):291-297

G – Get to know your audience

R – Restrict use of colours

A – Align elements

P – Prioritise parts

H – Highlight the heading

I – Invest in imagery (wisely)

C – Choose charts carefully

Stones, C. & Gent, M. The 7G.R.A.P.H.I.C. Principles of public health infographic design. 1–44 (2015).

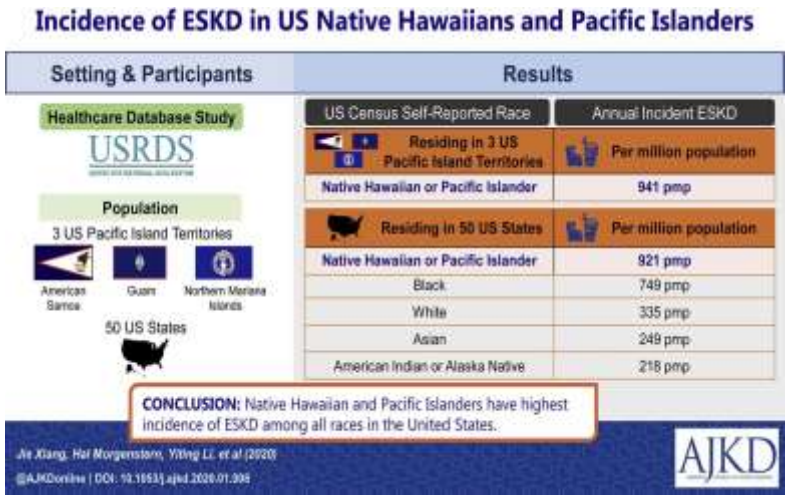
Graphical Abstract: Do and Don't

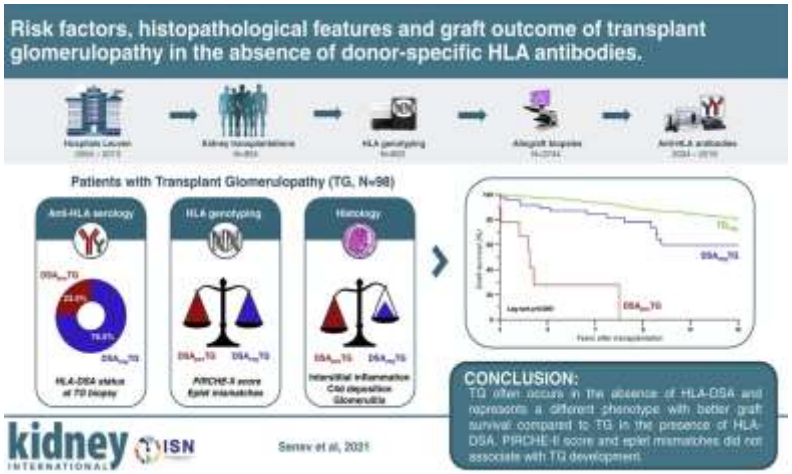
- Do
  - ✓ Remove details without changing the conclusions
  - ✓ Draw the narrowest, most limited, conclusions from the data
  - ✓ Use easy-to-read and appropriately sized font
  - ✓ Use the journal's template, if applicable
  - ✓ Save the image in high resolution
  - ✓ Ask for feedback from others
  - ✓ Include the visual abstract creator's name and Twitter handle

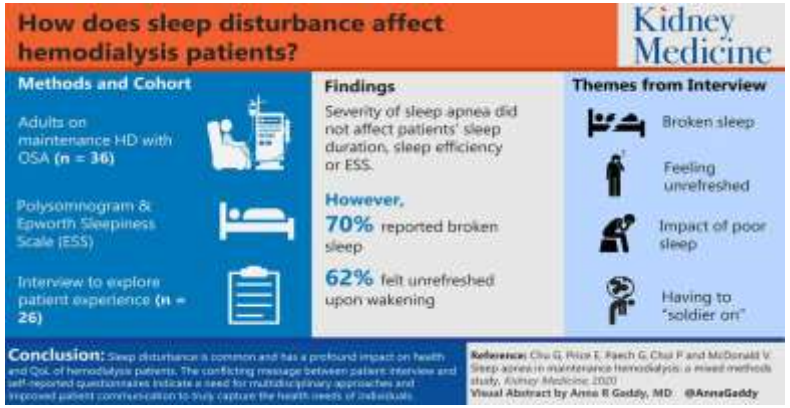
- Don't
  - ✓ Use icons or graphics without permission or user rights
  - ✓ Attempt to include all of the study's findings
  - ✓ Add an interpretation of the study's findings
  - ✓ Use the journal's logo if the visual abstract is not sponsored by the journal

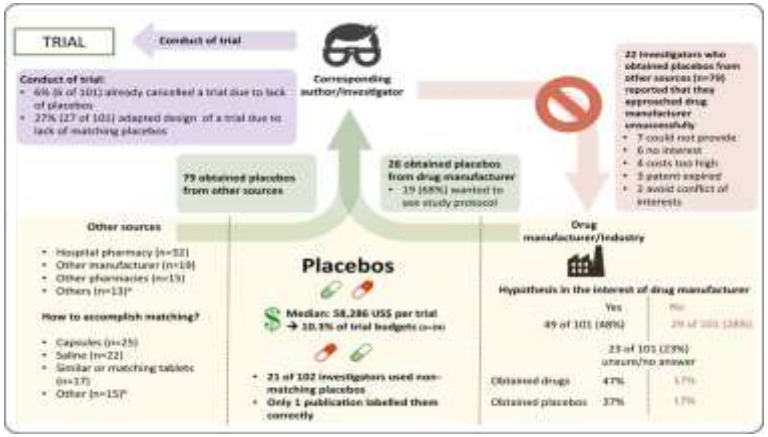
Ramos E, Concepcion BP. Visual Abstracts. *Semin Nephrol*. 2020 May;40(3):291-297

Examples of Graphical Summary



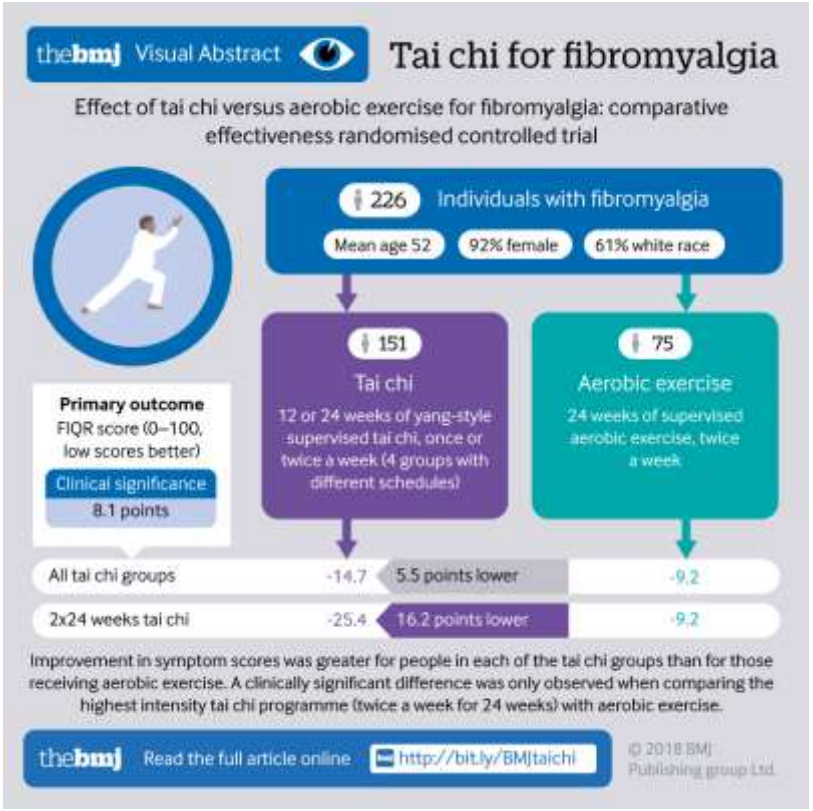




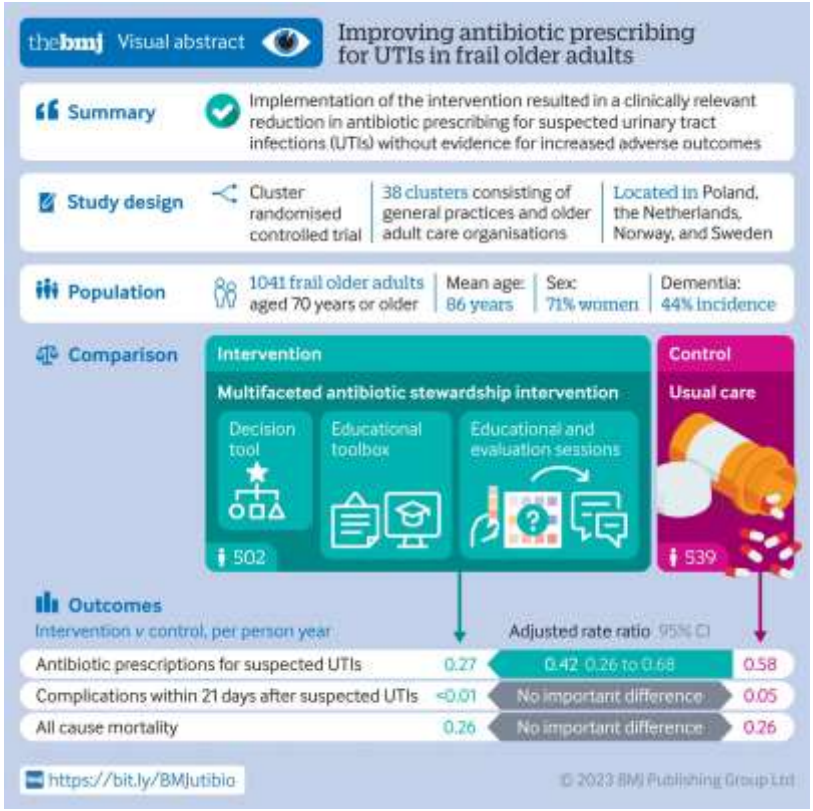


Visual Abstract (or Graphical abstract): BMJ

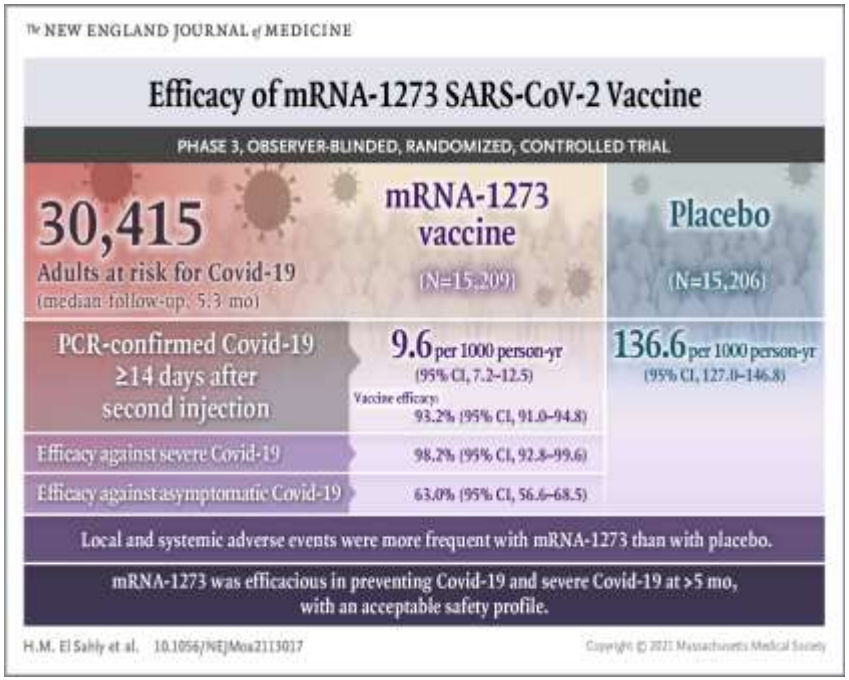
2018

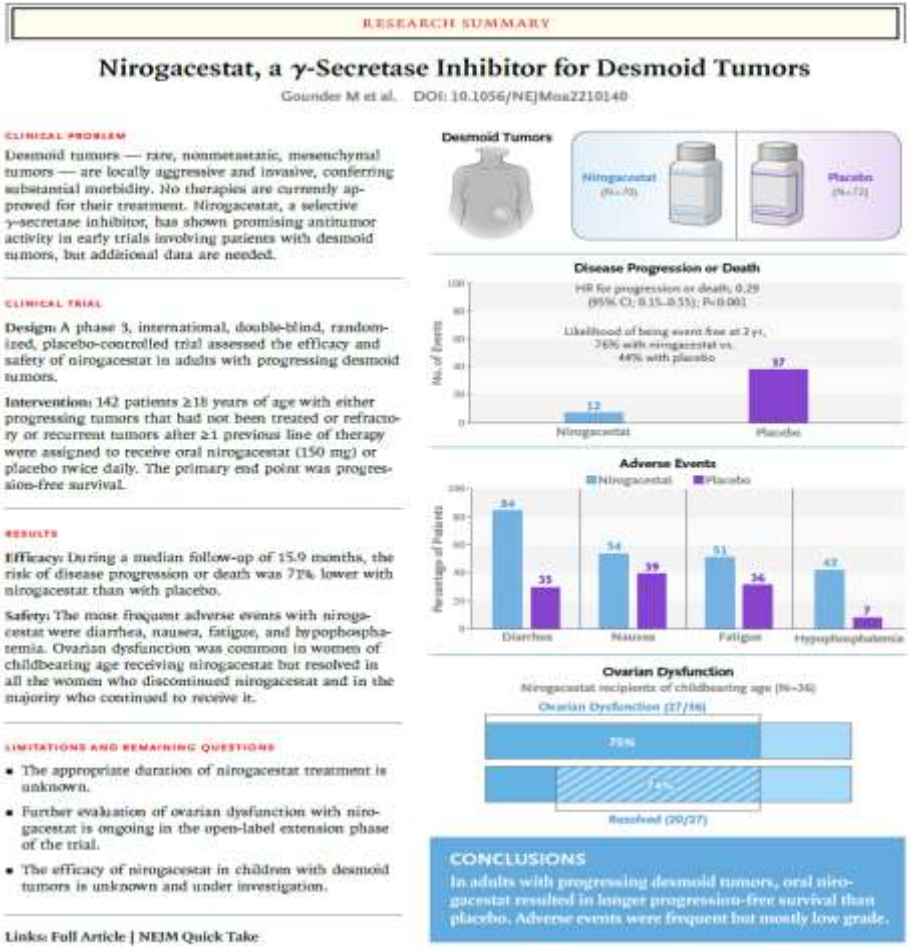


2023

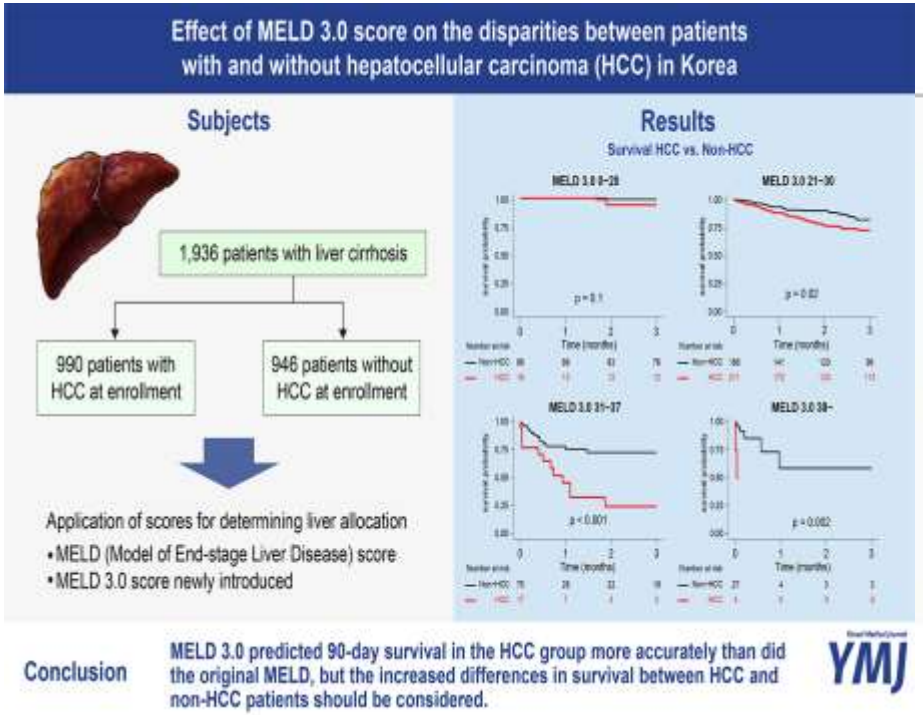


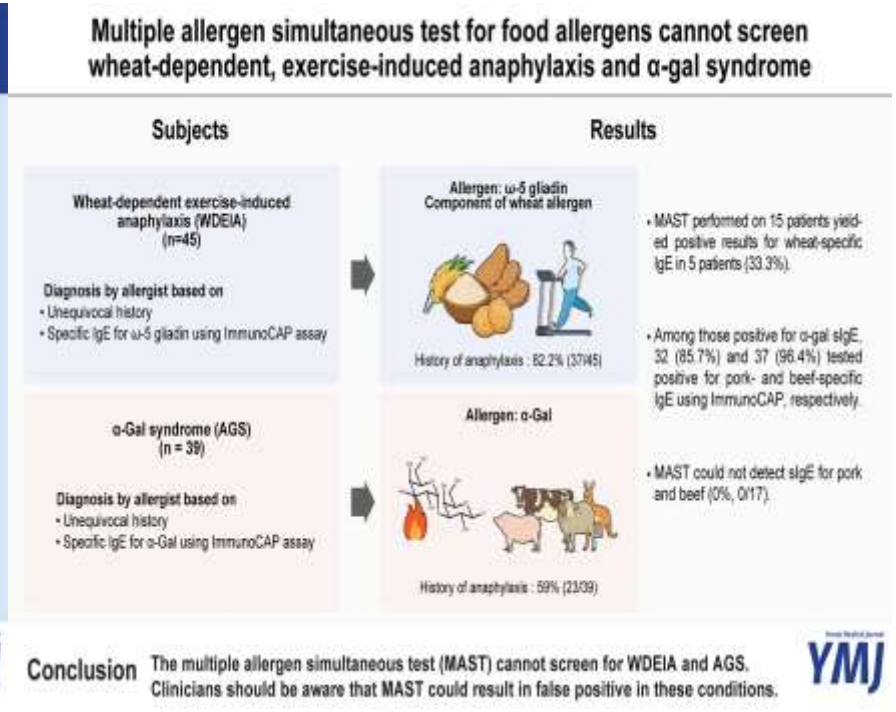
Visual Abstract and Research Summary: NEJM

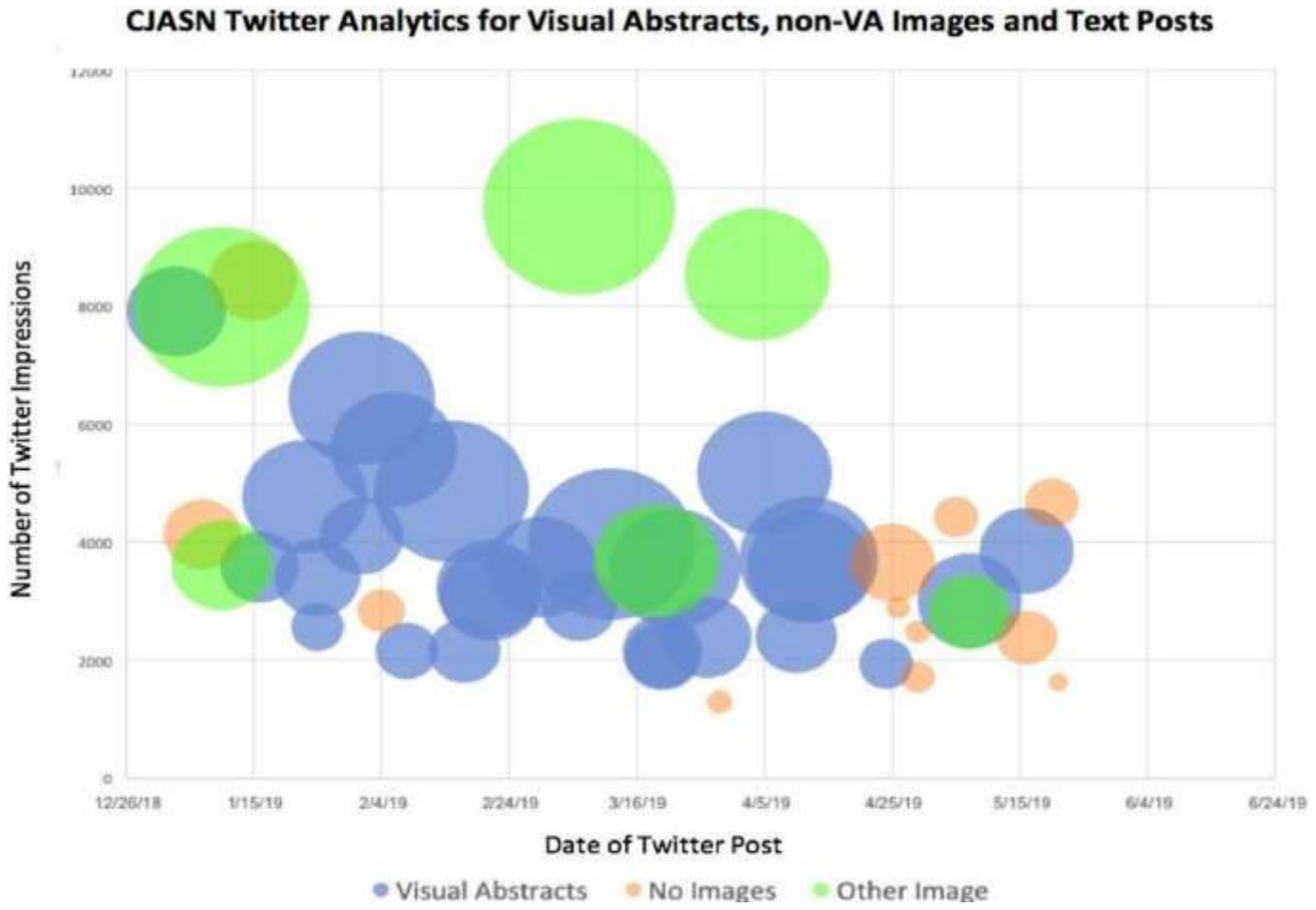




GA: Yonsei Medical Journal

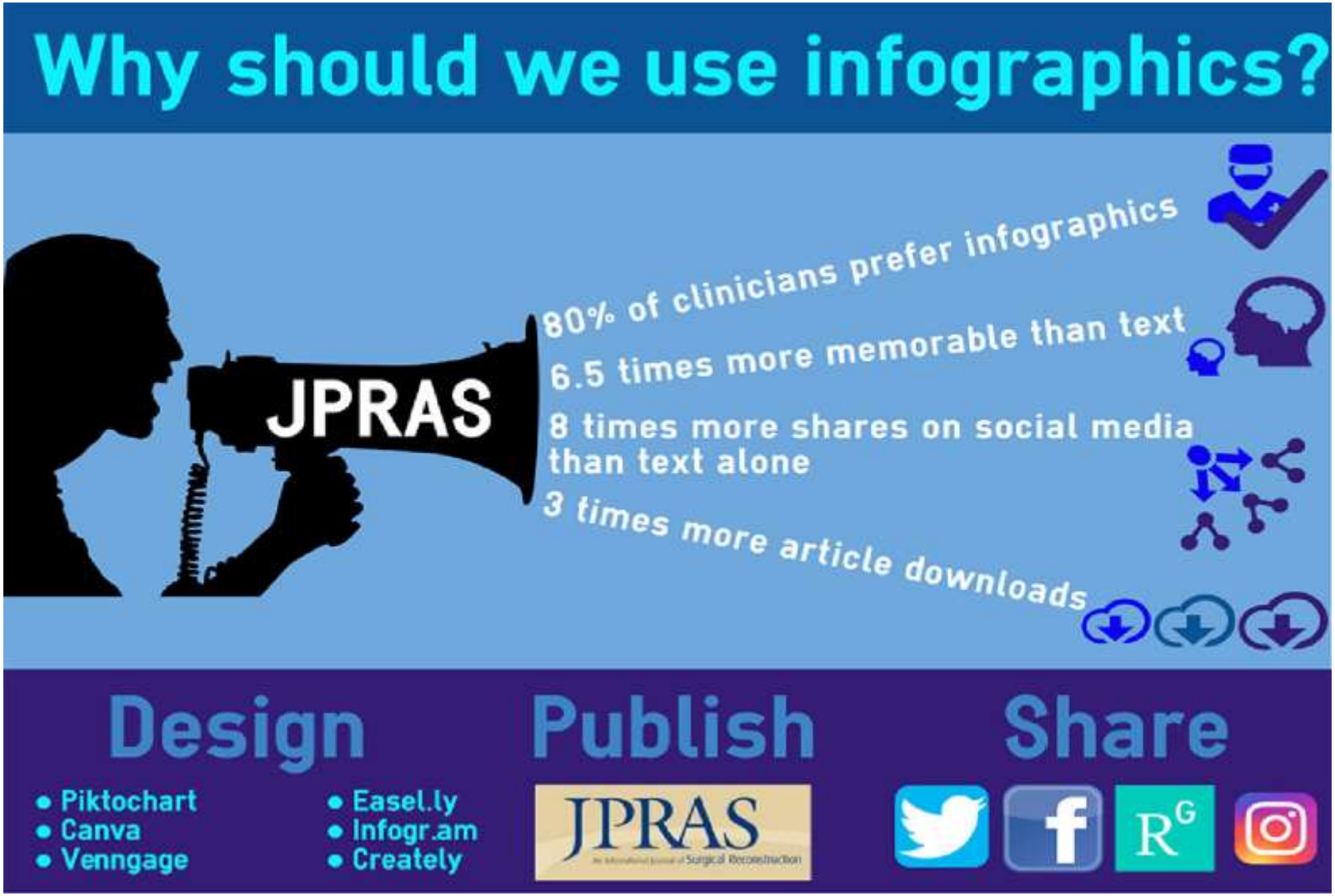






Data from the *Clinical Journal of the American Society of Nephrology*(CJASN) measuring the impressions (y-axis) and engagement (size of the bubble) of the journal's tweets over a 5-month period. Each tweet is represented by a bubble.

Everly Ramos, Beatrice P. Concepcion, Visual Abstracts: Redesigning the Landscape of Research Dissemination, Seminars in Nephrology, Volume 40, Issue 3, 2020,



C.C. West, K.J. Lindsay, A. Hart, Promoting your research using infographics and visual abstracts, Journal of Plastic, Reconstructive & Aesthetic Surgery, Volume 73, Issue 12, 2020, Pages 2103-2105,

Abstract, Graphical Abstract

- 독자의 관심 유발, 논문의 인용 및 노출에 많은 영향을 미침
- GA는 text위주의 기존 초록에 비해 인용 및 노출에 매우 효과적
- 저널마다 고유의 GA 양식을 활용
  - 투고시 GA의 변경 필요: 제공하는 template가 다름
  - 저널마다 요구하는 내용이 다름
  - 국내 출판 저널은 기본 플랫폼의 제공이 필요함
- 저널 출판 비용 및 시간의 증가

Thank you