

ACCP Resident Advisory Committee

# **Best Practice: Visual Abstracts**

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## Background

In today's digital environment, many academic journals have developed platforms across multiple social media outlets. This represents a unique paradigm shift in which authors and publishers can now exponentially share their research with both medical and non-medical audiences alike, increasing the awareness of research and scientific literature as a whole. However, in an environment where a post has only a few seconds to capture the audience's attention, the need for an alternative, more efficient delivery method for this information arose on social media platforms. To fulfill this need and increase the visibility of scientific works as a whole, the visual abstract was born in 2016.<sup>4,6</sup>

Visual abstracts are a visual summary of an article's key information and findings, particularly those included in the abstract.<sup>5</sup> They are intended to convey the most essential points in a concise, visual format that generates the reader's interest. They are not intended to replace reading the full article or to influence clinical decision-making on their own. Visual abstracts are typically produced by the author or journal and used as a social media dissemination strategy.<sup>7</sup> As recent studies suggest, this is typically an effective strategy.

In a prospective case-control crossover study of visual abstracts, 44 original research articles published by the *Annals of Surgery* were disseminated across Twitter in two different formats after washout periods: a text of the title only and a text of the title with a visual abstract.<sup>1</sup> Compared with text-only tweets promoting the published articles, the tweets with a visual abstract had 7-fold more impressions, 8-fold more retweets, and almost 3-fold more article visits online. In a similar study that analyzed an article published by the *Journal of the American Geriatrics Society*, the tweet that included a visual abstract received 7-fold more impressions and almost 5-fold more retweets than the text-only tweet in one-half the time.<sup>2</sup> Another study analyzing the impact of visual abstracts on the *Journal of Urology* readership found that tweets with visual abstracts significantly outperformed tweets with nonvisual abstract graphics and tweets without media, increasing overall reader engagement rate by 65% and carrying a positive spillover effect onto any similar *Journal of Urology* research article.<sup>3</sup>

Currently, more than 100 journals, organizations, and institutions have adopted the visual abstract concept into their social media dissemination strategies, including the Centers for Disease Control and Prevention, the *New England Journal of Medicine*, the *British Medical Journal*, and the *Journal of the American Medical Association*.



## Principles of a Visual Abstract

**Purpose:** In its simplest form, a visual abstract is a visual summary of information typically found in the abstract that is meant to convey the key findings of a study. Visual abstracts do NOT replace reading the article – their goal is to inform potential readers of the key findings in an article to help them decide whether they want to read the full article.

### Principles of Design:

- Create a clear message: Simplify a complex article by identifying its main purpose, and consider what your audience will want to take away from the study. Prioritize the key message over completeness.
- Create a prototype: Having a basic design format to start with can help you create an efficient abstract. Your first prototype is unlikely to be perfect, but getting started with creating the abstract is often the most difficult part.
- Test different formats: Continuing to try different formats will also help you find unique ways to share information while improving your abstract designs. There is no one way to visually represent information.
- Use thoughtful restraint: It can be tempting to include as much information as possible in your abstract to be more complete. However, excess information will likely distract from your main message. Focus on the primary point when selecting information to include in your abstract.
- Use creative processes: Consider different ways to represent data, outcomes, or pertinent information such that it does not distract from the message of your abstract.

### Principal Components:

- Background: Study title, citation, and primary objective
- Methodology: Design characteristics or population of interest
- Results: Visual display of outcome (graphic or chart)
- Conclusion: Main takeaway or finding
- Graphic creator: Name of visual abstract creator

**Disclaimer:** Not all components are applicable/required for each visual abstract. The following are considerations for the important information to include per abstract. Use professional judgment.

## Design Considerations

### 1. Choose a Design Program:

- Choose a program to help create and design a visual abstract, such as PowerPoint, Google Slides, Canva, or Adobe Creative Cloud. The preferred file type is JPG or PDF.

### 2. Create a Layout/Theme:

- Color Scheme:** Create a palette of five or fewer colors, using varying shades, tones, and tints if more options are desired. Design tools available for creating color palettes include **Paletti** (Google Slides add-on) and **Coolers.co** (palette generator).



- Typography:** Select two or three complementary and readable font families, using varying styles such as bolding, italicizing, and text size differences if more options are desired. Design tools available for choosing complementary font pairs include **FontPair**. The preferred font sizes are 12 to 16 point because smaller fonts will not be legible online and will be more difficult to read.
- Layout:** Create a clear start-to-finish flow using block shapes such as rectangles, circles, or arrows to direct the reader from one group of text to another. The preferred reading flow is top-to-bottom or left-to-right. Avoid poster presentation–like setups.

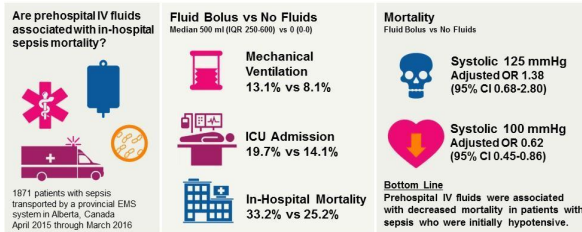


### 3. Insert Abstract Contents:

- Principal Components:** Background, methodology, results, conclusion, and graphic creator

- **Graphics:** Use graphics that are simple and clear and that consistently flow with the color scheme of the visual abstract. Images/icons should add meaningful value without detracting attention from the rest of the visual abstract. Tools available for finding free images include **Clipart**, **Unsplash**, **Pexels**, and **Insert Icons** (Google Slides add-on). It is not legal to use copyrighted images or logos without the copyright owner's permission.

### Association Between Prehospital IV Fluids and In-Hospital Sepsis Mortality

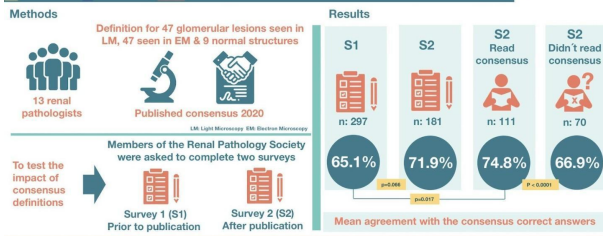


JAMA Network Open.

Lane DJ et al. *JAMA Network Open*. 2018. doi:10.1001/jamanetworkopen.5854



### Impact of Consensus Definitions on Identification of Glomerular Lesions by Light and Electron Microscopy

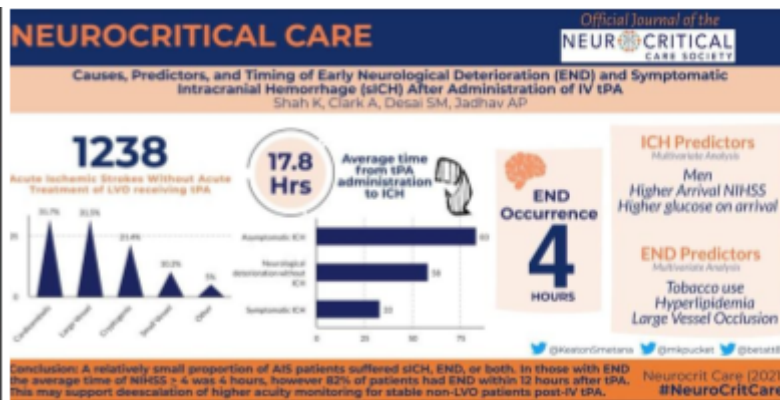
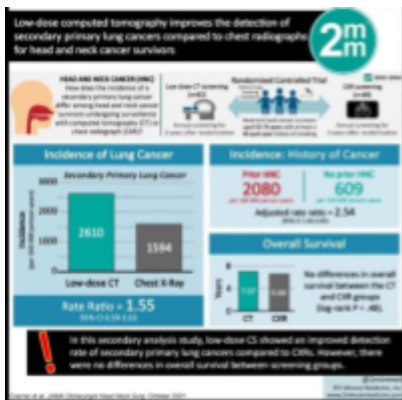


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Visual abstract by:  
Pablo Galindo MD  
@galindop

Conclusion Publication of the consensus definitions modestly improved inter-observer agreement in identification of glomerular lesions.

- **Language:** When discussing the article contents, use the same language as the authors to avoid misinterpretation and ensure consistency in the message delivery. If different terminology is used, consider the audience that will interpret the visual abstract and ensure the language is tailored to them. For example, if the visual abstract is disseminated on social media, the audience may include both health care and non-health care professionals.
- **Graphs/Charts:** Use graphics that complement the representation of data from the article, when possible.



- **Infographic Size:** Twitter in-stream post: 1600 × 900 pixels; Instagram square: 1080 × 1080 pixels
- **Article Citation:** Include the AMA citation for the article displayed in the visual abstract as well as the link for the article when posted online.

**Additional Resources For Creating Visual Abstracts:** Spicer et al.<sup>8</sup> doi:10.1093/cid/ciac058

## Abstract Section Considerations

Section	Do's	Don'ts
<b>Background and Objective</b>	<ul style="list-style-type: none"> <li>● Include the title of the article</li> <li>● Summarize the key question being addressed – can be as simple as title, heading of key figure, or summary section</li> <li>● Pull the main point out in either a separate text box at the top or larger graphics so that it is first read and will engage the audience</li> <li>● Provide the citation for the article, with at least the journal name and primary author information</li> </ul>	<ul style="list-style-type: none"> <li>● Describe previous literature and results of other studies</li> <li>● Use copyrighted journal images or logos without permission</li> </ul>
<b>Methods and Study Design</b>	<ul style="list-style-type: none"> <li>● Include the major study design (e.g., randomized, retrospective cohort, case-control)</li> <li>● Include the study site (e.g., single vs. multicenter, tertiary care center vs. community, ED, ICU, surgical or medical floor)</li> <li>● Define the comparison and intervention groups and the number in each group (e.g., angiotensin II [n=50] vs. standard of care [n=51])</li> <li>● Define the key study population with icons (e.g., disease state of interest, age, gender, race)</li> <li>● Summarize the study inclusion/exclusion with narrowed scope, if clinically relevant</li> <li>● Provide the primary outcome of interest either apart from the results section or as part of the results to reduce repetition</li> </ul>	<ul style="list-style-type: none"> <li>● Describe statistical analysis</li> <li>● Include details of study protocol and monitoring</li> <li>● Describe each inclusion/exclusion criterion in detail</li> <li>● Describe study population baseline characteristics in detail</li> </ul>

## Abstract Section Considerations

Section	Do's	Don'ts
<b>Outcomes and End Points</b>	<ul style="list-style-type: none"> <li>● Focus on one to three primary findings of the article (limit to one, when possible)</li> <li>● Include a visual, colored icon that represents the outcome</li> <li>● If the primary outcome is included in the background or methods section, it does not have to be repeated in a separate outcome section</li> </ul>	<ul style="list-style-type: none"> <li>● Include less pertinent secondary end points</li> <li>● Include &gt; 3 primary end points</li> </ul>
<b>Results and Data</b>	<ul style="list-style-type: none"> <li>● Report primary outcome results (typically on one line) while including units, when applicable (e.g., % difference in intervention vs. control)</li> <li>● Show the results, when possible, vs. stating them</li> <li>● Include p values, when appropriate, or other measures of significance               <ul style="list-style-type: none"> <li>○ If there is no place for p values, do not get mired in the details</li> <li>○ If social media audiences are targeted, it is sufficient to indicate statistical significance, and readers can find the article/details on their own to validate</li> </ul> </li> <li>● Include a figure (e.g., table, graph) to graphically display data as an alternative to an outcome icon</li> </ul>	<ul style="list-style-type: none"> <li>● Add personal interpretation of study findings</li> <li>● Include lengthy results related to non-primary end points</li> <li>● Use too many sentences</li> </ul>
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>● Clearly state the study conclusion from the study results</li> <li>● Provide a visual abstract creator name or social media tag</li> </ul>	<ul style="list-style-type: none"> <li>● Include speculative conclusions/takeaways (unless the speculative nature can be conveyed visually)</li> <li>● State conclusions extrapolated by the authors and not explicitly demonstrated by the presented data</li> </ul>

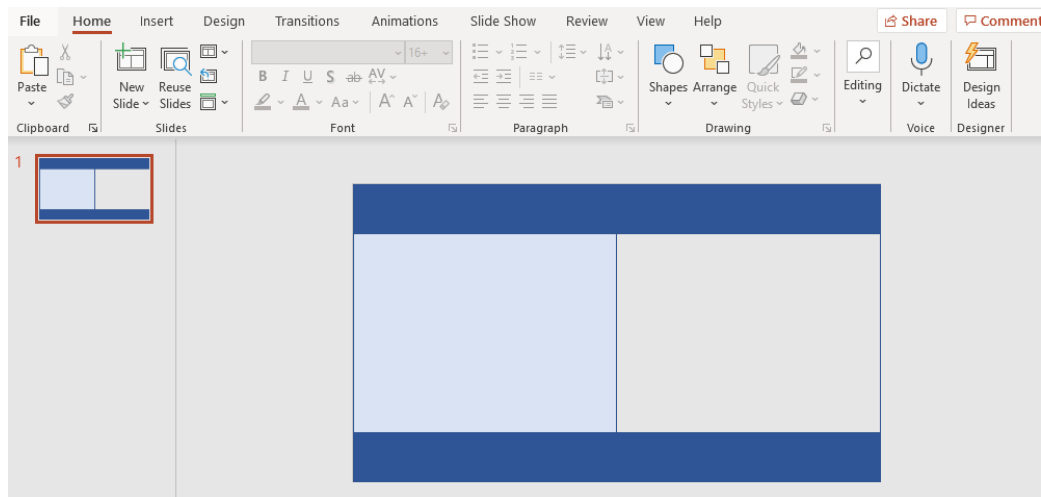
## Abstract Section Considerations

Section	Do's	Don'ts
<b>Overall</b>	<ul style="list-style-type: none"><li>• Use a consistent color scheme</li><li>• Have a clear start and end, reading from top-to-bottom or left-to-right</li><li>• Make the presentation distinct from any model figures or diagrams included in the paper itself; try to visually represent the data in a unique way from the paper</li><li>• Label the citation of the article in the image itself and include a link to the full article, when posted</li><li>• Use language that has the same prose/interpretation as the language used in the article for consistency</li><li>• Consider the audience: If social media is the platform, the audience can be anyone from caregivers to policy-makers to nonprofit leaders to clinicians or researchers. How can the abstract be tailored to these groups?</li></ul>	<ul style="list-style-type: none"><li>• Include too many distracting or cluttering elements</li><li>• Include images that you don't have rights to</li><li>• Avoid poster presentation-like setups</li></ul>

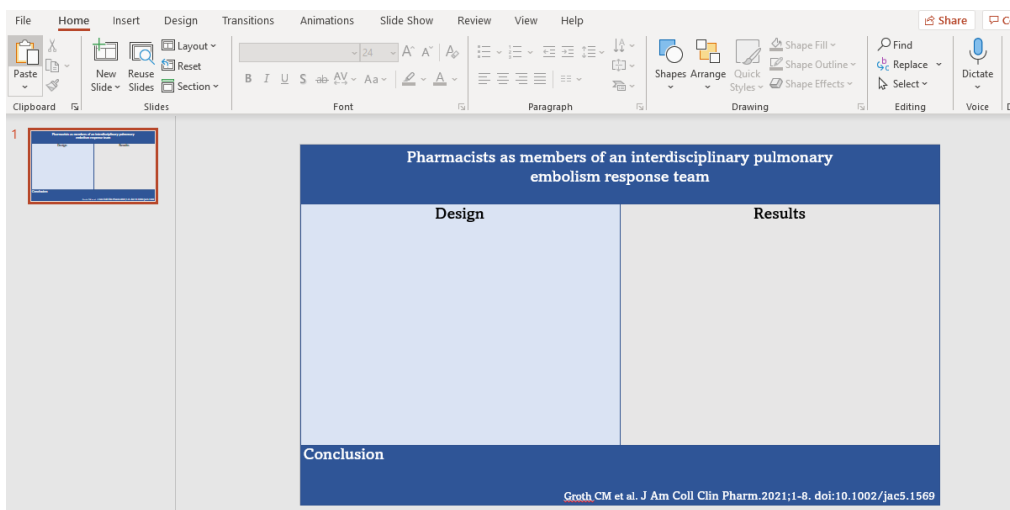


## Visual Abstract Creation Example: PowerPoint

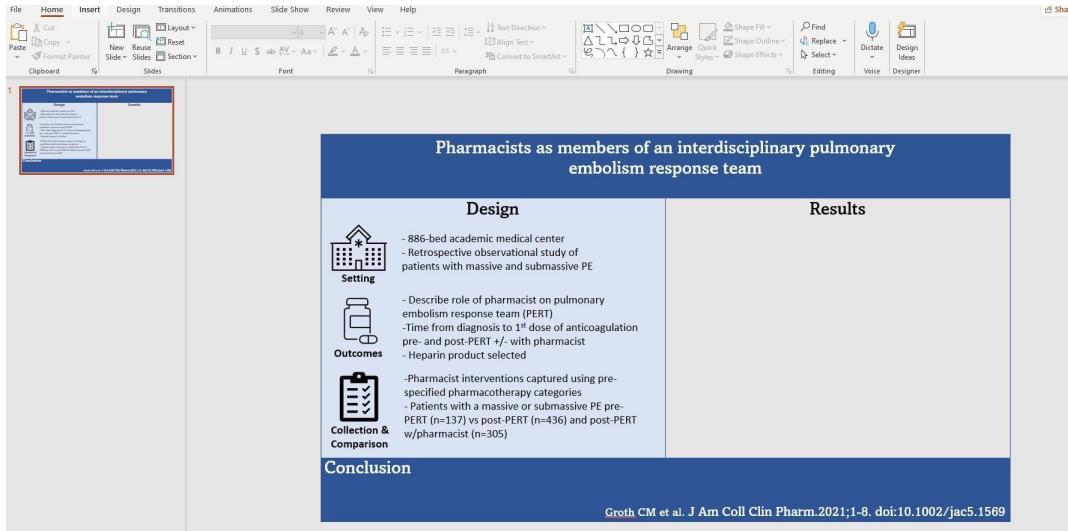
1. Start by inserting rectangle shapes to divide your abstract into different sections for content (to find the rectangle shape, go to the Insert menu (top left of PowerPoint)->Shapes (illustrations section)->rectangle shape). Repeat until you have the desired number of sections. The example has four sections. Customize your rectangle colors to match a color scheme that corresponds with that of your organization or affiliated journal. To change colors, select the rectangle and go to shape format at the top menu-> shape fill (under shape styles).



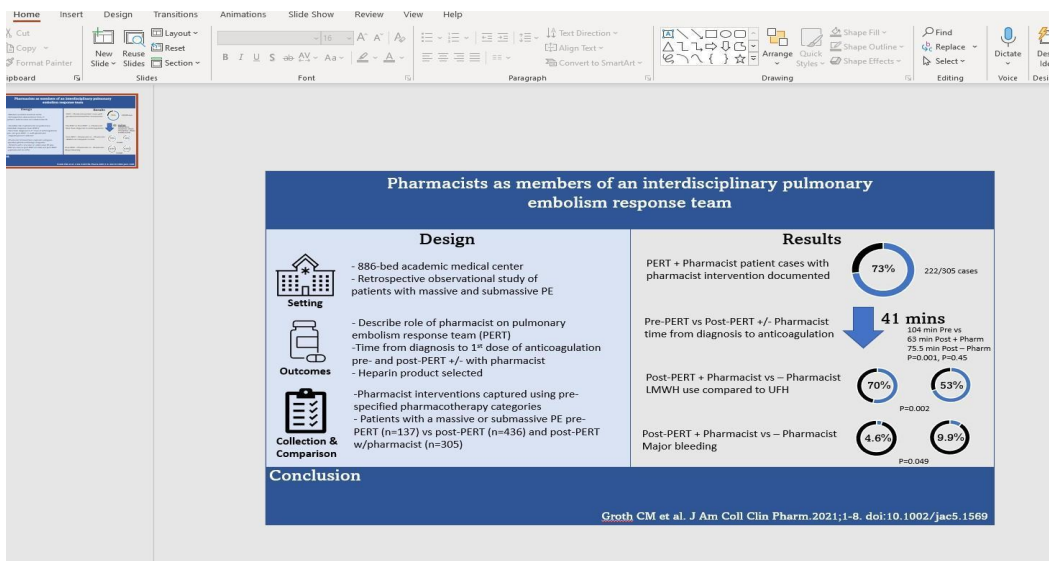
2. Next, add the title of your article and the specific section headers by adding text boxes (Insert menu-> under text section is text box). Be sure to cite the article in the abstract. Also, be sure to select a color font that contrasts with the section background to make the text more visible.



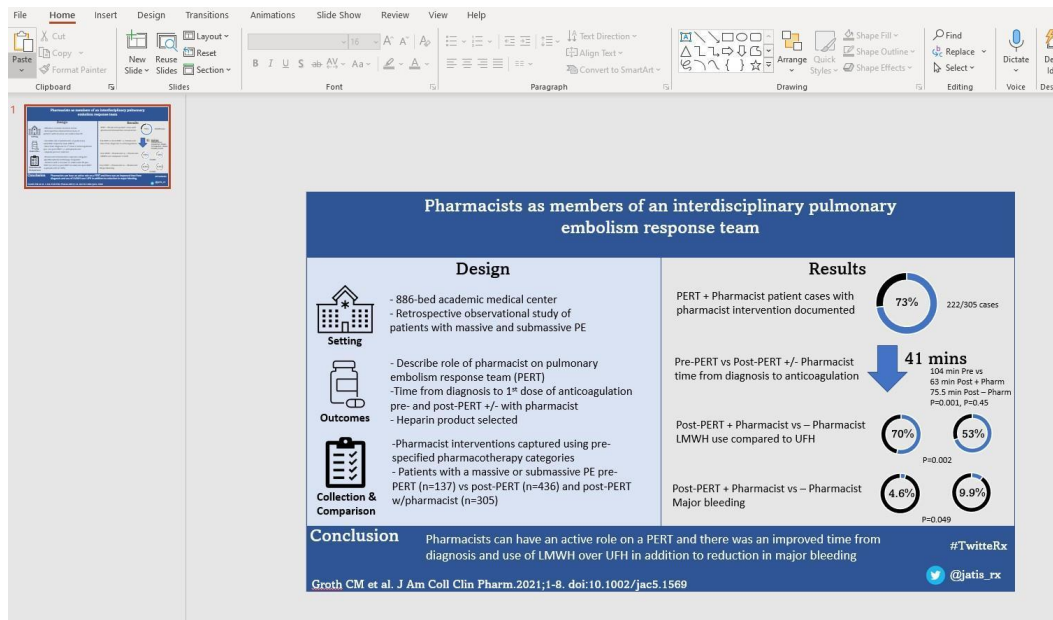
- Begin filling in the content of each section by adding text boxes. Add icons or other images to increase the visual appeal of your visual abstract (to add icon insert, menu->illustrations->Icons). Follow the best practices guideline regarding the key content to include for each section. The example includes aspects of the project design pertinent to the study.



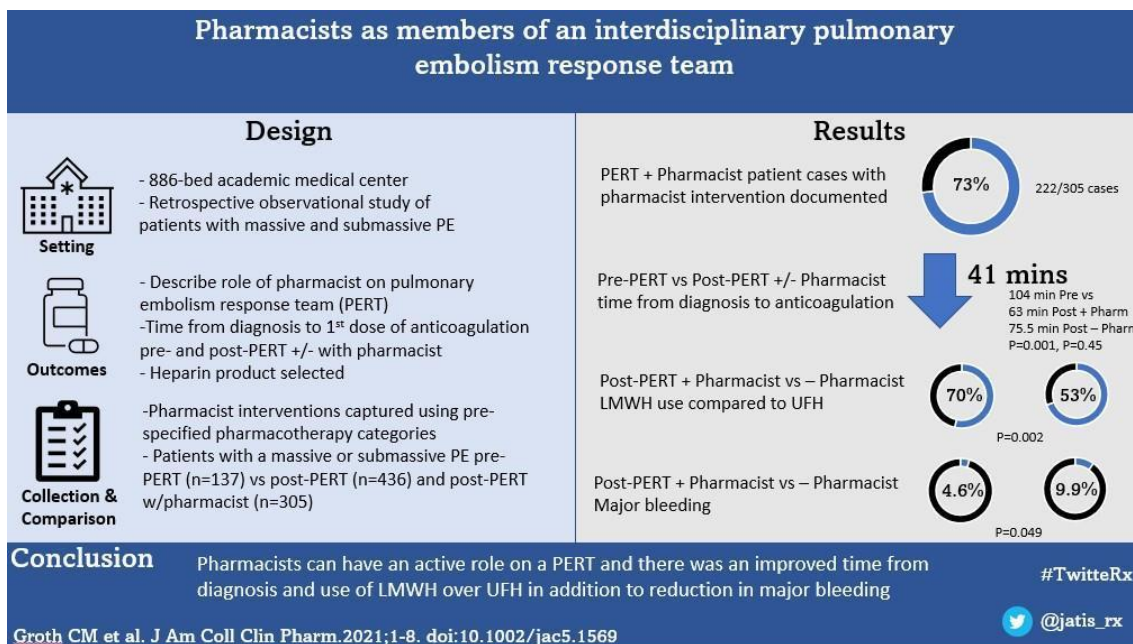
- Repeat these steps for the results. When possible, try to include visual representations of key figures in the results section. In the example, pie charts and a downward arrow are used (Graph insertion: Go to Insert->Under illustrations is charts-> select chart style and use in PowerPoint Excel sheet to customize rgw chart).



- Next, add a conclusion statement and finishing touches, including any #hashtags or @taggedaccounts.



- Finally, be sure to share with others through professional social media platforms such as LinkedIn, Twitter, and Instagram. To convert PowerPoint to a JPEG or PNG file go to file->export->change file type->select JPEG or PNG. The final product for the example follows.



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## References

1. Ibrahim AM, Lillemoe KD, Klingensmith ME, et al. Visual abstracts to disseminate research on social media: a prospective, case-control crossover study. *Ann Surg* 2017;266:e46-e48.
2. Lindquist LA, Ramirez-Zohfeld V. Visual abstracts to disseminate geriatrics research through social media. *J Am Geriatr Soc* 2019;67:1128-31.
3. Koo K, Aro T, Pierorazio PM. Impact of social media visual abstracts on research engagement and dissemination in urology. *J Urol* 2019;202:875-7.
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7. Aungst T. Visual abstracts are changing how we share studies. Doximity. July 2017. Op-Med. Available at [Visual Abstracts Are Changing How We Share Studies \(doximity.com\)](#).
8. Spicer JO, Coleman CG. Creating Effective Infographics and Visual Abstracts to Disseminate Research and Facilitate Medical Education on Social Media. *Clin Infect Dis*. 2022;74(Supplement\_3):e14-e22.