

# eLearning and Instructional Design

## Overview and Examples



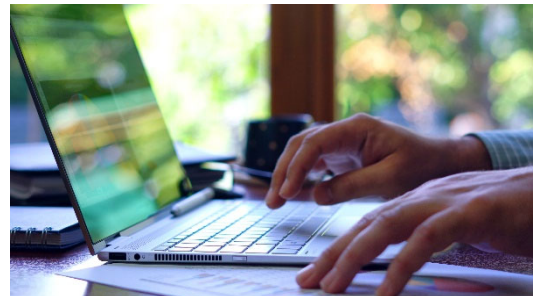
## What is eLearning?

eLearning courses are typically managed and administered via a learning management system (LMS). As author, Steven D. Foreman notes in his book, *The LMS Guidebook*, a learning management system is "a multiuser software application, usually accessed through a web browser. It helps organizations manage training events, self-paced courses, and blended learning programs. It provides automation that replaces rigorous and expensive manual work, saves time, and enables you to organize your content, data, and learners. It tracks and reports on training activity and results."

eLearning is a structured course or learning experience delivered electronically; it can also include performance support content. There are also many different elements that can make up an eLearning program, such as live or pre-recorded lecture content, video, quizzes, simulations, games, activities, and other interactive elements.

Broadly, eLearning falls into two main categories: asynchronous and synchronous. Asynchronous eLearning is self-paced; the learners are taking the course on their own, usually on a laptop or other mobile device. Asynchronous eLearning programs may include pre-recorded lecture content and video, visuals, and/or text, knowledge quizzes, simulations, games, and other interactive elements.

Synchronous eLearning, more commonly referred to as live-online training, online learning, synchronous online training, or virtual classroom training, is instructor-led and taken at the same time as other learners – everyone just happens to be geographically dispersed. This training typically uses a web-conferencing or virtual classroom platform (such as GoToWebinar) that offers features such as slide or screen sharing, as well as interaction tools such as chat and polling.



## Benefits of eLearning



### **Cost-effective**

Removes the needs for costly printed course materials and onsite instructors.



### **Improves performance and productivity**

Allows learners to train quicker and easier which helps increase motivation and engagement on the job.



### **Saves time**

The course content is managed by a learning management system administrator and learners can learn when their schedule permits.



### **Lower environmental impact**

Provides an alternative to paper-based training and lowers and organizations' environmental impact.

# PowerPoint Do's and Don'ts

## Do's

1. Organize information clearly. Be brief and clear. Don't make your presentation too text heavy. Don't bury important information in text blocks where they'll be missed by your audience. Instead, distill your complex ideas into concise visual statements, only focus on one key idea per slide and try to keep the text to a minimum.
2. Move excess text to notes/script. Move excess text into the speaker notes and have the voiceover professional say the items instead of crowding them screen with them.
3. Limit the number of slides. A good case practice is using 20-30 slides or one slide per minute.
4. Follow the 1-6-6 rule, which is the SCCM standard for use for all education slides in our programming.
  - a. **1** concept per slide which is the title of the slide
  - b. **6** lines/bullets max
  - c. **6** words per line/bullet preferred on each slide

## Don'ts

1. Put everything on one slide. It's recommended that you don't use more than eight words per line or eight lines per slide. Start with creating the slides you want and then go back and edit them - remove all non-essential information, remove unnecessary words, and take out slides you can live without. Cut your presentation by as much as half to get to the core if it.
2. Overuse transitions and animations. These effects are meant to be used scarcely, to increase the impact of one idea. They can become a distraction very quickly.
3. Use Google as primary image source. Figures, tables, images, etc. without necessary documentation of permission or application for permission may be eliminated from the contribution, if necessary.

### Need a bit more help?

- [PowerPoint for Windows Training](#)
  - Intro to PowerPoint
  - Slides & layouts
  - Text and tables
  - Pictures and graphics
  - Present slideshows
  - Animation, video & audio

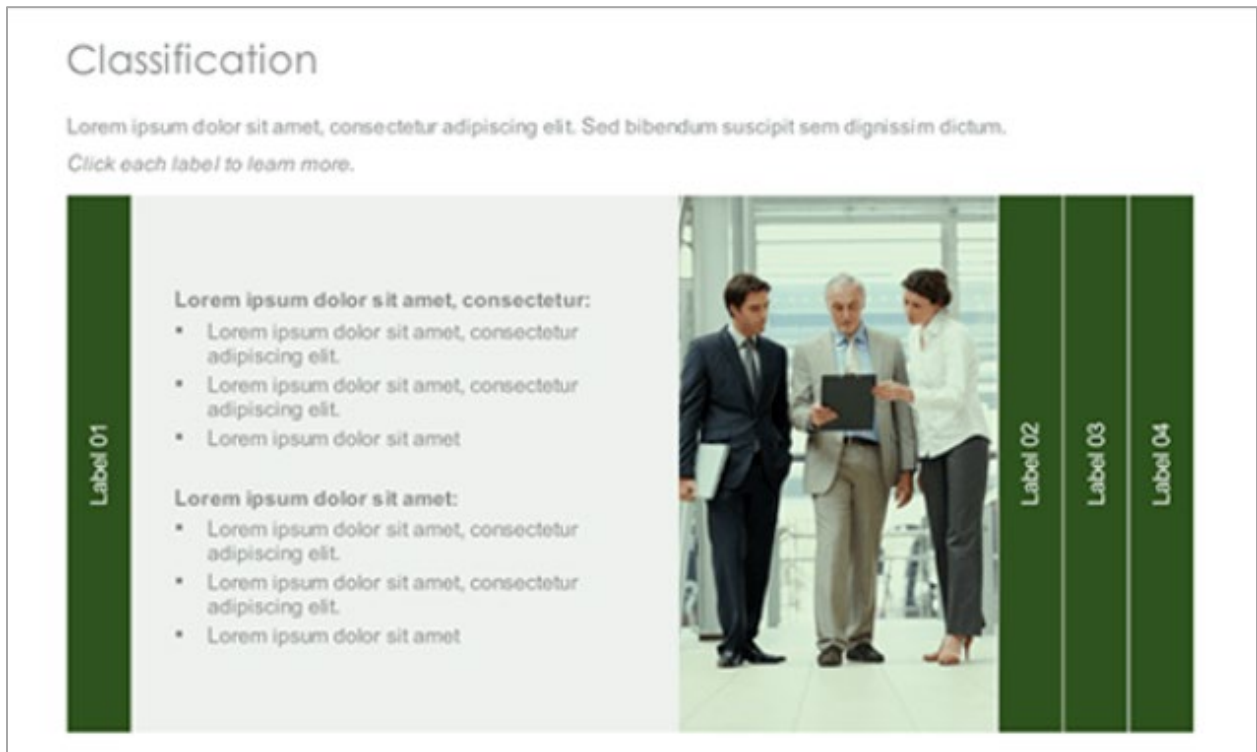
# eLearning Interactive Elements and Examples

Interactivity plays an important role in designing eLearning courses. Unlike traditional learning where learners are in a face-to-face situation, eLearning provides a wider environment with interactive objects to engage learners better. Interactive elements have been proven to not only help engage learners but also enhance their achievements in learning.

Below are the types of interactivity available. It should be decided what will be utilized and the committee/staff partner are responsible for working with the subject matter experts to develop the content in the way that matches the format(s) they select.

## Accordion Style (Click-and-Learn)

On clicking each label, relevant information is displayed. This interactivity can be presented using a horizontal or a vertical layout.





## Audio

Elements like podcasts or interviews are great for integrating information told by others, which can even enhance your content.



## Case Studies

Immerses learners in real-life situation that allows them to gain knowledge or improve their skills, then apply them later outside the learning environment. This will motivate learners to gain knowledge related to a real-life context, rather than just giving them simple facts.




### Case Study 1

- 58-year-old man brought emergency department with dyspnea and cough
- Active smoker with chronic lung disease
- Respiratory rate 30 breaths/min
- Awake, using accessory muscles, wheezing


**What evaluation is needed to diagnose the type of acute respiratory failure?**

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arterial blood gas while on room air	
pH	7.32
Paco <sub>2</sub>	58 mm Hg (7.7 kPa)
Pao <sub>2</sub>	50 mm Hg (6.7 kPa)



### Case Study 1

Which type of respiratory failure does this patient have?

- A. Hypoxemic respiratory failure
- B. Hypercapnic respiratory failure
- C. Mixed respiratory failure

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**arterial blood gas  
while on room air**

pH	7.32
Paco <sub>2</sub>	58 mm Hg (7.7 kPa)
Pao <sub>2</sub>	50 mm Hg (6.7 kPa)



## Case Study 1

Which type of respiratory failure does this patient have?

- A. Hypoxemic respiratory failure
- B. Hypercapnic respiratory failure
- C. **Mixed respiratory failure**

**Information needed:**

- Patient information
- Patient image or video, permission needed (optional)
- Tables and/or graphs
- Question stem
- Answer choices with correct answer indicated
- Rationale

## Discussion Board

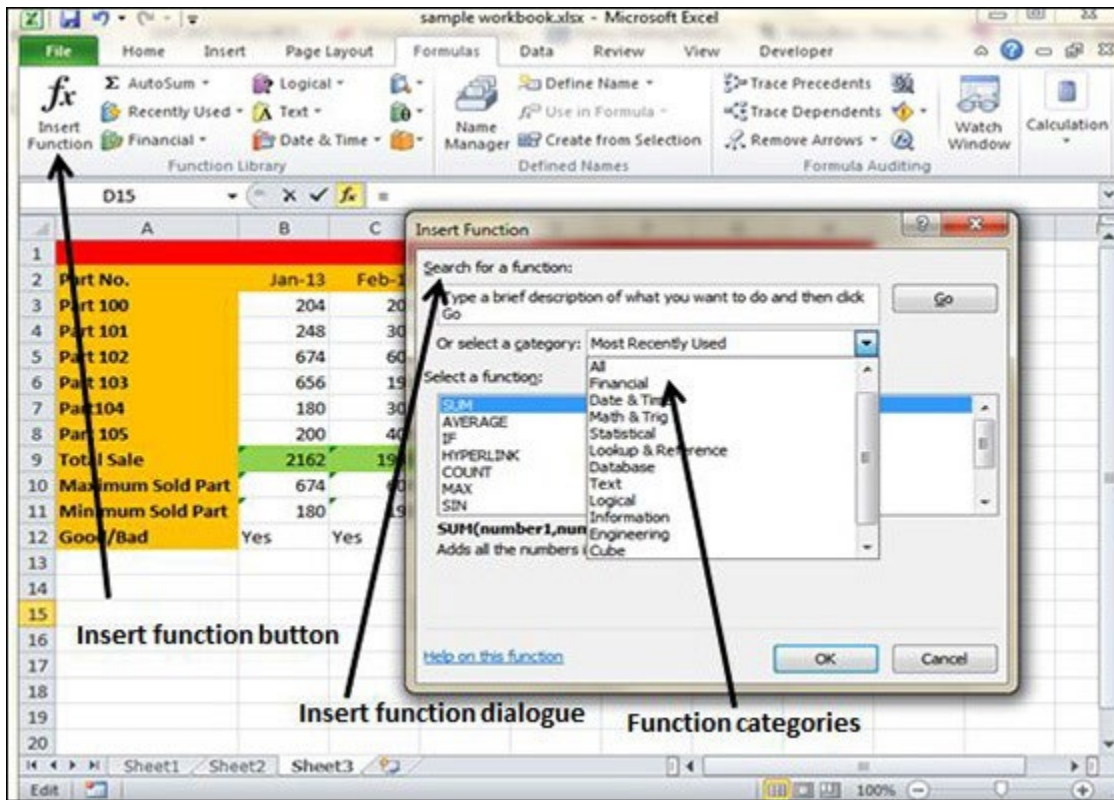
Can help to create a social presence in an online course along with a sense of community. Presence and community, in turn, can foster emotional connections. They also improve student learning and can create greater feelings of satisfaction with the course.

The screenshot displays the 'Learn ICU' website interface. At the top left is the 'Learn ICU' logo. To the right are links for the 'App Store' and 'Google Play' apps, along with text indicating 'Educational resources from Society of Critical Care Medicine'. A user profile for 'Jennifer Test Velazquez' is visible in the top right corner. On the left side, there is a navigation menu with options: 'Catalog', 'My Courses', 'Recomm'd', 'Transcript', 'Learn ICU Library', 'MySCCM', and 'SCCM Support'. The main content area is titled 'Discussion Boards' and shows a green notification: 'You have completed Discussion Boards on 3/24/2022.' Below this, there are two discussion topics: 'Discussion Board Rules and Etiquette' and 'Introduce Yourself!'. Each topic is posted by 'Jennifer M. Velazquez, MBA, DES' and includes 'Open' and 'Follow' buttons. The 'Introduce Yourself!' post begins with 'Welcome, everyone!' and a paragraph of text, followed by a 'read more...' link.



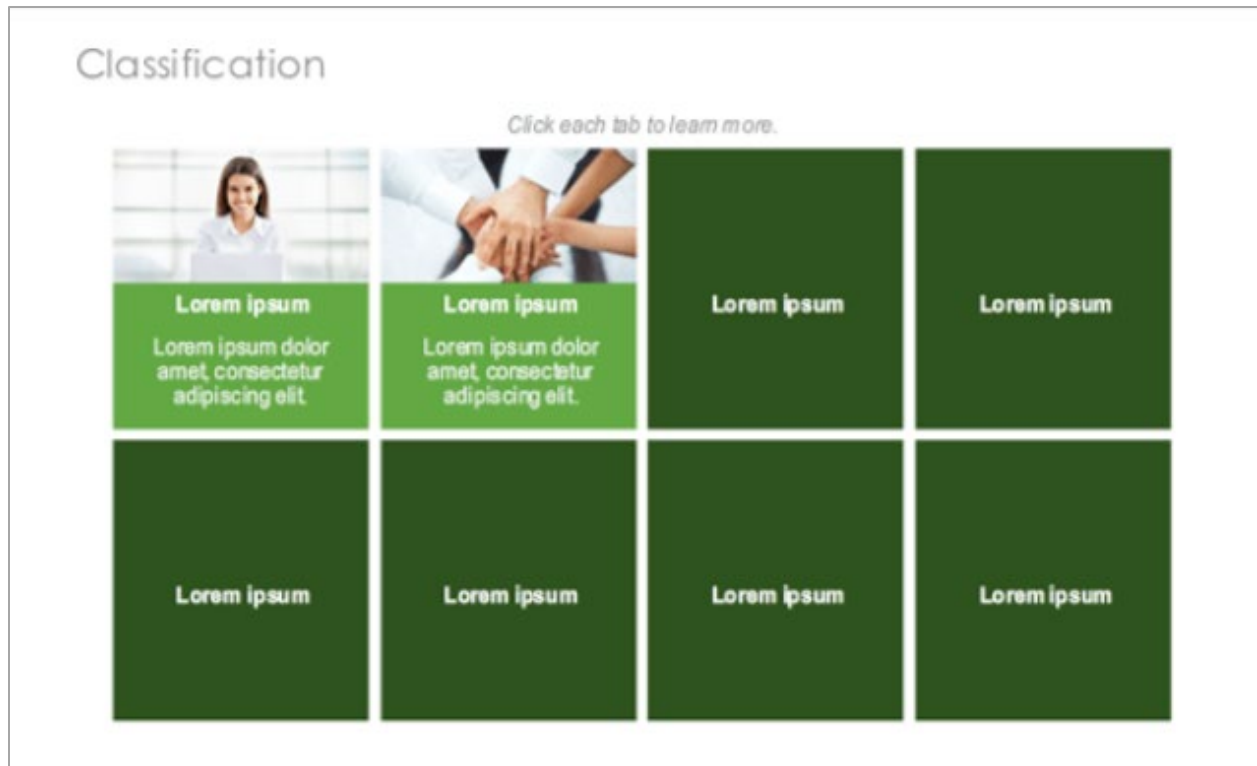
# Excel

Another way to provide learners with a resource tool. An Excel spreadsheet with formulas built in.



## Flip Card Style (Click-and-Learn)

The title or main information is presented on the card. On click, the card flips to display its description and a representative image.




### Information needed:

- Images
- Image description
- Answers


## Images

Images are a good way to tell a story, connect with the learner, and emphasize important concepts. The information is easily digested, while making it more dynamic by presenting the data in a different way.



### Other Burns


- **Chemical**
  - Brush off dry substances
  - Irrigate
- **Electrical**
  - Entrance, exit wounds
  - Cutaneous burns from arc injury
  - Flame exposure (clothing)
  - Potential rhabdomyolysis
  - Secondary injuries



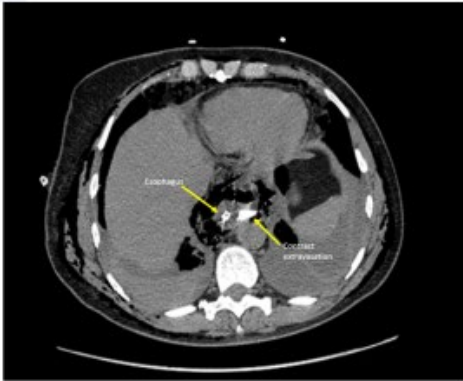
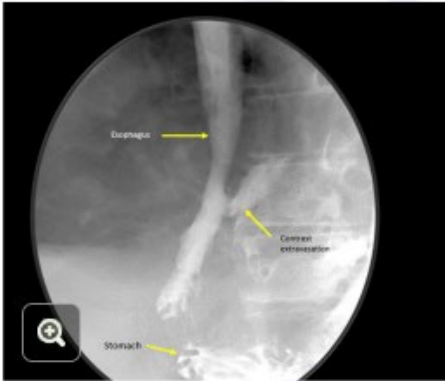
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### Esophageal Perforation



Used with permission. Images courtesy of Matthew A. Facktor, MD

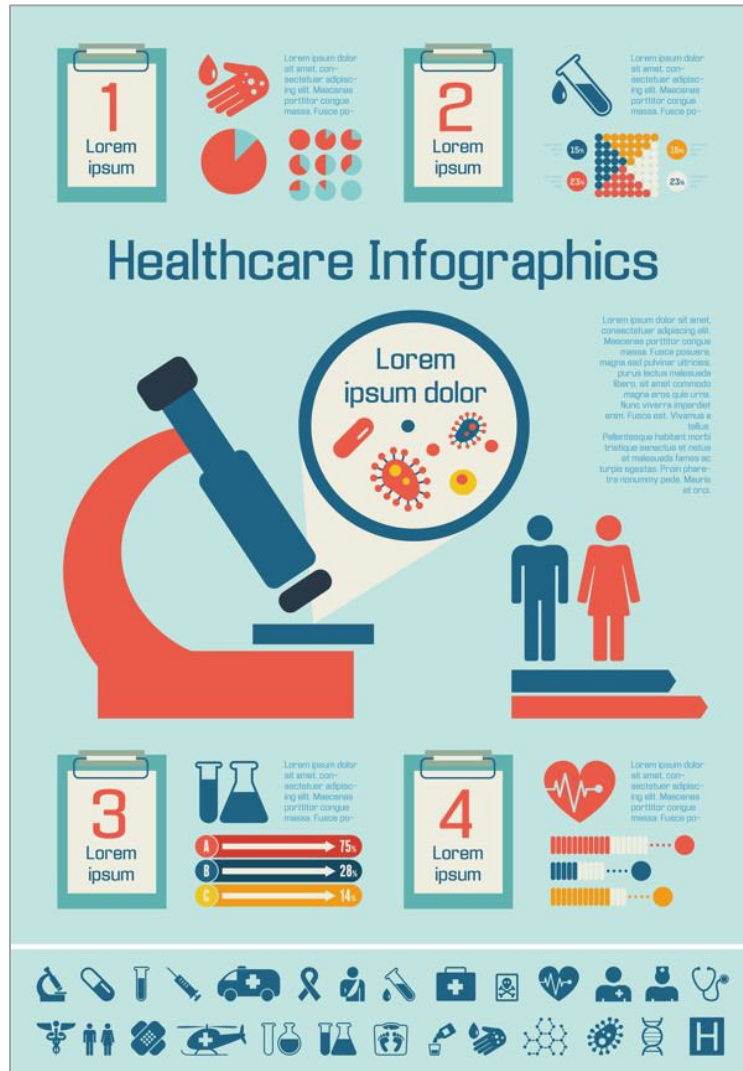
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## Infographic

This option can help people understand complex concepts by using visual aids such as charts, graphs, or diagrams. Can use both images and text in a visual format to explain concepts. They can be used as an image and a learner can expand it while within the module and/or provided as a downloadable PDF.



# Tips for Speaking With the Media

Access the accompanying webcast at [sccm.org/mediatrainingwebcast](http://sccm.org/mediatrainingwebcast).



## Before the Interview



### Check Your Surroundings

Minimize distractions and commotion.



### Teleprompter

Keep it steady.  
If pre-recorded, consider using a teleprompter app.



### Lighting

Light from the front, not the back.  
Good lighting goes a long way.



### Camera

Keep it steady.

## During the Interview



### Emotional Broadcasting

Know the name of the interviewer and call them by name. Compliment (eg, "that is a very good question"). Focus on positive emotions, such as bedside manner.



### "Gotcha" Moments

Remember that you are the expert and know the most about the topic. Be in the moment and available. Be prepared, friendly, and confident.



### Remain Positive

Don't be grim. Don't look down.



### Making a Mistake

Take a moment to reset. Acknowledge the mistake and move on. Never continue while nervous.

This educational activity was funded in part by a cooperative agreement with the Centers for Disease Control and Prevention (grant number 1U19CE002668-01-00). The Centers for Disease Control and Prevention is an agency within the Department of Health and Human Services (HHS). Its contents do not necessarily represent the policy of CDC or HHS, and should not be considered an endorsement by the Federal Government.

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WHAT YOU REALLY NEED TO KNOW ABOUT

# VITT

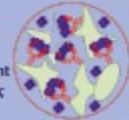
## VACCINE-INDUCED IMMUNE THROMBOCYTOPENIA AND THROMBOSIS

### DEFINITION

A PROTHROMBOTIC syndrome observed in a small number of individuals who receive an ADENOVIRAL vector-based vaccine (AZ or J&J) that strongly resembles spontaneous heparin-induced thrombocytopenia (SPONTANEOUS HIT SYNDROME). It has also been labeled as vaccine-induced immune thrombotic thrombocytopenia, thrombosis with thrombocytopenia syndrome (TTS), and vaccine-induced prothrombotic immune thrombocytopenia (VIPIT).

### PATHOPHYSIOLOGY

VITT is caused by non-heparin dependent IgG class antibodies that recognize platelet factor 4 (PF4) bound to platelets and cause platelet activation, stimulation of the coagulation system, and clinically significant THROMBOSIS. The mechanism for generation of antibodies is unknown; hypotheses include the adenovirus itself, spike protein cassette, or the constituents of the vaccine.



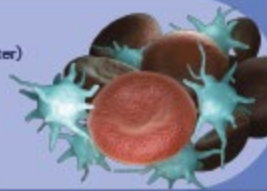
### CLINICAL PRESENTATION



Thrombosis and thrombocytopenia 6-24 days after vaccination with AZ or J&J vaccine. Often MULTIPLE thromboses, in ATYPICAL/UNUSUAL sites, particularly cerebral venous sinus thrombosis (CVST) and portal vein thrombosis. Arterial events have been described in 10% of patients. Mortality ranges from 30 to 60%. These patients are more likely to sustain CEREBRAL HEMORRHAGE than non-vaccine associated CVST.

### LABORATORY FINDINGS

- Thrombocytopenia (median ~50,000 per microliter)
- Reduced fibrinogen (1.0-4.0 g/L)
- Elevated D-dimer (4000-80,000 FEUs)
- Anti-PF4 positive by HIT ELISA
- HIT chemiluminescence assays often negative
- Normal or mildly increased PT, INR and aPTT



### WHEN TO SUSPECT

The acronym VITT is useful:

- Vaccine given
- Interval 5-30 days post vaccine
- Thrombosis (usually the presenting symptom)
- Thrombocytopenia (on CBC, but can be incidental finding prior to thrombosis)

Differential diagnosis includes COVID-19, other causes of thrombocytopenia or thrombosis, including ITP and TTP, and classic HIT

### MANAGEMENT

- CBC, coagulation studies (PT, aPTT, fibrinogen, D-dimer); PF4 antibody (ELISA)
- Anticoagulation (DOAC, fondaparinux, argatroban, bivalirudin)
- IVIg (1 gm/kg for two days); do not wait for PF4 testing if high suspicion (modified VITT 4T score can be used)
- Plasma exchange for refractory cases (or those with PLT count <50,000 per microliter and CH)
- Minimize platelet transfusions

### QUESTIONS

Incidence is not well defined, but recent estimates are 150,000-1-100,000, with cases higher if <50 yrs of age  
Can heparin be used safely? Probably!  
Steroids likely not needed except in severe cases  
It is not known how long antibodies persist; recurrence possible  
No identified risk factors  
Avoidance of adenoviral vaccines not currently recommended

### REFERENCES:


1. <https://doi.org/10.1093/ibd/ibaa001>  
2. <https://doi.org/10.1093/ibd/ibaa001>  
3. <https://doi.org/10.1093/ibd/ibaa001>  
4. <https://doi.org/10.1093/ibd/ibaa001>

Resources:  
Canva (free account available)

## PDF

Providing PDFs is an opportunity to give learners a downloadable resource they can take back for their notes to study, a report, article, guidelines

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SBAR Handoff (Situation, Background, Assessment, Recommendation)

Handoff	
<b>S – “Situation”</b>	
Patient Info:	Today’s Date: Diagnosis: Admission Date: Admitting Service/Provider:
<b>B – “Background”</b>	
Medical History: Allergies: Code Status: Current Medications/Antibiotics:	Surgical History: Fall Precautions: Contact Precautions: Restraints:
<b>A – “Assessment”</b>	
Neuro: Respiratory: Cardiac: GI/GU: Musculoskeletal: Skin: Dressing Changes: Psychosocial:	Vitals: BP _____ HR _____ Resp _____ Temp _____ Pain _____ Blood Glucose: _____ Checks q _____ Labs: X-rays: Lines/Fluids:
<b>R – “Recommendations”</b>	
Goals: Consults: Tests/Treatment: Discharge Needs:	Planned Imaging: Planned Operations:

# References

## COVID-19 Resources

- **Hydroxychloroquine/azithromycin basic science**
  - Wang M, Cao R, Zhang L, et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res.* 2020;30(3):269-271. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32020029>
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- **Lopinavir/ritonavir basic science**
  - Schoergenhofer C, Jilma B, Stimpfl T, Karolyi M, Zoufaly A. Pharmacokinetics of lopinavir and ritonavir in patients hospitalized with coronavirus disease 2019 (COVID-19). *Ann Intern Med.* 2020. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/32422065>
- **Ivermectin basic science**
  - Caly L, Druce, JD, Catton MG et al The FDA-approved drug ivermectin inhibits the replication of SARS-CoV-2 in vitro *Antiviral Research, Volume 178, 2020, 104787, ISSN 0166-3542, https://doi.org/10.1016/j.antiviral.2020.104787.*
  - Dayer MR Coronavirus (2019-nCoV) Deactivation via Spike Glycoprotein Shielding by Old Drugs, Bioinformatic StudyPreprint from Preprints.org, 02 May 2020  
DOI: [10.20944/preprints202005.0020.v1](https://doi.org/10.20944/preprints202005.0020.v1) PPR: PPR158226
- **Ivermectin meta-analyses**
  - Bryant, Andrew MSc1,\*; Lawrie, Theresa A. MBBCh, PhD2; Dowsell, Therese PhD2; Fordham, Edmund J. PhD2; Mitchell, Scott MBBCh, MRCS3; Hill, Sarah R. PhD1; Tham, Tony C. MD, FRCP4 Ivermectin for Prevention and Treatment of COVID-19 Infection: A Systematic Review, Meta-analysis, and Trial Sequential Analysis to Inform Clinical Guidelines, *American Journal of Therapeutics*: July/August 2021 - Volume 28 - Issue 4 - p e434-e460 doi: 10.1097/MJT.0000000000001402  
[https://journals.lww.com/americantherapeutics/fulltext/2021/08000/ivermectin\\_for\\_prevention\\_and\\_treatment\\_of.7.aspx](https://journals.lww.com/americantherapeutics/fulltext/2021/08000/ivermectin_for_prevention_and_treatment_of.7.aspx)
  - Yuani M Roman, Paula Alejandra Burela, Vinay Pasupuleti, Alejandro Piscocoy, Jose E Vidal, Adrian V Hernandez Ivermectin for the Treatment of Coronavirus Disease 2019: A Systematic Review and Meta-analysis of Randomized Controlled Trials *Clinical Infectious Diseases*, ciab591, <https://doi.org/10.1093/cid/ciab591>





## Tab Style (Click-and-Learn)

On clicking each tab or label, its relevant content with an appropriate graphic is displayed. We can use tab interactivity to present content such as classification, process, relationship, list, etc. in an attractive layout that promotes learner involvement. Tab interactivity can accommodate a large amount of text. The best advantage of a tab style interactivity is that it can accommodate a large amount of text.


Classification

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc fringilla metus et arcu maximus, at ullamcorper nibh maximus.

Click each tab to learn more.

Tab 1 Tab 2 Tab 3 Tab 4 Tab 5


Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum bibendum libero at felis tincidunt efficitur. Curabitur at massa vitae odio ultrices tristique. Vestibulum risus orci, bibendum et dui at, tristique

 **FCCS**  
Fundamental Critical Care Support

## Patient Assessment

Look Listen Feel

Click on each tab to learn more about key elements in airway assessment.





# Pulmonary Emboli

Epidemiology

Classification

Predictors

Diagnosis

Treatment

*Click on each tab to learn more.*



## Test Your Knowledge

Test your knowledge questions are great ways to measure learners' performance, provide feedback and let them know whether they can move on within the course or return to the previous activities to review the knowledge. There are various types of questions for you to choose from: True/false, multiple choice, multiple response, fill in blank, drag-n-drop, and sequence questions.

**FCCS**  
Fundamental Critical Care Support

### Opening the Airway (No Cervical Spine Injury)

Drag and drop the following steps into the correct order in which they should be performed.

Click the checkmark to submit your answers.

- Consider adjunctive devices (such as oral airway)
- Open mouth
- Slightly extend neck (when injury not suspected)
- Elevate mandible

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Course title 28 / 34

### Drag and drop 2

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent in commodo dui. Praesent sodales nunc.

Answer group 2 Answer group 1 Answer group 2

Answer group 2 Answer group 1 Answer group 2 Answer group 1


Box title 1

Answer group 1

Box title 2

Submit

Course title 15 / 21



### Single choice 2

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum purus augue, convallis at tincidunt et, accumsan sit amet nisi.

- Lorem ipsum dolor sit amet. (Correct answer)
- Lorem ipsum dolor sit amet, consectetur adipiscing elit. (Wrong answer)
- Lorem ipsum dolor sit amet elit. (Wrong answer)
- Lorem ipsum dolor. (Wrong answer)

Submit

## Video

It is an agile and entertaining format that connects with the audience instantly, providing context and facilitating storytelling.



# Copyright and Permission FAQs

## Copyright Assignment and Financial Disclosure

- Authors must complete the copyright and conflict of interest form they will receive under a separate email that your Staff Partner will facilitate.

## When is permission required?

Permission should be sought for a reproduction or adaptation of a copyrighted work. This includes but is not limited to text, abstracts, charts, tables, photographs, illustrations, or other materials that have been previously published.

## What is the difference between reproduction and adaptation?

Reproduction is the use of previously published material in exactly the same form. Adaptation is changing the previously published form, by either adding or subtracting something, such as changing the color scheme. Even if you change something from the original, permission is still required for an adaptation.

## Can I simply redraw the material?

Redrawing is still likely to be an infringement of the original material. If the original and new work are considered substantially similar (i.e., that the two works are too identical and that copying was likely to have occurred), then it is considered an infringement. It is best to either create new material or seek permission for use of the original material.

## When do I *not* have to obtain permission?

*Material(s) not subjected to copyright protection*

- Copyright only protects original (i.e., creative) materials. (Note: Even though the threshold for creativity is low; when in doubt seek permission to use potentially copyrighted material.)

*Public Domain*

- Public domain works are not protected and may be reproduced, adapted, or redrawn without permission.
- Included in the public domain are:
  - Materials that have an expired copyright term (i.e., anything published prior to 1923)
  - Materials where the copyright owner has expressly released the materials into the public domain (i.e., Open Access works)
  - Materials prepared by officers or employees of the US Government as part of their official duties

## Where do I obtain permission?

Permission must be sought from the copyright owner and/or the rights holder. Most of the time, the copyright owner and/or rights holder will be the publisher of the work. However, the chart, tables, figure, or photograph may have come from a third-party source. If this is the case, examine the material and determine if permission must be sought from the original source. The publisher will usually include the source (i.e., a reference line) next to the figure, chart, or illustration.

**What about material from a website? Do I need permission?**

Most likely. This material is protected whether or not the copyright symbol is displayed. It is best not to use any material from a website as information can be changed easily and often. Also, finding the correct copyright owner or rights holder may be difficult to determine.

**How do I obtain permission?**

Many publishers or copyright owners will utilize RightsLink®, an online copyright clearance house. If the copyright holder and/or rights holder does not utilize this service, then contact the copyright holder and/or rights holder directly or reach out to SCCM for assistance. If you need help with RightsLink®, please contact SCCM as well.

**What happens if I am unable to locate the copyright owner and/or rights holder?**

Make every effort to find and contact the copyright owner and/or rights holder. You should keep records of all correspondence as proof of your attempt to seek permission. Never assume that an unanswered request is an implied authorization to use the copyrighted material.

After a good faith and diligent effort has been made to determine the original author, please contact SCCM for assistance.

**What is SCCM's policy on patient photographs and information?**

Appropriate consents, permission, and releases must be obtained from the patient or relative/guardian when you wish to include case details or other personal information or images of patients. Written consent must be retained by the author, and a copy of the consent must be provided to SCCM upon request.

If you do not have access to a consent form, please contact SCCM for assistance.

**Once permission is obtained, what do I do?**

Once you have secured permission, please make sure that you have appropriately credited the copyright owner and/or rights holder. The appropriate credit line will usually be stated in the license agreement.

In addition, please forward your license agreement to SCCM for future reference.

**Questions, concerns, or assistance?**

Please contact your Staff Partner or SCCM Customer Service.

# Questions/Comments/Support



**Jennifer M. Velazquez, MBA, DES (she/her)**  
Society of Critical Care Medicine  
Manager, eLearning and Instructional Design  
Phone: +1 847 493-6440  
Email: [jvelazquez@sccm.org](mailto:jvelazquez@sccm.org)



**Rafaela Valderrama, DES (she/her)**  
Society of Critical Care Medicine  
eLearning Specialist  
Phone: +1 847 827-7025  
Email: [rvalderrama@sccm.org](mailto:rvalderrama@sccm.org)



**Elizabeth Rosa-Jameson, DES (she/her)**  
Society of Critical Care Medicine  
eLearning Specialist  
Phone: +1 847 827-6932  
Email: [erosa@sccm.org](mailto:erosa@sccm.org)

