

COVID-19 Part 2 Focus on Clinical Course SYLLABUS

COURSE DESCRIPTION

The COVID-19 pandemic has become one of the most significant public health emergencies of our century. As key members of the medical community, it is our responsibility to be informed with the most current scientific data and medical knowledge related to COVID-19 and the clinical care of our patients.

Through this course, medical students will learn about the clinical considerations for treating patients suspected of infection or diagnosed with COVID-19. A series of modules were designed to focus on the clinical course of disease and include the initial patient presentation, comorbidities and risk factors, differential diagnosis, diagnostic tools, respiratory interventions, medical therapies, patient outcomes, medical specialty implications and the societal effects of the COVID-19 pandemic. The modules were designed to provide medical students with a broad understanding of the clinical challenges and considerations encountered during this pandemic. Materials consist of select readings, patient cases, outline summaries, and interactive videos/presentations and will serve as the key resources to inform our students.

At the end of this course, students will possess a solid understanding of the clinical presentation and management of patients with COVID-19 disease and translate the newly acquired knowledge to the practice of medicine to improve the health of the community as a whole.

OVERARCHING LEARNING GOALS

- To translate the medical knowledge surrounding the COVID-19 pandemic to the practice of medicine
- To acquire the medical skills necessary to care for patients with COVID-19 and related conditions

TOPICS

- Illness Script of COVID-19
- Comorbidities and Risk Factors
- Differential Diagnosis
- Diagnostic Tools
- Respiratory Interventions
- Medical Therapies
- Outcomes
- Medical Specialty Implications

COURSE MATERIALS

Select course materials will be available for each topic and will include required journal articles, readings (e.g. patient cases and outlines), video presentations and/or interactive presentations. Selected journal articles will be provided along with outline materials.

COURSE OVERVIEW

The course is composed of an online study of select module activities that developed rapidly in response to the COVID-19 pandemic. As a result, taking ownership of assignment due dates and deadlines is of paramount importance. Students should utilize Canvas to determine and adhere to assignment deadlines.

In addition to the content developed for third year students, advanced content for students in their fourth year is currently in development and will focus around the following module topics:

COVID-19 Part 2 Focus on Clinical Course SYLLABUS

Hydroxychloroquine as Treatment, Discharge Planning, Advanced ICU Management, In-Hospital Comorbidity Management, and Difficult Conversations. The fourth-year content will supplement the current modules to create a more robust knowledge base for students that will become interns in the next few months.

PRE- AND POST-WORK

- A variety of pre-work activities will be offered to allow for adequate preparation for the course. Examples of pre-work will include, but not be limited to, recommended journal articles, required outlines, patient cases and presentations.
- A variety of post-work activities may also be assigned to solidify course content as well as reinforce and extend learning. Examples of post-work, depending on assignment, will be to complete a knowledge-based quiz for each module and produce a written summary to a variety of target audiences (e.g. a patient, a neighbor, your grandma, a medical colleague, etc.).

ONLINE LEARNING MODULES

1. Illness Script

This module defines the COVID-19 patient presentation and spectrum of disease. The module will present information on the time course of disease and which lab values would help a clinician determine if a patient has a severe form of COVID disease.

Learning objectives

- Identify common symptoms of patients presenting with COVID-19
- Identify common physical examination characteristics of patients with COVID-19 infection at different phases of illness
- Describe the time course of COVID-19 infection
- Identify lab values relevant to COVID-19 infection

2. Comorbidities and Risk Factors

Within this module, the comorbidities and risk factors that may lead to severe or critical COVID disease are explored. Primary literature will form the base of this discussion as well as observations from doctors in the field treating COVID-19 patients. Information on the importance of viral load on disease severity will also be discussed.

Learning objectives

- List the risk factors for COVID-19 infection and severity including age and weight
- Identify how medical comorbidities interact with COVID-19 infection
- Discuss the role of viral load and inoculum load in severity of COVID-19 infection in healthcare workers

3. Differential Diagnosis

This module will help students determine other diseases that a clinician would review when considering a COVID diagnosis. Common respiratory viruses and bacterial lung infections will be explored along with non-infectious etiologies, such as pulmonary embolism and COPD exacerbation.

Learning objectives

- Develop a differential diagnosis for fever and cough, including COVID-19 including common viral and bacterial respiratory infections
- Describe historical, physical exam, laboratory, and imaging characteristics utilized to differentiate among conditions that cause fever and cough.
- Identify conditions that may co-occur with COVID-19 including PE, MI, and DKA

4. Diagnostic Tools

The role of PCR in determining an infection of COVID-19 is well displayed on the local media. Here we will discuss the clinical role of PCR testing to identify COVID infection. Additionally, students will be presented with the importance of other diagnostic tools, such as CT scanning, to determine disease severity.

COVID-19 Part 2 Focus on Clinical Course SYLLABUS

Learning objectives

- Describe the role of PCR testing in identification of COVID-19 infection
- Describe the role of imaging modalities including X ray and CT in identifying and prognosticating COVID-19 infection
- Discuss the theoretical and practical implications of serum antibody testing for COVID-19

5. Respiratory Interventions

This module illustrates the management of patients with respiratory failure and the strategies involved when different lung pathologies are expected. Ventilator settings will be discussed for different syndromes such as acute respiratory distress syndrome or acute respiratory distress syndrome.

Learning objectives

- Describe the pulmonary complications of severe COVID-19 infection
- Explain the management options for acute hypoxemic respiratory failure
- Identify the characteristics of acute respiratory distress syndrome
- Summarize the principles behind the management of acute respiratory distress syndrome

6. Medical Therapies

This module discusses the experimental therapeutics currently in clinical trials for COVID-19. The known mechanisms of action are demonstrated and used to explain the drugs' effect on the virus's virulence. Topics such as vaccine development and proper use of PPE will also be explained.

Learning objectives

- Describe the treatment options/goals for therapies in COVID-19 patients (supportive, direct anti-viral, cytokine storm therapy)
- Identify the role of steroid treatment in COVID-19 patients
- Discuss the drug targets for various COVID-19 experimental therapies
- Outline the vaccine development process and limitations to vaccine development

7. Outcomes

This module reviews the possible short-term and long-term outcomes of COVID-19 disease. The causes of death from COVID disease are discussed such as myocarditis, renal failure, and respiratory failure.

Learning objectives

- Identify the potential long-term respiratory complications of COVID-19 infection ranging from symptom resolution and ARDS
- Discuss additional causes of death due to COVID-19 infection including myocarditis and renal failure
- Explain the current understanding of the potential for reinfection of COVID-19 based on repeat PCR findings

8. COVID and Society

In this module, students are exposed to different patient scenarios involving difficult topics such as rationing healthcare supplies. A FAQ section of the module discusses answers to common general public questions such as the use of masks, buying food from restaurants, and etc.

Learning objectives

- Identify difficult communication topics that may need to be explained to patients during the COVID-19 pandemic
- Explore frequently asked questions by the general public and formulate appropriate responses for healthcare professionals

COVID-19 Part 2 Focus on Clinical Course SYLLABUS

9. Medical Specialty Implications

This module has a unique design compared to the rest. Attending and resident physicians provide information regarding the changes to their practice due to COVID-19 via video. Many specialties are interviewed, such as rheumatology, pediatrics, oncology and more. Here students can gain a new perspective on how different specialties are adapting and evolving during this pandemic.

Learning objectives

- Summarize the effect of COVID-19 on various medical specialties
- Explore the role of specific medical specialties during the COVID-19 pandemic

EVALUATION

You can expect to be evaluated on all aspects of the course. Information regarding this pandemic is dynamic and changes rapidly. This course was developed to provide a foundation for further reading and synthesis of new information that emerges from this global event. As a result, you can expect that the assessments will test your ability to think critically, analyze thoughtfully, and express yourself effectively for your own personal knowledge, and for the variety of people (i.e. peers, patients and community members) whom you interact with daily. **The course is Pass/Fail** and in order to pass students need to show completion of the quizzes and discussion assignments. The percent correct on the quizzes/assignments do not dictate the points received, if the quiz/assignment is completed the student will be provided full credit for that section.

PRE- AND POST-COURSE ASSESSMENTS AND SURVEYS

At the end of the course your progress will be assessed. In addition, your feedback on the materials and methods used in this course will be collected, as well as your attitudes, abilities and beliefs about the topic covered and activities performed in the course. All surveys are performed in an effort to improve your online learning experience and to help you achieve the learning outcomes of the course.

CREDIT BREAKDOWN

Due Date	Module	Assignment Type	Name of Assignment
4/15/20	Illness Script	Module Quiz Discussion prompt	Illness Script Quiz Illness Script Prompt
	Comorbidities and Risk Factors	Module Quiz Discussion prompt	Comorbidities and Risk Factor Quiz Comorbidities and Risk Factor Prompt
4/17/20	Differential Diagnosis	Module Quiz Discussion prompt	Differential Diagnosis Quiz Differential Diagnosis Prompt
	Diagnostic Tools	Module Quiz Discussion prompt	Diagnostic Tools Quiz Diagnostic Tools Prompt
4/19/20	Respiratory Interventions	Module Quiz Discussion prompt	Respiratory Interventions Quiz Respiratory Interventions Prompt
	Medical Therapies	Module Quiz Discussion prompt	Medical Therapies Quiz Medical Therapies Prompt
4/21/20	Outcomes	Module Quiz Discussion prompt	Outcomes Quiz Outcomes Prompt
	COVID and Society	Module Quiz Discussion prompt	COVID and Society Quiz COVID and Society Prompt
4/23/20	Medical Specialty Implications	Module Quiz Discussion prompt	Medical Specialty Implications Quiz Medical Specialty Implications Prompt
	End of Course Evaluation	Pre/Post Survey	Pre/Post Test Survey

COVID-19 Part 2 Focus on Clinical Course SYLLABUS

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