

QUICK REFERENCE GUIDE TO COVID-19 AND CANCER

UPDATED 03.29.20

EPIDEMIOLOGY

- › Lung cancer patients likely are more vulnerable representing 25-58% of cancer pts in small descriptive studies¹⁻³
- › Infection rate, at one institution, of SARS-COV-2 in oncology patients 0.79% vs general population 0.39%²

TRANSMISSION

- › Via respiratory droplets in the air or on surfaces, potentially fecal oral route⁴⁻⁶
- › Median incubation period 5 days
- › Asymptomatic/mildly symptomatic patients can have high viral load and shed for up to 3 weeks.⁷⁻¹⁰

DIAGNOSIS

- › Hubei province standard: history + symptoms (i.e. lower respiratory tract symptoms, fever) + radiographic evidence or RT-PCR/NGS⁸
- › CT findings are highly sensitive, but not highly specific ➔ bilateral GGO most common
- › For patients with pneumonitis – remain vigilant for COVID-19, consider retesting patients
- › Prelim data from Stanford suggest 22% co infection rate with other respiratory viruses

CLINICAL SYNDROMES

- › Fever, cough, myalgia, fatigue, SOB persist most common symptoms
 - Anosmia can be an early symptom as can sore throat
- › In severe patients, acute hypoxic respiratory failure can develop rapidly, low threshold for intubation (avoid nebulizers, HFNC, BiPAP/CPAP to prevent aerosolization)
- › Older pts more likely to present with SOB, higher fevers, more severe lab/imaging findings, and are more likely to develop severe/critical disease such as ARDS requiring ICU admission¹¹
- › Potential for clinical deterioration in second week¹², median time between first symptoms to ARDS in 1 study was 8 days.
- › 10-25% of hospitalized patients have been reported to require ventilator support¹³
- › Cancer patients have more severe events (39-54%) and deteriorate more rapidly^{1,3}
 - Mortality 28.5% in one study³, case fatality rate 5.6% vs. 2.3% in the general population¹⁴
 - Patients with more advanced cancer are more likely to have severe disease³
 - Patchy consolidation on CT on admission associated with increased risk of severe events (HR=5.438)³
 - Recent treatment (within 14 days) associated w/ development of severe events (HR=4.079)³
- › Case fatality remains high for the elderly ➔ overall 2.3%, 70-79 yo 8.0%, older than 80 14.8%⁵

LESSONS FROM MERS¹⁵

- › 19 patients with cancer during the MERS epidemic
 - 80% needed ICU care
 - › 81% ARDS, 69% intubated, 56% had renal injury of which 19% required dialysis
 - 84% fatality rate, 100% of those with hematologic malignancies and advanced cancer, vs. 39% in the general population

KEY TREATMENTS BEING INVESTIGATED (JUST A TASTE)¹⁶

- › Remdesivir ➔ targets viral RNA dependent RNA polymerase, available for compassionate use by Gilead
- › Convalescent plasma ➔ passive immunity, FDA announced that it can be collected and used in emergency situations fill out form [3926](#) and email CBER_eIND_Covid-19@FDA.HHS.gov (4-8 hr turn around)¹⁷
- › Chloroquine and hydroxychloroquine ➔ RCT of hydroxychloroquine (30 pts) demonstrated no clinical benefit¹⁸, open label trial showed more rapid resolution of viral shedding in nasopharyngeal swabs in patients with hydroxychloroquine (viral clearance enhanced for 6 pts also treated with azithromycin)¹⁹, safety/dosing studies needed
- › Lopinavir-ritonavir ➔ Negative RCT²⁰
- › Tocilizumab ➔ potent IL6 inhibitor, under investigation for use in severe patients
- › Reports indicate NSAID use is associated with severe disease ➔ research on going, avoid if possible²¹
- › ACEi/ARBs concern for up regulating ACE2 receptor ➔ research on going, recommended to continue for now²²
- › Concern corticosteroids prolong viral shedding ➔ recommend to avoid if possible²³

THEMES FROM AVAILABLE GUIDELINES/EXPERT ADVICE²⁴⁻³⁴:

- › Prevention ➔ PPE, min. exposures, hand hygiene, separating cancer patients from COVID19/PUI patients, screening patients/providers frequently for symptoms, utilizing homecare/telemedicine when possible, t/c PPE for cancer pts
- › Anticipation ➔ discuss prognosis with patients and families, clearly document in EMR prognosis and goals of care (DNR/DNI status), have up to date medical power of attorney information and family contact numbers, have multiple lines of “jeopardy” to fill in for provider shortages, have a plan for patient transportation within or between hospitals, plan for PPE shortages, designate “COVID free” sections in clinics/hospital wards, plans for how to manage oncology patients with COVID19 not sick enough to come into the hospital
- › Minimizing harm ➔ aggressive use of growth factor, considering oral regimens/spacing regimens/2-4 week treatment holds for high risk patients, aggressive symptom management to keep people at home, consider liquid biopsies
- › Cancer care essential to continue cancer care especially for curative, young patients, or those who will rapidly deteriorate without care
- › Communication frequent conversations with patients/families especially those hospitalized who can’t have visitors, honest messaging to inpatient teams about prognosis
- › Emotional support ➔ plans to relieve providers and administrators, culture of support, need to support patients

GUIDELINES/WEBSITES (SEE CITATION PAGE FOR MORE LITERATURE/REFERENCES)

- › Excellent overview aimed for internists [ACP](#)
- › NICE guidelines including recommendations for prioritizing cancer patients for treatment [NICE](#)
- › IDSA guidelines including an excellent page rating evidence of proposed COVID19 treatment [IDSA](#)
- › American College of Surgeons triage recommendations [ACS](#)
- › Recommendations and prioritization of treatment/triage of breast cancer patients [American Society of Breast Surgeons](#)
- › [ASCO](#), [NCCN](#), [ASH](#)

WORK CITED

1. Liang W, Guan W, Chen R, et al: Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *Lancet Oncol* 21:335–337, 2020
2. Yu J, Ouyang W, Chua MLK, et al: SARS-CoV-2 Transmission in Patients With Cancer at a Tertiary Care Hospital in Wuhan, China [Internet]. *JAMA Oncol*, 2020[cited 2020 Mar 28] Available from: <https://jamanetwork.com/journals/jamaoncology/fullarticle/2763673>
3. Zhang L, Zhu F, Xie L, et al: Clinical characteristics of COVID-19-infected cancer patients: A retrospective case study in three hospitals within Wuhan, China [Internet]. *Ann Oncol*, 2020[cited 2020 Mar 28] Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0923753420363833>
4. Xiao F, Tang M, Zheng X, et al: Evidence for gastrointestinal infection of SARS-CoV-2 [Internet]. *Gastroenterology*, 2020[cited 2020 Mar 28] Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0016508520302821>
5. Wang L, Wang Y, Ye D, et al: A review of the 2019 Novel Coronavirus (COVID-19) based on current evidence. *Int J Antimicrob Agents* 105948, 2020
6. He F, Deng Y, Li W: Coronavirus Disease 2019 (COVID-19): What we know ➔ *J Med Virol*, 2020
7. Zou L, Ruan F, Huang M, et al: SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. *N Engl J Med* 382:1177–1179, 2020
8. Han Y, Yang H: The transmission and diagnosis of 2019 novel coronavirus infection disease (COVID-19): A Chinese perspective [Internet]. *J Med Virol*, 2020[cited 2020 Mar 28] Available from: <https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.25749>
9. Wang Y, Liu Y, Liu L, et al: Clinical outcome of 55 asymptomatic cases at the time of hospital admission infected with SARS-Coronavirus-2 in Shenzhen, China [Internet]. *J Infect Dis*, 2020[cited 2020 Mar 28] Available from: <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa119/5807958>
10. Hu Z, Song C, Xu C, et al: Clinical characteristics of 24 asymptomatic infections with COVID-19 screened among close contacts in Nanjing, China [Internet]. *Sci China Life Sci*, 2020[cited 2020 Mar 28] Available from: <http://link.springer.com/10.1007/s11427-020-1661-4>
11. Lian J, Jin X, Hao S, et al: Analysis of Epidemiological and Clinical features in older patients with Corona Virus Disease 2019 (COVID-19) out of Wuhan [Internet]. *Clin Infect Dis*, 2020[cited 2020 Mar 28] Available from: <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa242/5811557>
12. Kucharski AJ, Russell TW, Diamond C, et al: Early dynamics of transmission and control of COVID-19: a mathematical modelling study [Internet]. *Lancet Infect Dis*, 2020[cited 2020 Mar 17] Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1473309920301444>
13. Truog RD, Mitchell C, Daley GQ: The Toughest Triage — Allocating Ventilators in a Pandemic [Internet]. *N Engl J Med*, 2020[cited 2020 Mar 28] Available from: <http://www.nejm.org/doi/10.1056/NEJMp2005689>
14. Wu Z, McGoogan JM: Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention [Internet]. *JAMA*, 2020[cited 2020 Mar 28] Available from: <https://jamanetwork.com/journals/jama/fullarticle/2762130>
15. Jazieh A-R, Alenazi TH, Alhejazi A, et al: Outcome of Oncology Patients Infected With Coronavirus. *JCO Glob Oncol* 471–475, 2020
16. McCreary EK, Pogue JM: COVID-19 Treatment: A Review of Early and Emerging Options [Internet]. *Open Forum Infect Dis*, 2020[cited 2020 Mar 28] Available from: <https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofaa105/5811022>
17. Investigational COVID-19 Convalescent Plasma- Emergency INDs [Internet]. *US Food Drug Adm*, 2020[cited 2020 Mar 28] Available from: <https://www.fda.gov/vaccines-blood-biologics/investigational-new-drug-ind-or-device-exemption-ide-process-cber/investigational-covid-19-convalescent-plasma-emergency-ind>
18. Chen J: A pilot study of hydroxychloroquine in treatment of patients with common coronavirus disease-19 (COVID-19). *J ZheJiang Univ Med Sci* 49, 2020
19. Gautret P, Lagier J-C, Parola P, et al: Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. *Int J Antimicrob Agents* 105949, 2020
20. Cao B, Wang Y, Wen D, et al: A Trial of Lopinavir–Ritonavir in Adults Hospitalized with Severe Covid-19 [Internet]. *N Engl J Med*, 2020[cited 2020 Mar 28] Available from: <http://www.nejm.org/doi/10.1056/NEJMoa2001282>

21. FDA Advises Patients Use of Non-Steroidal Anti Inflammatory Drugs for COVID-19 [Internet]. US Food Drug Adm, 2020[cited 2020 Mar 28] Available from: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-advises-patients-use-non-steroidal-anti-inflammatory-drugs-nsaids-covid-19>
22. Patel AB, Verma A: COVID-19 and Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers: What Is the Evidence ➔ [Internet]. JAMA, 2020[cited 2020 Mar 28] Available from: <https://jamanetwork.com/journals/jama/fullarticle/2763803>
23. Shang L, Zhao J, Hu Y, et al: On the use of corticosteroids for 2019-nCoV pneumonia. *The Lancet* 395:683–684, 2020
24. C F, A P, B M, et al: Managing COVID-19 in the oncology clinic and avoiding the distraction effect. *Ann Oncol* 7534, 2020
25. Giuseppe C: The Treatment of Patients With Cancer and Containment of COVID-19: Experiences From Italy [Internet]. *ASCO Dly News*, 2020 Available from: <https://dailynews.ascopubs.org/doi/10.1200/ADN.20.200068/full/>
26. M U, R M, Pc H, et al: Managing Cancer Care During the COVID-19 Pandemic: Agility and Collaboration Toward a Common Goal. *J Natl Compr Canc Netw* 1–4, 2020
27. Rivera A, Ohri N, Thomas E, et al: The Impact of COVID-19 on Radiation Oncology Clinics and Cancer Patients in the U.S. *Adv Radiat Oncol Clin Cancer Patients US*
28. Lordick F: Should Cancer Treatment Be Continued During The Pandemic ➔ A Case-By-Case Discussion is Required. *ESMO Soc News*, 2020
29. Soo R: Splitting Healthcare Teams May Help To Reduce Disruption in Patient Care [Internet]. *ESMO Soc News*, 2020[cited 2020 Mar 28] Available from: <https://www.esmo.org/newsroom/esmo-society-news/splitting-healthcare-teams-may-help-to-reduce-disruption-in-patient-care>
30. The COVID-19 Pandemic Breast Cancer Consortium: Recommendations for Prioritization, Treatment and Triage of Breast Cancer Patients During COVID-19 Pandemic: Executive Summary [Internet], 2020[cited 2020 Mar 28] Available from: www.esmo.org/newsroom/esmo-society-news/splitting-healthcare-teams-may-help-to-reduce-disruption-in-patient-care
31. Cortiula F, Pettke A, Bartoletti M, et al: Managing COVID-19 in the oncology clinic and avoiding the distraction effect [Internet]. *Ann Oncol*, 2020[cited 2020 Mar 28] Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0923753420363730>
32. COVID-19 Patient Care Information [Internet]. *ASCO*, 2020 Available from: <https://www.asco.org/asco-coronavirus-information/care-individuals-cancer-during-covid-19>
33. Coronavirus Disease COVID-19: EBMT Recommendations [Internet]. *Eur Soc Blood Marrow Transplant*, 2020[cited 2020 Mar 28] Available from: https://higherlogicdownload.s3.amazonaws.com/ASBMT/a1e2ac9a-36d2-4e23-945c-45118b667268/UploadedImages/COVID-19_Interim_Patient_Guidelines_3_18_20.pdf
34. Interim Guidelines for COVID-19 Management in Hematopoietic Cell Transplant and Cellular Therapy Patients [Internet]. *Am Soc Transplant Cell Ther*, 2020[cited 2020 Mar 28] Available from: https://higherlogicdownload.s3.amazonaws.com/ASBMT/a1e2ac9a-36d2-4e23-945c-45118b667268/UploadedImages/COVID-19_Interim_Patient_Guidelines_3_18_20.pdf