

Pandemic Recovery Using a Covid-Minimal Cancer Surgery Pathway

Daniel J. Boffa

Smilow Cancer Hospital, Yale New Haven Hospital, New Haven CT, E-mail: daniel.boffa@yale.edu

Abstract

The Covid-19 pandemic has created unprecedented disruption in health care delivery around the world. In an effort to prevent hospital-acquired Covid-19 infections, most hospitals have severely curtailed elective surgery, performing only surgeries if the patient's survival or permanent function would be compromised by a delay in surgery. As hospitals emerge from the pandemic, it will be necessary to progressively increase surgical activity at a time when hospitals continue to care for Covid-19 patients. In an attempt to mitigate the risk of nosocomial infection, we have created a patient care pathway designed to minimize risk of exposure of patients coming in to the hospital for scheduled procedures. The "Covid-minimal surgery pathway" is a predetermined patient flow, that dictates the locations, personnel and materials that come in contact with our cancer surgery population, designed to minimize risk for virus transmission. We outline the approach that allowed a large academic medical center to create a Covid-minimal cancer surgery pathway within 7 days of initiating discussions. Although the pathway represents a combination of recommended practices, there is not data to support its efficacy. We share the pathway concept and our experience so that others wishing to similarly align staff and resources towards the protection of patients, may have an easier time navigating the process.

The Covid-19 pandemic has led to the rapid restructuring of hospitals and hospital operations around the urgent need to care for large numbers of critically ill patients, while protecting patients and staff. To this end, elective surgeries have largely been cancelled at hospitals in countries and regions affected by the pandemic in order to preserve resources needed to care for patients with Covid-19 and to minimize patient exposure. However, many hospitals continue to perform surgeries in patients whose survival or permanent function could be compromised by delaying surgery (i.e. "urgent operations"). Included among these urgent surgical procedures, are a range of procedures for cancer treatment. Many patients requiring cancer operations are elderly and have medical problems, making a Covid-19 infection potentially more dangerous^{1, 2}. As a result, hospitals must take additional precautions to minimize the risk of Covid-19 infection among these particularly vulnerable patient populations.

The precise risk of acquiring a Covid-19 infection during an episode of hospital care is unknown. Risk for nosocomial infection likely parallels general principles of

Covid-19 transmission, which are related to proximity and duration of contact with Covid-19 infected individuals, as well as contact with materials harboring the virus³. Early data from Europe and Asia have confirmed that nosocomial infections occur in patients coming to hospitals from home for cancer surgery^{4, 5}. When patients with cancer do become infected by Covid-19, they are at higher risk than the general population for adverse effects, such as ICU admission, intubation, and death⁶. While it is unlikely hospitals can completely eliminate the potential for viral transmission from infected patients, there are several approaches capable of mitigating risk (e.g. wearing of masks, hand washing, distancing, etc). As the proportion of Covid-19 patients increases within a hospital census, the potential for inadvertent contact with people and materials capable of transmitting the virus also increases, requiring a deliberate plan to protect the cancer surgery population. Similarly, as hospitals begin to recover from the pandemic and relax triage restrictions, there will be a need to increase surgical activity at a time when Covid-19 patients constitute a significant proportion of hospital census.

Our interdisciplinary team created a "Covid-minimal cancer surgery pathway" to minimize the risk of nosocomial Covid-19 infection among patients coming from home for cancer surgery. The pathway is a combination of current best practices in Covid transmission prevention⁷, and a defined flow of patients throughout their hospitalization. From the parking garage, through the patient's discharge, specific patient locations and transportation routes were designed to minimize contact with people and materials thought to carry the highest risk of transmitting Covid-19 infection. The pathway integrates best practice recommendations, and the shared experiences from some of the most severely affected regions of Europe, Asia, and North America. The pathway is not proposed as the optimal approach to performing surgery during the pandemic. Rather, the pathway is described to facilitate its replication by surgical teams who share our opinion regarding the value of isolating the cancer surgery population, to the extent it is possible, through their hospital course during the pandemic.

Covid-Minimal Pathway as a Concept The Covid-minimal pathway is simply a set of predetermined steps that define a patient's flow through the hospital as they prepare for, undergo, and recover from surgery. The key components of the pathway relate to the locations in which care takes place, patient selection, staff screening, as well as the process by which care is delivered (Figure 1). The pathway

is designed to minimize contact of surgery patients with people, space, and materials that are also in contact with a) Covid-19 positive patients, b) Covid-19 suspected patients, or c) Covid-19 unknown.

Comment :

The described pathway represents our attempt to minimize the risk of patient exposure to Covid-19 infection during a hospital stay for urgent cancer surgery. The Covid-minimal pathway will be important during the recovery phase, as triage restrictions are slowly relaxed, and surgical volumes increase, potentially at time when many Covid-19 patients are hospitalized. There is no data to support that implementation of the proposed pathway will reduce the risk of nosocomial Covid-19 infections. We have created the pathway to address, to the best that we were able, the modifiable factors that we interpret to harbor the greatest potential to transmit Covid-19 to patients coming from home for cancer surgery
Realities of Covid-19 era

References

1. Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA* 2020.
2. Prevention CfDCa. Groups at Higher Risk for Severe Illness 2020. Accessed 4/23/2020, 2020.
3. Prevention CfDCa. How Covid-19 Spreads 4/13/2020, 2020. Accessed 4/23/20, 2020.
4. Lei S, Jiang F, Su W, et al. Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection. *EClinicalMedicine* 2020:100331.
5. Yu J, Ouyang W, Chua MLK, et al. SARS-CoV-2 Transmission in Patients With Cancer at a Tertiary Care Hospital in Wuhan, China. *JAMA Oncol* 2020.