

Protecting High-Risk Oncology Patients During the COVID-19 Pandemic by Creating an Isolated Outpatient Clinic

Seyed Mohammad Abedi, MD, PhD¹; Manidhar Lekkala, MD¹; Bahar Mofitakhar, MD¹; Tammy Clarke, NP¹; and Arpan Patel, MD¹

abstract

PURPOSE Delivering care for immunocompromised, high-risk patients with cancer during a pandemic has proven challenging. Patients with cancer on chemotherapy have a high risk of mortality if contracted COVID-19. If a patient goes directly to the emergency room, multiple contact points with other individuals can lead to unnecessary exposures from any airborne virus, such as COVID-19. Our cancer center has implemented an isolated clinic with personal protective equipment and direct access to a COVID-19 rule-out floor to manage those with febrile neutropenia (FN).

METHODS We implemented an outpatient, isolated, extended-hour clinic with access to personal protective equipment, laboratories, and antibiotics for patients with FN as a pilot project from April 1 to December 31, 2020, with the aim to decrease emergency department (ED) visits for FN by 50%.

RESULTS Since the implementation of our clinic, we have screened 74 unique patients during 102 visits, of which 76 led to a discharge and 26 led to a direct admit, thus avoiding the ED. Thirty-nine of these visits were for patients with recent travel or a known COVID-19 exposure. Bringing these patients to our isolated clinic ensured safety of the approximately 200 patients undergoing active treatment in our infusion center daily.

CONCLUSION Implementing this clinic has thus far successfully decreased the social footprint of our highest-risk patients with cancer in the ED considerably. Our efforts and hopes of decreasing the possible exposure of our immunocompromised patients to COVID-19 as well as the unnecessary exposure of the infusion center patients and personnel have thus far been effective.

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INTRODUCTION

Delivering care for vulnerable patients with cancer undergoing active treatment during a pandemic is challenging, given the competing risks of death from cancer versus the high case fatality rates from SARS-CoV-2 (COVID-19).¹ Current data suggest a fatality rate of approximately 30%-50% with COVID-19 in patients under treatment for active malignancy.²⁻⁴ We adapted guidelines from national organizations to minimize risk of exposure to COVID-19.⁵⁻⁷ Before the pandemic, our cancer institution would refer 15-20 patients per month (approximately 210 patients from April 2019 to April 2020) during business hours to the emergency department (ED) for febrile neutropenia (FN) for quick assessment and administration of intravenous (IV) antibiotics. We define FN as an absolute neutrophil count < 1,500. Because of the pandemic, wait times were increased initially, creating a potential delay in administering antibiotics and efficient triage; there was also the risk of contracting COVID-19. Our primary goal

was to preserve overall hospital resources and reduce the number of patients visiting the ED for FN during business hours by 50% or more.

METHODS

Our cancer center implemented an isolated clinic with personal protective equipment (PPE) and direct access to a COVID-19 rule-out floor (if admission warranted) to manage those with FN or COVID-19 exposure, who otherwise would have been triaged to a busy ED. We implemented an outpatient, isolated, fully staffed, extended-hour clinic with access to PPE, basic laboratories, IV antibiotics, and fluids for patients with FN as a pilot project from mid-April 2020, with the aim to decrease ED visits for FN by 50%. Cancer center patients in need of assessment were directed to our clinic after they called their providers during office hours. Once seen in the clinic, we used the Multi-national Association of Support Care in Cancer (MASCC) validated tool to assist with outpatient versus

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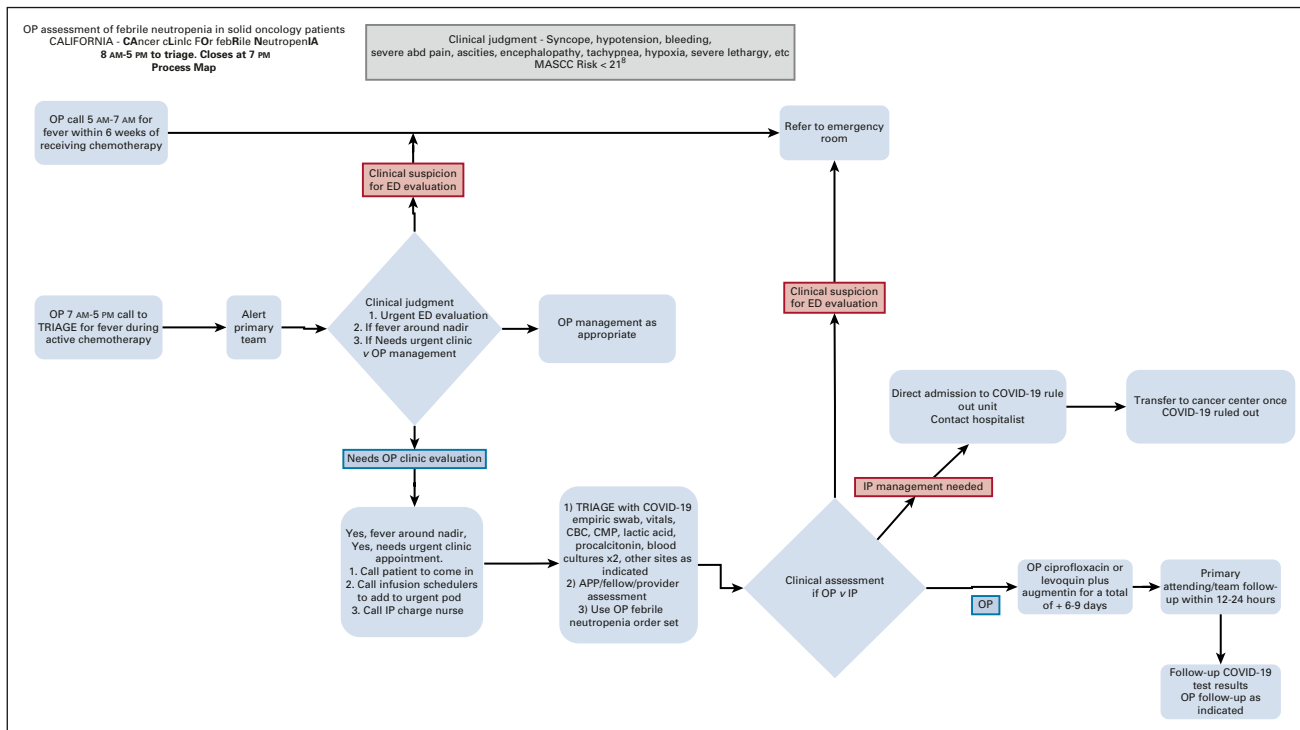


FIG 1. MASCC algorithm used to assist in determining OP versus IP management of clinic patients. APP, advanced practice provider; CBC, complete blood count; CMP, complete metabolic panel; ED, emergency department; IP, inpatient; MASCC, Multinational Association of Support Care in Cancer; OP, outpatient. Source: Taplitz et al.⁷

inpatient management of these patients (Fig 1). All patients were also screened via polymerase chain reaction nasal swab for COVID-19. Those with a negative COVID-19 in need of admission were directly admitted to the cancer center. Those in need of admission with a pending COVID-19 test were admitted to our rule-out unit. Those in need of additional workup such as imaging studies were sent to the ED with a warm handoff to expedite their workup and minimize time spent in the ED. Our Plan-Do-Study-Act (PDSA) cycles were 4 weeks in duration with constant revision and re-education of providers at multiple levels for enhanced efficiency.

Context

High fatality rate in immunocompromised patients affected with COVID-19 encouraged us to create an isolated clinic for evaluation of cancer center patients to minimize their possible exposure to COVID-19 in crowded emergency departments.

Preintervention Practice

Before the onset of the COVID-19 pandemic, our febrile cancer center patients had the option of calling their provider during business hours or directly reporting to the ED for any suspicion of fever during chemotherapy nadir. Since our subspecialty faculty group of providers have nondirect patient care commitments, they are not available to staff clinics daily, and before the pandemic (March 2020), we did not have capacity for an urgent care oncology clinic. For this reason, if a provider was not able to see their

patient on a specific day, the patient would be asked to report to the ED for further assessment. The provider would inform the ED of the patients’ arrival to expedite the workup. Another important issue is time to IV antibiotics; if a patient was seen in clinic, the chances of obtaining IV antibiotics per the standard of care for FN in 60 minutes or less was challenging.

Intervention

Cancer center patients with a high suspicion of FN during the pandemic and recent travel or exposure to COVID-19 who were in need of an in-person evaluation were seen in our isolated clinic. The clinic was fully staffed with providers specific for the clinic. The MASCC algorithm was used and subsequently, those requiring further workup or admission were either directly admitted, sent to a COVID-19 rule-out floor, or sent to the ED for an expedited additional workup and possible admission.

RESULTS

Before COVID-19, our databases showed a triage of approximately 15-20 FN hematology and oncology patients per month to the ED during business hours. Since the implementation of our clinic on April 1, until the time of data analysis on December 31, 2020, we have seen 74 unique patients during 102 visits, of which 76 (75%) led to a discharge and 26 (25%) led to a direct admit to a COVID-19 rule-out floor or the cancer center, thus avoiding the ED altogether. Of the patients seen, 38 (51%) were male and 36

(49%) were female, with a median age of 59.4 years and a range of 19-95 years. Twenty-eight (38%) patients had a solid malignancy, whereas the other 46 (62%) were being treated for a hematologic malignancy. Finally, 54 (53%) visits were for fever or FN, whereas 39 (38%) were for treatment in an isolated location because of travel or COVID-19 exposure.

As the clinic evolved, we triaged those with COVID-19 exposure or recent travel (see PDSA cycle below) to our isolated clinic also; these unique visits totaled to 39. Treating these patients in our isolated clinic ensured the safety of the 200 or so patients undergoing active treatment in our infusion center daily. Due to the dangers of chemotherapy-induced immunosuppression and patient choices to quarantine due to the negative effects of the coronavirus, early on in the pandemic our chemotherapy utilization rate was temporarily low. As our hospital implemented protocols to curb exposure and patients and providers became more comfortable, our overall patient volume gradually increased (Figs 2A and 2B).

PDSA Cycles

Each PDSA cycle was four weeks in duration for a total of nine cycles (Table 1). After the first cycle in April, we found

utilization was low and efforts were made to increase awareness of the clinic through cancer center-wide meetings with nursing support, advanced practitioner provider support, and faculty support. After PDSA 2 during May of 2020, we found consolidating advanced practitioner provider support would better use resources for the clinic as well as the COVID-19 pandemic. We also incorporated other reasons to use the clinic (ie, COVID-19 exposure, travel, etc) After PDSA 3 in June, we found the clinic was not being used after 18:00 hour, so we shortened the clinic time to preserve resources. For PDSA cycles 4 and 5 (July-August), we continued to raise awareness to use the clinic and expanded the number of clinic rooms. For the remaining PDSA cycles (September-December), we were forced to reallocate some resources toward the COVID-19 pandemic. We kept dedicated nursing support but asked primary teams to evaluate and see their own patients in the isolated clinic space with proper PPE.

DISCUSSION

Implementing the isolated clinic has successfully decreased the social footprint of our highest-risk cancer patients with FN and ultimately those exposed to COVID-19

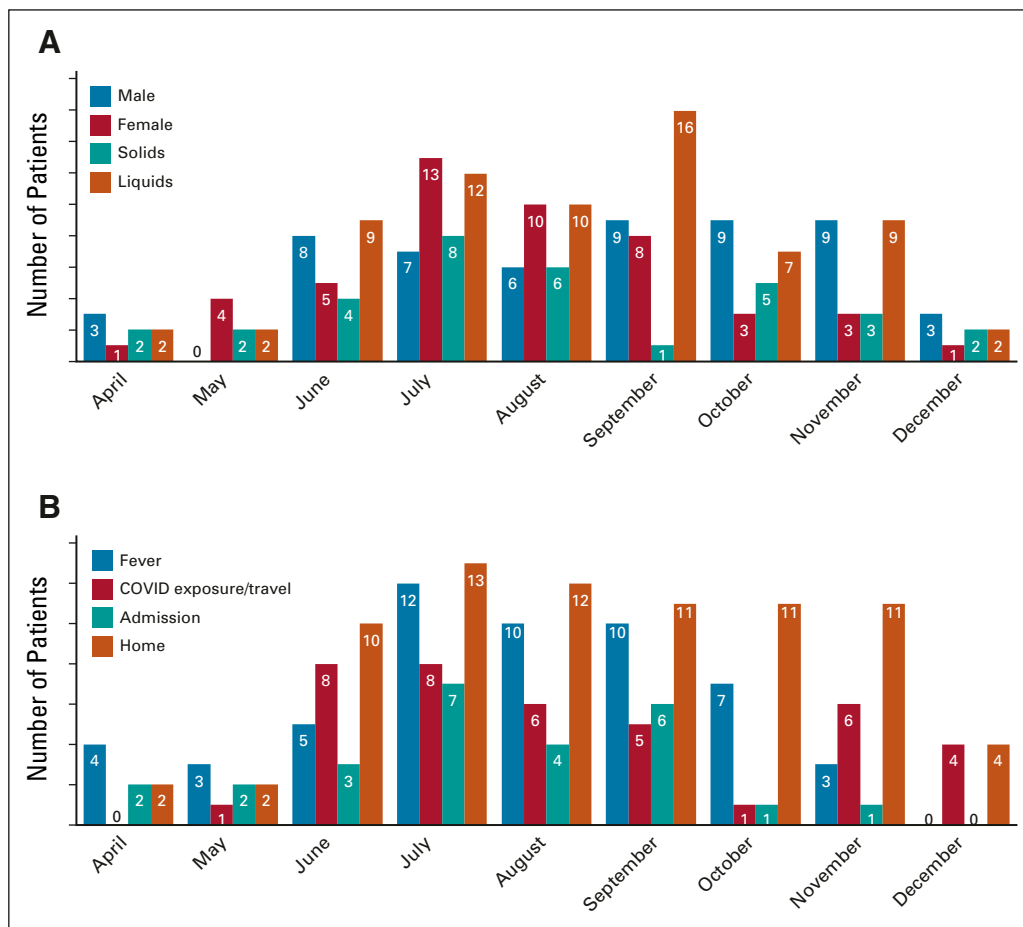


FIG 2. (A) Isolated neutropenia clinic demographics by month. (B) Isolated neutropenia clinic outcomes by month.

TABLE 1. Overview of PDSA Cycles and Changes Implemented at Each Cycle**Cali Clinic for FN**

Date	PDSA Description	Result
April 1, 2020-April 30, 2020	Education provided to faculty and staff Clinic started	Eight patients for FN Zero patient for travel or exposure
May 1, 2020-May 29, 2020	Consolidated Advanced Practitioner support Incorporated CV-19 exposure. Incorporated those traveling outside of NY State Ongoing education of patient flow	Three patients for FN One patient for travel or exposure
June 1, 2020-June 30, 2020	Shorted clinic time to optimize resources Ongoing education of patient flow	Five patients for FN Eight patient for travel or exposure
July 1, 2020-July 31, 2020	Education for utilization of the clinic Expanded clinic rooms to allow more intake Ongoing education of patient flow	12 patients for FN Eight patient for travel or exposure
August 3, 2020-August 31, 2020	Education for utilization of the clinic Ongoing education of patient flow	10 patients for FN Six patient for travel or exposure
September 1, 2020-September 30, 2020	Dissolved separate dedicated APP support, dedicated nursing support remained Primary team (or backup) to triage Ongoing education of patient flow	10 patients for FN Five patient for travel or exposure
October 1, 2020-October 30, 2020	Ongoing reminder	Seven patients for FN One patient for travel or exposure
November 2, 2020-November 30, 2020	Ongoing reminder	Three patients for FN Six patient for travel or exposure
December 1, 2020-December 31, 2020	Ongoing reminder	Zero patients for FN Four patient for travel or exposure

Abbreviations: FN, febrile neutropenia; PDSA, Plan-Do-Study-Act.

by avoiding multiple points of contact and creating access to direct admissions. Since this is a preventative effort, the outcomes may never be fully measured. Our efforts and hopes of decreasing the possible exposure of our immunocompromised patients to COVID-19 have thus far been effective. A review of all ED visits from April 2019-2020 showed that 210 visits were for evaluation of suspected FN during business hours. This equates to 17.5 visits per month for suspected FN. Our clinic has shown to help reduce emergency room visits for FN by more than 50% when compared with historical data during the COVID-19 pandemic from April 2020 to December 2020.

An additional benefit of our clinic was the creation of a space to treat patients in quarantine because of recent COVID-19 infection, those with recent COVID-19 exposure, or recent travel outside the state (against New York State recommendation). If this clinic was not available, these patients would likely have to delay their cancer treatment and risk disease progression since their presence in the infusion center would endanger the approximately 200 patients who use the infusion center on a daily basis. By administering their treatment in an isolated clinic, they were able to follow their infusion schedule without putting other patients at risk.

Our intervention came with a few considerable challenges. Cancer center-wide education proved difficult and inefficient

in the first three months because of initially having separate staff and a separate model from typical provider clinics. Also, this was a time when providers were constantly being updated with COVID-19 education and processes regarding other aspects of patient care. Information overload and provider fatigue was a barrier. Another challenge was resource allocation—with University furloughs and relocation of resources, our coverage model had to constantly change—which made provider engagement more difficult.

Our clinic had several limitations, which must also be addressed. This clinic was only available from 9 AM to 6 PM, and outside these hours, patients still had to report to the ED for suspected FN evaluation and workup. Additionally, only those with self-reported fever, and later on COVID-19 exposure or recent travel were sent to this clinic. Eventually, our clinic evolved to an isolated area for all COVID-19-related patient care. When temperature checks and COVID-19 screening questionnaires were implemented at all cancer center entrances, those with a fever or positive risk factors could also be triaged to the isolated clinic instead of their regular clinic for evaluation by their primary oncologist. After December 2020, we used the clinic for all COVID-19-related patients. Another major limitation is that we are comparing with historical data for emergency room visits, which prevents us from determining the exact effectiveness of our isolated clinic.

The creation of an isolated clinic with PPE has proved very useful for our cancer center. It allowed providers to safely see their patients with PPE, thus protecting the rest of our patients from possible exposure. In the future, we aim to

continue this clinic and expand to other infectious diseases where isolation may be required. We also hope to use this model for an urgent care clinic with separate staffing once resources return to capacity.

AFFILIATION

¹Division of Hematology/Oncology, James P Wilmot Cancer Institute, University of Rochester School of Medicine and Dentistry, Rochester, NY

CORRESPONDING AUTHOR

Arpan Patel, MD, University of Rochester School of Medicine and Dentistry, 601 Elmwood Ave, Rochester, NY 14642; email: Arpan.Patel@URMC.Rochester.edu.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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AUTHOR CONTRIBUTIONS

Conception and design: Seyed Mohammad Abedi, Manidhar Lekkala, Bahar Moflakhar, Arpan Patel

Collection and assembly of data: All authors

Data analysis and interpretation: Seyed Mohammad Abedi

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