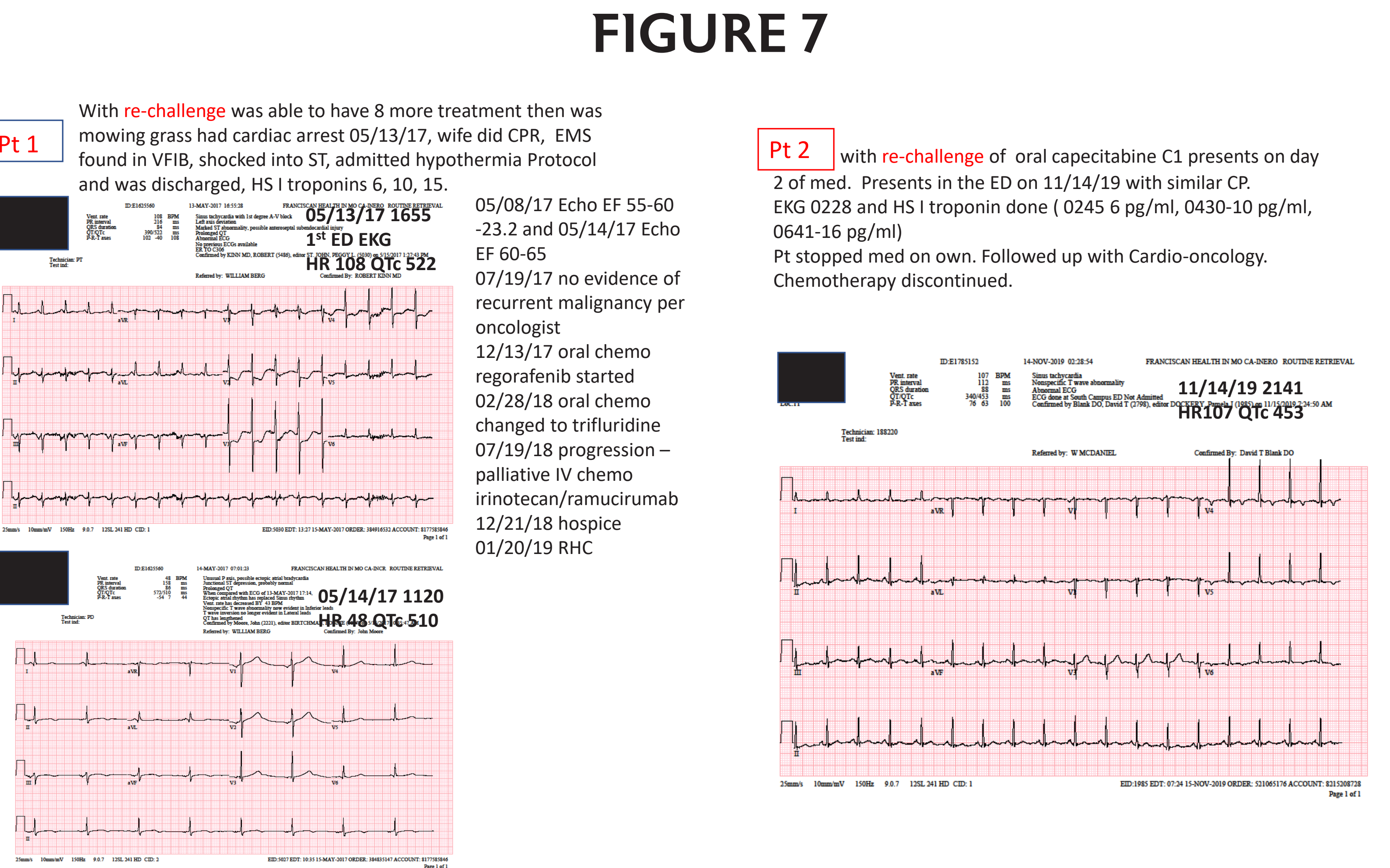
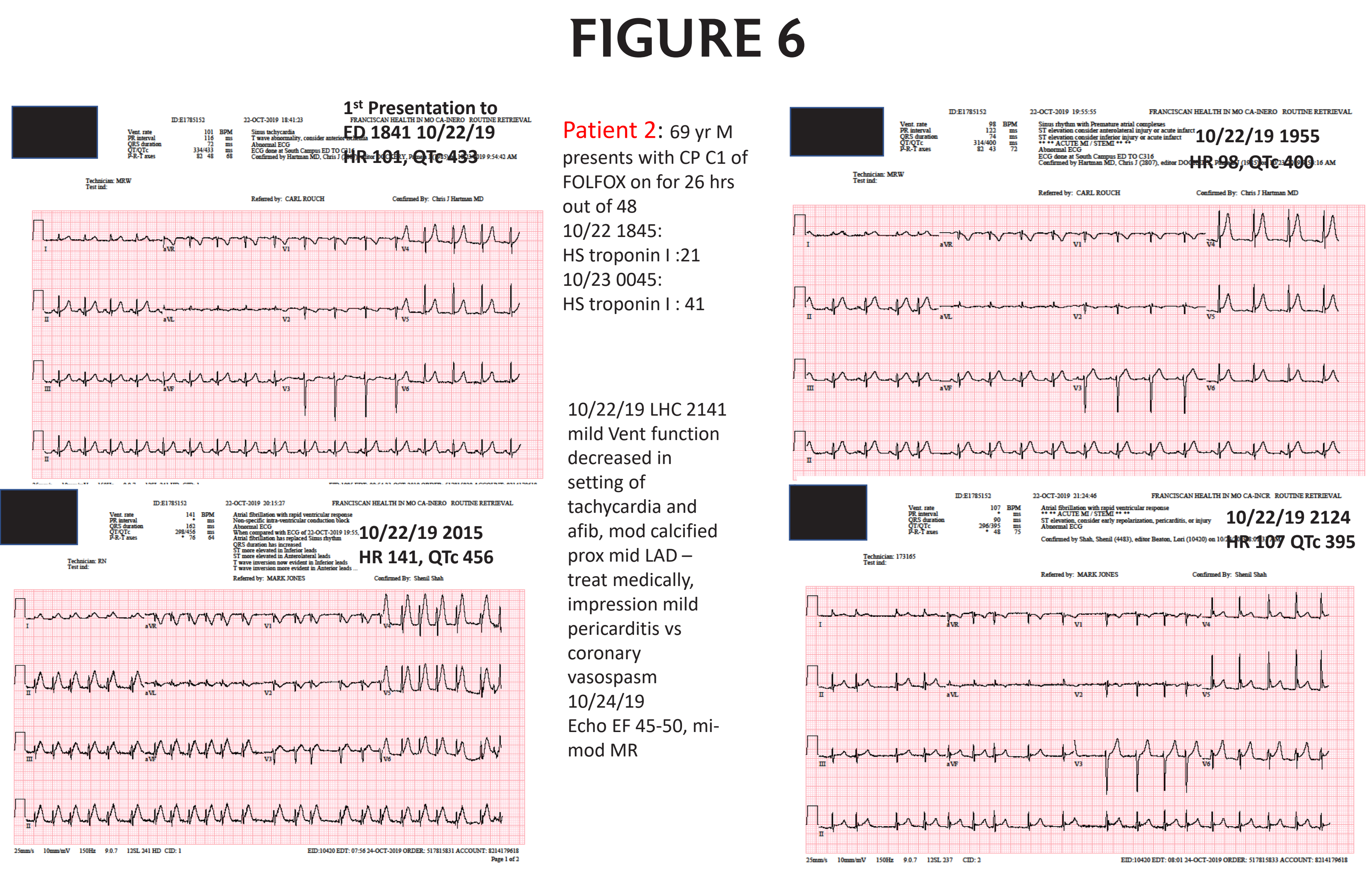
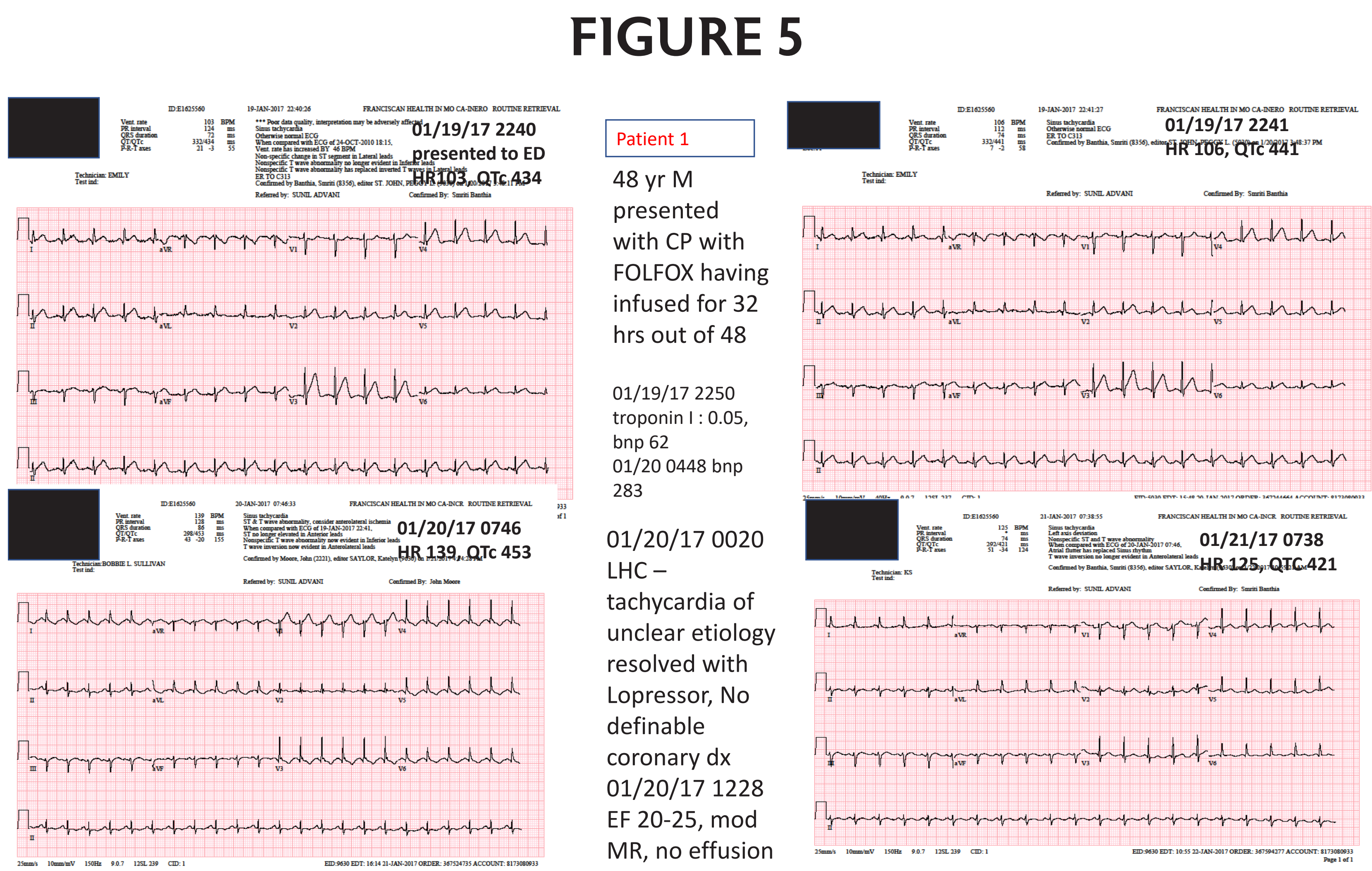
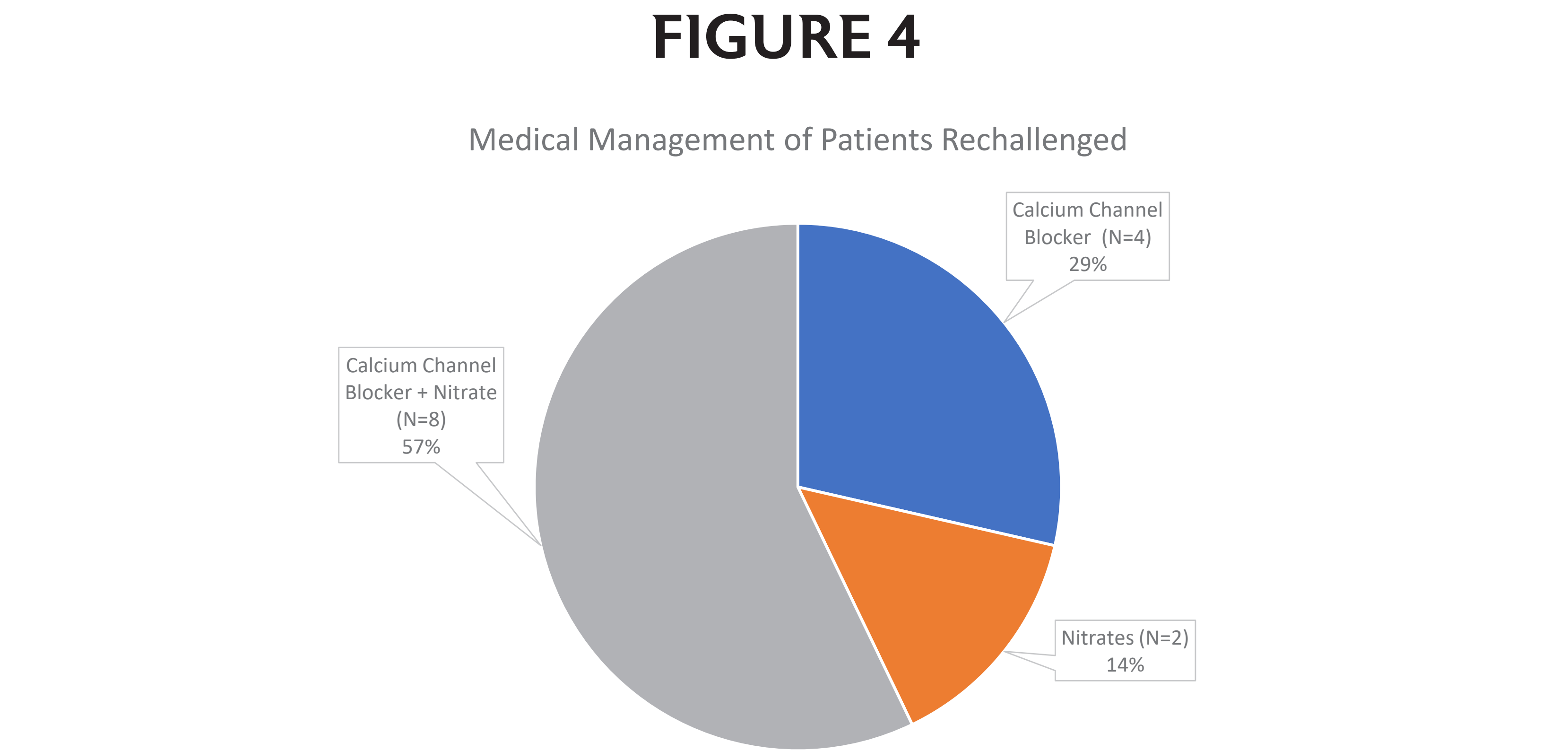
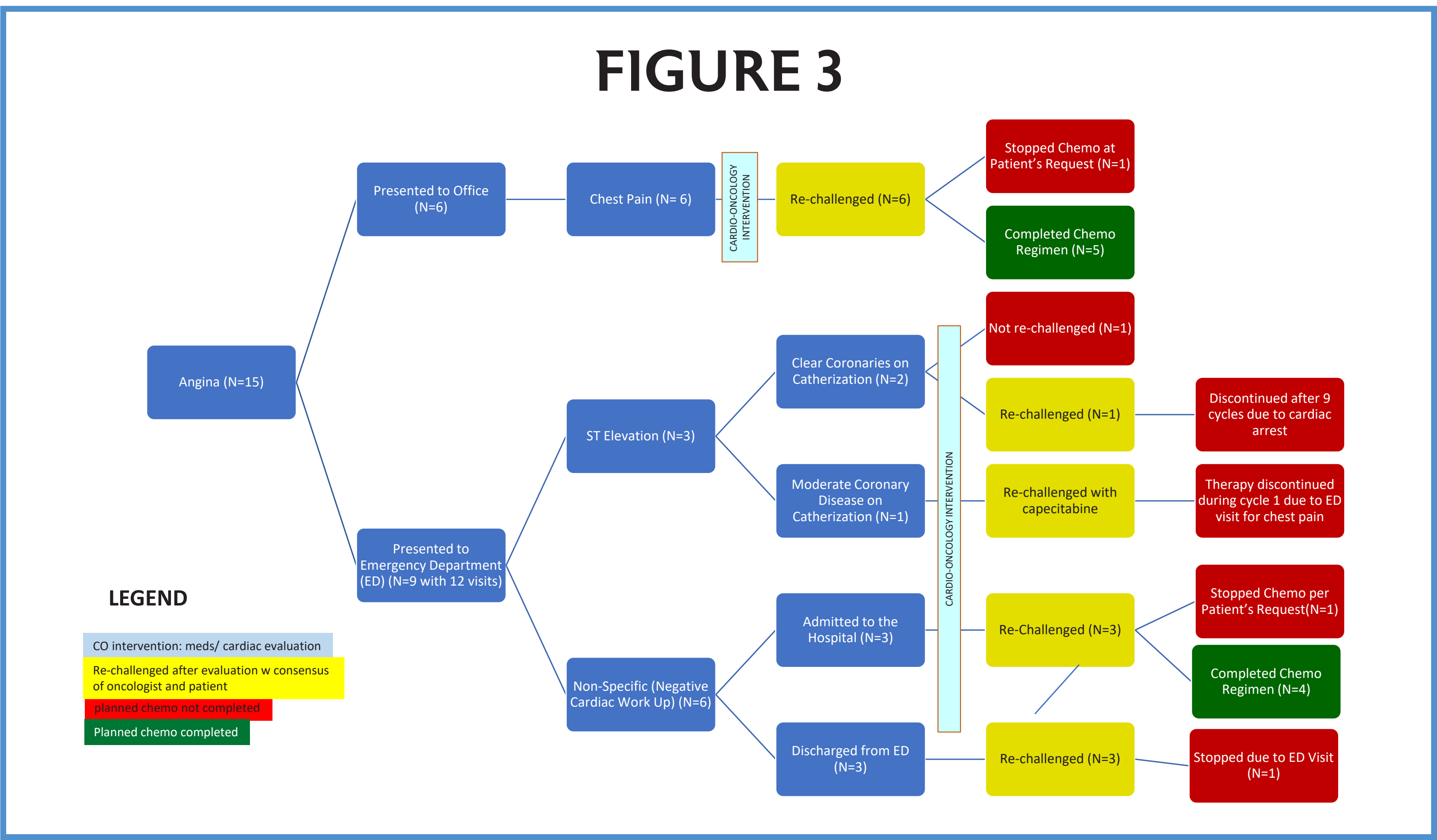
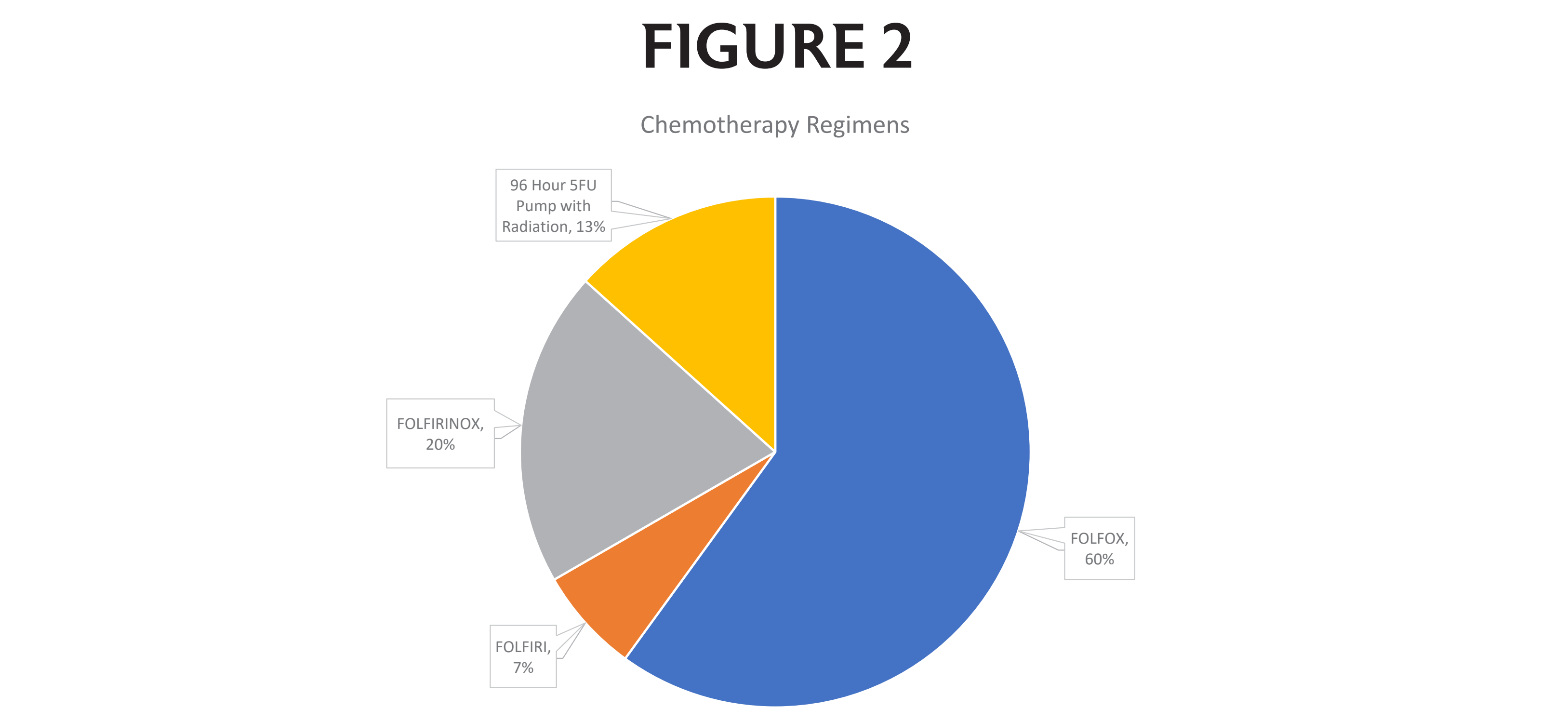
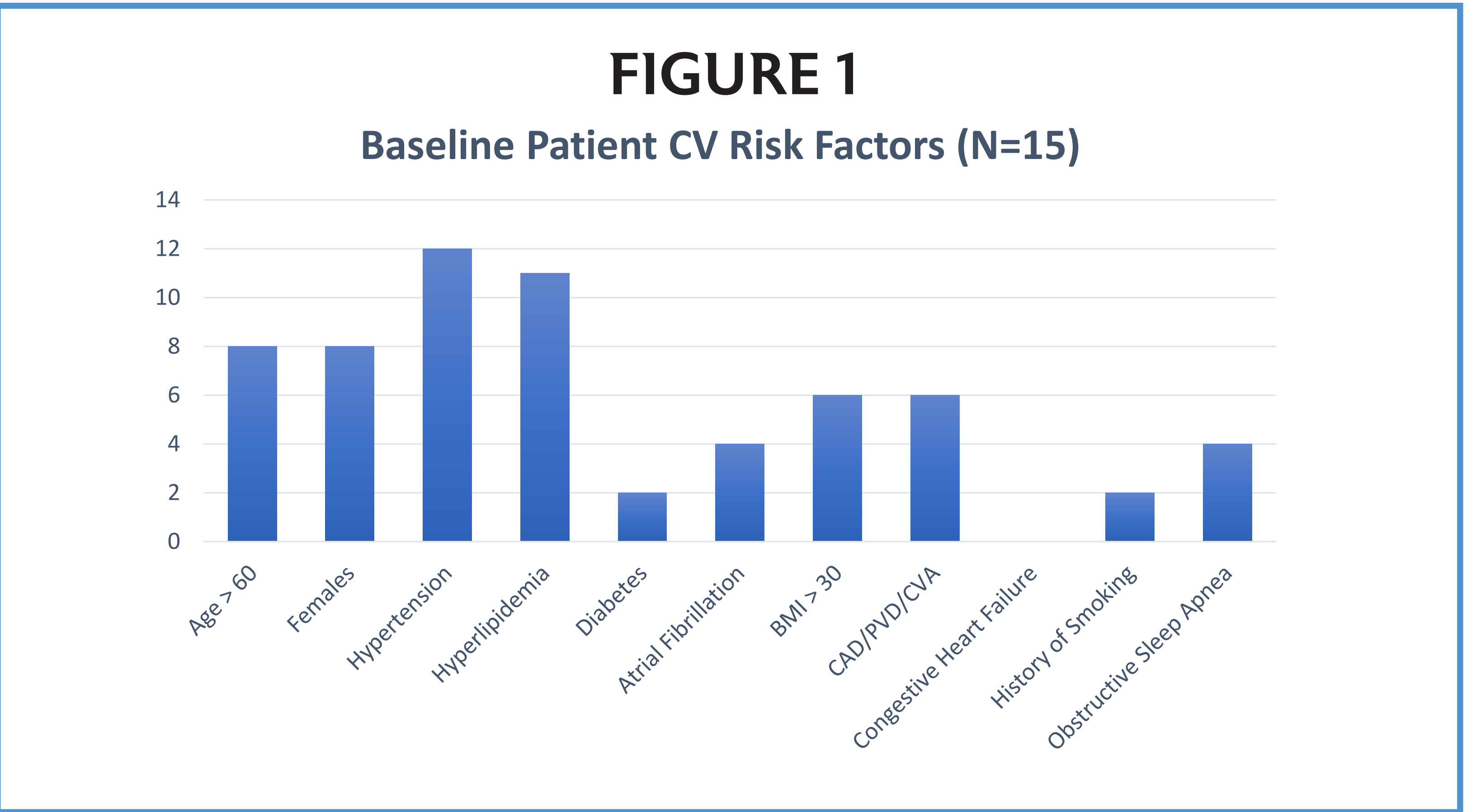


- Fluorouracil (5FU) is an essential component of therapy for multiple malignancies and its use is associated with several cardiac adverse effects including coronary vasospasm (1, 2)
- The reported incidence of angina during 5-FU is between 0.5 % and 15% (3)
- The purpose of this report is to describe our experience with 5FU-induced angina and coronary vasospasm at our community-based cardio-oncology practice and to highlight opportunities for improvement in the management of these patients

- To determine the incidence of 5FU-induced coronary vasospasm at our institution (Franciscan Health Indianapolis), a query of the electronic health record was completed to identify all patients receiving a 5FU based chemotherapy regimen between 01/2017 and 12/2019
- Data describing the presentation, work-up, management, and ability to tolerate re-challenge of 5FU based chemotherapy was collected

- Fifteen out of a total of 437 patients (3.4%) who received 5FU either alone or in combination with other agents experienced angina or coronary vasospasm (baseline patient characteristics and chemotherapy regimens are shown in Figure 1 and 2)
- Median time to onset of symptoms was cycle one and ranged from cycle 1 to cycle 4
- Nine patients presented to the emergency department (ED) while 6 described angina during an office visit. Three of 9 patients presenting to the ED had acute ST-elevation myocardial infarctions prompting emergent cardiac catheterizations
- 2 patients had no coronary disease and one had a 50% coronary lesion treated medically
- All three STEMI presentation patients did not have their 5FU continuous-infusion pumps discontinued until after their cardiac catheterization was complete
- All patients experiencing angina were referred to the cardio-oncology service for further management
- In total, 14 out of 15 patients were re-challenged with 5FU, of which 9 have completed therapy (Figure 3)

- Of the 14 patients who were re-challenged, 4 were treated with a calcium channel blocker, 2 with a nitrate, and 8 with both a calcium channel blocker and nitrate medication (Figure 4)
- 2/3 coronary vasospasm patients were re-challenged (one with 5FU and the other with capecitabine) and both developed recurrent vasospasm prompting discontinuation of chemotherapy (Figures 5-7)



- **Cardio-oncologist:** Optimal management of 5FU-induced angina and coronary vasospasm remains challenging. Practitioners, including those within the ED, must be aware of this adverse effect as the mainstay of emergent treatment involves discontinuation of the infusion. Based on our limited experience with 5FU coronary vasospasm, we would not recommend rechallenge with either 5FU or Capecitabine (further study is warranted in this regard). We were able to utilize anti-spasm medications (ccb and nitrates) to help patients with angina complete their chemotherapy without incident.
- **Oncologist:** Since 5-FU is a critical component of several oncology treatment regimens, it is imperative to coordinate care with cardio-oncology to identify candidates for and ensure safety of 5-FU re-challenge.

- Despite a dedicated cardio-oncology program with ongoing education, 5FU angina and coronary vasospasm remains poorly recognized by the health care team which should prompt further efforts to raise awareness of this dangerous chemotherapy complication.
- The etiology of chest pain in patients receiving 5FU may be unrelated to chemotherapy (i.e., due to gastric, pleural, or cardiac causes). Collaboration between the oncology and cardio-oncology service is essential in managing these patients in order to maximize benefit from chemotherapy.

- Appropriate management relies on prompt identification of 5-FU as a potential cause of angina or coronary vasospasm
- Increase awareness among cardiac, emergency care, and oncology providers
- Ensure easy identification of patients receiving 5-FU infusions within the emergency care setting
- Steps taken at Franciscan Health Indianapolis
 - » Implementation of a large, bright blue tag on continuous ambulatory delivery devices with instruction for emergency care providers (Franciscan Health Indianapolis Infusion Nurses Improvement Initiative)



- » Implementation of a wallet card for each patient including information about their oncology treatment regimen
- » Education of providers within the following settings: emergency department, cath lab, and cardiac care unit

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