

ICOS Center of Excellence Blueprint

CardioOncology

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Governance

Governance serves at the platform for designing, monitoring, and optimizing a hospital's processes. Goals include removing barriers to achieve optimum enterprise performance, improving operational performance by aligning people and services more effectively, enabling transparency across the system, and enhancing decision-making processes.

Mandatory Items

- The facility has a formal process improvement plan with specified leadership hierarchy, levels of accountability, information flow, monitoring of outcomes, and communication feedback loop
- The facility has a CardioOncology team in place that meets **at least quarterly**.
- The facility has a written charter for the CardioOncology team, which defines its mission, responsibilities, and multidisciplinary membership
- The facility has a Cardio Oncology CardioOncology program in place with an identified Medical Director and an onsite CardioOncology Coordinator. Each of these positions has a written job description.
- The CardioOncology team reviews **at least annually** and revises, as needed, the CardioOncology clinical processes, such as flowcharts, policies, procedures, and order sets
- The facility provides education about CardioOncology, including contemporary guidelines and facility goals, to the medical staff (cardiologists and oncologists), mid-level providers, and nursing staff **at least annually**.
- The facility attempts to provide accessible care for CardioOncology patients including the use of virtual visits.

Recommended Items

- The facility has a policy in place that encourages and supports nurse accreditation in oncology and cardiovascular diseases
- The facility establishes outreach connections within the community to provide education on CardioOncology topics **at least annually**
- The facility has a survivorship program in place that meets **at least annually** to discuss process improvements
- The facility offers coordinated exercise programs (either cardiac rehab or cardio-oncology rehab) to its Cardio-Oncology patients

CardioOncology Clinic

- Enough availability to see new consults/referrals in a timely fashion (typically within 1-2 weeks)
- Ideally located in close proximity to the oncology clinic/infusion center for convenience
- Who needs to be seen? High CV risk factors prior to chemotherapy (Cardiotoxicity Risk Score: Herrman Mayo Clinic Proceedings 2014 as one example), high CV risk chemotherapy (anthracyclines, trastuzumab, etc.), complications during therapy, f/u after chemotherapy
 - i. dedicated nurse navigator to prioritize the highest risk patients (e.g., pre-chemo evaluations, acute issues while on chemotherapy)
- Oncology pharmacist support either in-person or available via telephone
- Label visits with cardio-oncology for tracking as well as testing in the EMR
- Performance Metrics: Patient satisfaction surveys recommended to show value of the service being provided; proportion of patients stopping chemotherapy due to adverse CV events before and after initiation of CO services; time from consult request to consult completion
- Close communication with oncology team regarding recommendations
- Utilization of APPs to help with follow-up visits and clinical management (e.g., TKI-HTN management)

Cardiovascular Toxicity Testing

Prevention of CV side effects of cancer therapeutics is the foundation of the Cardio-Oncology program. Performing CV risk assessment as part of the intake for oncology patients is vital to identifying those patients that could benefit from CardioOncology consultation.

Recommended Items

- Establish best institutional imaging modality for assessment of LV function prior to, during, and after cardiotoxic chemotherapy (typically 2D ECHO with strain)
- Consider IV contrast to better delineate endocardial border and more accurately assess LVEF across multiple studies
- Perform intra, inter-observer variability studies with cardiac sonographers for strain measurements
- Ensure that imaging gets conducted in a timely manner (typically within 1-2 days) to prevent delays in chemotherapy
- It may be reasonable to couple cardiac biomarker analysis (hs-trop, bnp) with cardiac imaging to better screen for cardiotoxicity
- Obtain serial ECGs in patients on chemotherapy with potential for prolongation of the QT interval
- Consider cardiac MRI (gold standard to assess LV function) when 2D ECHO LVEF is below 50% or when considering stopping chemotherapy

CardioOncology Program: Making a Business Case

Financially how do you start a cardio oncology program? The following suggestions are being given understanding that there is no universality to developing a program; one needs to do best practices in your area and understand your payer mix that would make your program viable. This is an outline for you to consider while deciding whether or not you can reasonably start a program, and what to start to track to present to the Administration of your institution. It is not meant to be a complete business program, just a guide that may help you as you grow.

1) Consider performing a standard SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis. Look at your geographic area, who is your competition, how are they doing with respect to the program, and how would your program impact theirs and vice versa.

2) Who are your payers: how are cardio oncology services paid for? Many outside the US have a hybrid program whereby there is some element of universal healthcare for which cancer services and cardiovascular services are included. For some of the specifics of cardio oncology, patients may require supplemental insurance, and locally and nationally one needs to know something about this process.

3) You need to know who your providers are, and if they consider a need for this program within your area. It would be reasonable to chat with your colleagues and find out if for example you are a cardiologist, do your oncologists feel that this would be a good program? There may be some educational opportunities prior to actually starting a program where you could show how it would be valuable to their patients. Try and get a champion within your hospital who will help you. Having an oncologist and a cardiologist spearheading the program is extremely valuable. It's particularly important for a cardiologist to also discuss with their colleagues, as many cardiologists already feel that they are taking care of oncologic patients, and there is a distinct knowledge gap that has been observed which is driving the specialty.

4) It's been recommended a number of times that in order to start a program, one should start small in other words find an area of proven oncologic need; many start with breast cancer. Go to the multidisciplinary breast cancer clinics, discuss pre op clearance with the breast surgeons, and discuss the cardio oncology perspective with medical oncology. Specifically, when there is the need for trastuzumab or anthracyclines, there is a well-recognized need for cardiovascular follow up. Your offer to start following these patients on a regular basis will help them tremendously, and also provide a quality metric for them making sure they are following guidelines. This is extremely important for certification in many instances. Alternatively, some people will start with the lung cancer screening program for heavy smokers. There's a good opportunity there to educate those patients and work with the thoracic surgeons and medical oncologists in multiple areas. Once you get started in one area, you can track your patients, the number of referrals, etc. and this will start to show the financial benefit of caring for these patients.

5) Use your electronic records: you may need to discuss with it how best to track these types of patients without creating a burdensome registry. Many people will track the visit type within cardiology so for example:

- a) Cardio-Oncology Consult
- b) Follow up Cardio-Oncology visit
- c) Cardio-Oncology preop clearance
- d) Survivorship

By tracking some parameter, you should be able to show growth within your program and demonstrate not only the need for this program, but increasing volume speaks to financial viability. There's been a lot of discussion about how you track downstream revenue so that your administration would feel comfortable supporting such a program. By starting small and keeping track of some parameter you will be able to do this very quickly. One may also track patient satisfaction, as well as referring physician satisfaction. This is a metric that can be easily captured for your program.

6) Marketing:

- consider posting on your hospital website to drive referrals
- engage with the ancillary cancer providers: nutritionists, physical therapist, social workers, and financial advisors. These people may help you grow your program.
- IT can easily create a “referral to Cardio-Oncology” order for you, and this can be tracked as well
- Meet with Internal medicine doctors, community leaders and provide lectures, survivorship and support groups to let them know of the program and how it can help them.
- Oncologic surgeons in particular are always interested in rapid cardiac clearance for surgery: be their “go to” cardiologist

7) It's important for you to consider when trying to establish and grow your program how you can show that you are providing value for your services. This may include tracking some parameter, either a quality metric before your program was created versus after your program so you can see a change (for example echocardiography or LV functional assessment during cardiotoxic cancer therapies based on nationally accepted guidelines). It can also be something as simple as patient satisfaction, referring physician satisfaction, time to consultation, time to preop clearance being completed etc. It should be something that's relatively easy to track and shows a benefit for your program. Consider tracking something that would be of benefit to the patients, as well as a bona fide research study. For example, depression screening is being done routinely for cancer patients one could do this before and after cardio oncology services and see the difference your program made.

8) The one thing that needs to be considered is that starting a cardio oncology program is not a terribly expensive venture. It's not like starting a TAVR or Watchman device program: one can easily start with a nurse navigator, a dedicated cardiologist, and grow the program slowly. Most programs start out of a cardiology office, and as their program grows, can dedicate one day or a half a day clinic specifically for Cardio-Oncology. If you can start to show that there are patients that are not just general cardiology patients the program will grow substantially.

9) Consider participation in research studies that your institution would have the infrastructure to support, case presentations to your institution, as well as in cardio oncology publications. Most cancer centers have a research component requirement for accreditation (reach out to your oncology team about a cardio-oncology research project). Consider participation in ICOS, and start the process for becoming a center of excellence in cardio oncology to recognize your program.

Additional Resources:

Arnold AM, Biga C: Implementing a Cardio- Oncology Center of Excellence: Nuts and Bolts, Including Coding and Billing. *Cardiol Clin* 37 (2019) 545–557

<https://doi.org/10.1016/j.ccl.2019.07.016>

Fradley MG, Brown AC, Shields B. Developing a comprehensive Cardio-Oncology Program at a Cancer Institute: The Moffitt Cancer Center Experience. *Oncology Reviews* 2017; volume 11:340

Adusumalli S, Alvarez-Cardona, Khatana SM et al. Clinical Practice and Research in Cardio-Oncology: Finding the “Rosetta Stone” for establishing program excellence in Cardio-Oncology. *J of Cardiovasc Trans Res* (2020) 13: 495-505. DOI 10.1007/s12265-020-10010x.

Cheng R, Barac A. Feature | Developing a Cardio-Oncology Program From an Early Career Perspective: Challenges Faced and Lessons Learned (2018)

<https://www.acc.org/membership/sections-and-councils/early-career-section/section-updates/2018/03/28/17/31/developing-a-cardio-oncology-program-from-an-early-career-perspective-challenges-faced-and-lessons-learned>

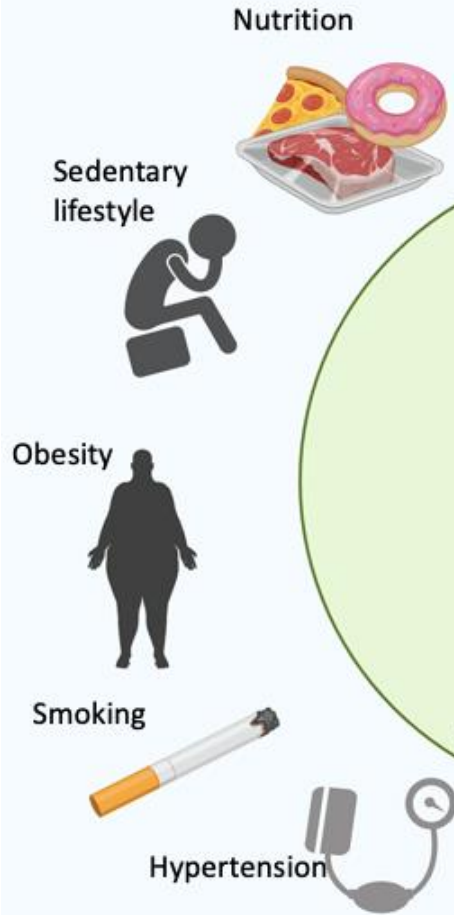
CardioOncology Survivorship

The risk posed by CV dysfunction does not terminate with the completion of cancer treatment. It is well documented that treatment-related CV dysfunction can occur months to decades after the completion of treatment.¹²² Thus, monitoring and prevention strategies remain important parts of a patient's treatment plan into survivorship.

ASCO recommends an echocardiogram at 6 to 12 months after completion of anthracycline-based cancer treatments in adult patients and then as clinically indicated. Patients should be referred to a cardiologist in the presence symptoms or abnormal cardiac imaging.⁸⁹ High-risk patients include those exposed to cardiotoxic chemotherapies, especially anthracyclines, and chest radiotherapy; these patients should be offered lifelong surveillance.¹²³ Additionally, patients with CV risk factors such as hypertension, diabetes, smoking, dyslipidemia, or obesity are considered at risk and should receive routine monitoring, evaluation, and management of these factors.⁸⁹

A heart-healthy lifestyle should be recommended to patients as part of long-term follow-up care because it can improve overall survivorship and mitigate the risk factors associated with CV dysfunction.^{89,114,116} Although more research specific to lifestyle interventions in survivorship is indicated, one retrospective cohort study of adult survivors of Hodgkin lymphoma assessed exercise behavior in correlation to the incidence of CV events over a period of 12 years. They found that vigorous exercise in survivors was correlated to a decreased risk of a CV event.¹²⁴ Additionally, Nagy et al demonstrated that exercise correlated to a decrease in CV events in breast cancer survivors in a prospective study of 55 women diagnosed with breast cancer and no comorbid risk factors.¹²⁵

Modifiable Risk Factors



Hyperlipidemia



Non-modifiable Risk Factors

