

Consensus Statement

Cardio-Oncology Training: A Proposal From the International Cardioncology Society and Canadian Cardiac Oncology Network for a New Multidisciplinary Specialty

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ABSTRACT

There is an increasing awareness and clinical interest in cardiac safety during cancer therapy as well as in optimally addressing cardiac issues in cancer survivors. Although there is an emerging expertise in this area, known as cardio-oncology, there is a lack of organization in the essential components of contemporary training. This proposal, an international consensus statement organized by the International Cardioncology Society and the Canadian Cardiac Oncology Network, attempts to marshal the important ongoing efforts for training the next generation of cardio-oncologists. The necessary elements are outlined, including the expectations for exposure necessary to develop adequate training. There should also be a commitment to local, regional, and international education and research in cardio-oncology as a requirement for advancement in the field. (*J Cardiac Fail* 2016;22:465–471)

Key Words: Cardio-oncology, training, cardiotoxicity, survivorship.

There is an increasing need to focus on the cardiac health of patients who are undergoing or have previously survived cancer treatment.^{1,2} To optimize outcomes for patients undergoing contemporary cancer therapy, the potential adverse

impact on cardiovascular structures needs to be considered and minimized.^{3–6} A detailed knowledge and understanding of both the cardiology and oncology issues germane to this patient population is required to achieve this. The demographic profile of patients with cancer is quite similar to those with cardiac disease,⁷ and as a result, cardiac conditions may coexist in patients with cancer and are frequent complicating factors during complex and aggressive cancer treatments. Furthermore, many of the newer targeted oncology therapies may also affect the heart in new, unexpected, and potentially serious ways.^{8–10} As the complexity of cancer treatments has increased, so have the tools available to monitor the impact on the heart. Familiarity with the strengths and limitations of these techniques and their appropriate utilization, in conjunction with advanced therapies for severe cardiac damage when identified, enhances the goal of optimal cardiac safety during and after cancer treatment.

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A recent survey sent to 106 adult and pediatric division chiefs, fellowship program directors, and specialists, revealed that 2 out of 3 hospital centers across the nation have added cardio-oncology services to help cancer patients maintain their heart health during and after treatment. Additionally, the survey highlighted that 43% of centers did not offer formal training to fellows or house-staff in the growing discipline of cardio-oncology. That survey illustrates the growing national trend in cardio-oncology programs across the country and emphasizes that the time has come to establish a formal structure to train the future generation of cardio-oncologists. The present document, a combined effort of the International Cardioncology Society (ICOS) and the Canadian Cardiac Oncology Network (CCON) outlines current expertise-based thoughts pertaining to clinical cardio-oncology program development and recommendations to establish cardio-oncology training.

Methods

An expert group of practitioners were commissioned from the executive board of ICOS and included representative members of ICOS and CCON from academic and referral practice facilities that have a demonstrated interest in the discipline of cardio-oncology and have contributed to the medical literature in this area. All members are directly involved with training of students, residents, or fellows or are part of training programs at the present time. Monthly webinars were held over a 1-year period during the calendar year 2014, and final document approval webinars took place in 2015. A comprehensive literature review was performed for the seminal publications relevant to the discipline and were considered in the foundational knowledge for cardio-oncology. All members actively participated in the document construction and the final recommendations were unanimously agreed upon.

Defining Cardio-Oncology

What Is Cardio-Oncology?

Cardio-oncology is an inclusive discipline focused on the cardiovascular health of cancer patients and cancer survivors. Providers are charged with developing and using diagnostic and therapeutic strategies that permit optimal cancer treatment with a focus to limit collateral cardiac damage, thereby leading to improved outcomes in cancer survivors.¹¹

Who Is a Cardio-Oncologist?

A cardio-oncologist is a health care provider who is focused on the prevention, early detection, and management of, and recovery from, cardiac injury that may stem from cancer or cancer therapies. Such a provider strives to improve the cardiac clinical care, promote education, and facilitate research for patients with cancer or a history of cancer in an interdisciplinary fashion.

Would Dedicated Training for Cardio-Oncology Advance the Field and Improve Patient Care?

There have been dramatic advances in anti-cancer therapy and enhanced supportive care over the past 2 decades, such that there are increasing numbers of long-term adult and pediatric cancer survivors: an estimated 14.5 million in the United States alone.^{12,13} Cardiotoxicity may develop during the acute management of cancer, but patients remain at risk for cardiac deterioration years after treatment has been completed.¹⁴ At present, it is clear that the potential for cardiotoxicity in cancer patients and survivors is underappreciated and that surveillance for the development of cardiac dysfunction is not common.^{15,16} Consequently, cardiac dysfunction may be largely undetected until many years have passed.¹⁷ Additionally, overt cardiotoxicity during treatment may require limiting effective cancer therapy, which could have a detrimental impact on cancer outcomes. Therefore, a multidisciplinary comprehensive approach that harnesses both cardiology and oncology expertise in a collaborative effort is critical to optimizing patient outcomes.¹⁸⁻²¹

Translational research is a key component of understanding the potential for cardiotoxicity associated with new and existing agents. Through an understanding of the biologic pathways affected by anticancer agents and their cardiometabolic consequences, such research can inform the development of screening tools to detect cardiac toxicity as well as prevention and treatment strategies in cancer patients and survivors at risk for cardiac diseases at all stages of cancer treatment.^{9,22-24} Validation of monitoring and cardioprotective strategies through well designed prospective clinical trials with preidentified cardiac end points and adequate follow-up to detect cardiac sequelae in patients who are undergoing active cancer therapy logically follows. Applying knowledge from translational and clinical research to the clinical care of individual patients throughout and following cancer treatment is best accomplished through considered discussion among all health care providers and allied health care professionals. The goal is to promote optimal cancer treatment outcomes without producing serious cardiac toxicities that limit quality of life or introduce a competing cause of mortality. To achieve this goal, there needs to be adequate training for health care providers involved in the care of cancer patients. In a manner analogous to the development of advanced heart failure and transplantation as a subspecialty of cardiology, there needs to be an organized effort to understand the scope and expectations needed for this burgeoning discipline.^{25,26} Below, we propose a conceptual framework (summarized in [Table 1](#)) for a cardio-oncology training program.²⁷

The Goals for a Cardio-Oncology Training Program

The goals for a cardio-oncology program are summarized in [Table 1](#). The primary focus is to improve the

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