

CLINICAL SERVICES

EMERGENCY CARE

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A. INTRODUCTION

Cancer patients and survivors need access to emergency services 24 hours a day, seven days a week. Cancer inpatients receive emergency care from their healthcare team while in hospital. The vast majority of cancer patients and survivors are cared for as outpatients. These individuals may need emergency medical care at an emergency department (ED) for various reasons related to their cancer diagnosis and treatment. For example, patients may have:

- Post-surgical complications
- Complications or acute reactions to chemotherapy treatments, radiotherapy treatments, surgical treatments, or a combination of these therapies
- Medical issues that have progressed and present as symptoms, such as fever or weakness related to infection, dehydration and other issues
- Acute mental health issues that are becoming worse

The goal of emergency care is to provide unscheduled, episodic care to patients who arrive at the hospital on their own or by ambulance. The severity of conditions treated in the ED may range from life-threatening to non-urgent and may affect the need for investigations and specialty consultations, the aggressiveness of therapy, and disposition home or admission to hospital.

B. CLINICAL SERVICES

The vast majority of EDs assess, diagnose and treat patients with a wide range of conditions that need immediate attention. Not all free-standing cancer centres incorporate a full ED, given the significant investments that are required (e.g., facilities, equipment, human resources, capital, operating funds). Some centres make arrangements with an ED in a neighbouring hospital or develop innovative approaches to provide cancer-related emergency care. For example, the MD Anderson Cancer Center includes a 44-bed ED that provides non-urgent to emergency treatment for its established cancer patients, as well as employees and visitors injured on the premises. The centre is staffed by registered nurses, patient service co-ordinators, patient care assistants, mid-level healthcare providers and emergency medicine specialists, with expertise in the treatment of cancer-related emergencies.¹

Cancer centres that are part of, or associated with, a full-service hospital will usually have an ED on-site or nearby, which can be used by any patient who requires emergency care. ED staff may have experience and expertise treating cancer-related emergencies, but will often request specialty consultations from oncology. Other models are also used to treat cancer-related emergencies. For example, the James Cancer Hospital and Solove Research Institute (of the Ohio State University Comprehensive Cancer Center) has a 15-bed emergency care unit dedicated solely to cancer-related emergencies that is integrated with the ED at the Ohio State University Wexner Medical Center. The unit's staff are trained in both emergency medicine and oncology.² The benefits of integrated ED cancer units include decreased inpatient admissions, as well as a decreased cost of care in the ED and inpatient units.³

C. RESOURCES

1. FACILITIES AND EQUIPMENT

The ED infrastructure must meet regional and national standards and guidelines, as appropriate. These are usually established by accreditation and regulatory bodies, and included in building codes and government policy. Standards and guidelines address appropriate construction materials, heating and ventilation, lighting, electrical systems and backup, plumbing systems, compressed gas infrastructure, acoustical design, service and storage space allocations, the collection and disposal of waste and contaminated equipment and materials, safety devices, infection prevention and control, and occupational health and safety. An example is the Canadian Standards Association standard *CSA Z8000 Canadian Health Care Facilities – Planning, Design and Construction*.⁴

Standards and guidelines may also exist for effective physical facilities design and layout to support patient flow. These standards and guidelines address: internal systems to maximize the use of treatment areas and stretchers, and offer flexibility to expand and contract treatment zones; the delivery, storage and access of supplies and equipment; patient transportation to critical care, inpatient units and operating rooms; and adjacencies to public entrances, a helipad and necessary services, such as diagnostic imaging and laboratory services.

The ED includes a number of areas that must facilitate patient flow effectively. In particular, it is important that the public waiting area, where many patients first arrive at the ED, should be located close to a screening/security area, where patient information is collected, and a triage area, where the severity of a patient's condition is assessed. Critically ill emergency patients typically bypass these areas, which are located outside of the clinical treatment area. Working relationships, care maps and order sets exist between the ED, outpatient oncology clinics and the inpatient oncology floors. Physical adjacencies should also be considered to support timely access of ED clinicians to oncology specialists for consultation and ready access to emergency oncology treatments (e.g., medications, blood products, radiotherapy).

The clinical work space should include patient waiting rooms, staff workstations, treatment rooms (usually set up as pods or zones), family waiting areas, administrative offices, washrooms and storage areas. Large EDs may have some on-site diagnostics (e.g., X-ray, CT scan, ultrasound). Depending on the presenting complaint and suspected diagnosis, a patient will typically receive treatment in the ED before being discharged or admitted to hospital.

Cancer patients and survivors may be immunocompromised and more susceptible to infection because of their treatments and other factors. ED physical design must include sufficient isolation areas and ensure that the ED physical infrastructure meets all infection prevention and control standards.

See the *Cancerpedia: Physical Facilities and Support Services* and *Cancerpedia: Infection Prevention and Control* chapters for more information.

2. HUMAN RESOURCES

ED services are provided by an interprofessional team that usually includes physicians, nurses and other healthcare providers, such as trainees, physician assistants, nurse practitioners, pharmacists, dietitians, social workers and others who may be involved in the initial care of the patient. Generally, the overall scope of functions required is standard; however, job titles and individual responsibilities for specific functions may vary by jurisdiction and scope of practice.

Medical Expertise

Increasingly, EDs are staffed by specialized emergency physicians, who have completed medical school and residency training in emergency medicine and who practice in the ED full time. Depending on the jurisdiction, ED medical staff may include doctors of osteopathic medicine, general practitioners with additional emergency medicine training, or other specialty physicians with emergency medicine training (e.g., internists, intensivists, surgeons). In some areas, oncologic emergency medicine is being advanced as a subspecialty of emergency medicine. An example is the MD Anderson Cancer Center's Oncologic Emergency Medicine Fellowship.⁵

In some jurisdictions, mid-level healthcare providers, such as physician assistants and nurse practitioners, practice alongside other staff with the direction of emergency physicians. In teaching centres, many patients are initially assessed by medical students and residents under the supervision of staff physicians.

The ED Medical Director is responsible for the overall delivery of high-quality, timely and safe emergency care in an environment that fosters education and research. They provide oversight and leadership for the ED medical staff and represent the interests of the ED on hospital executive committees.

Nursing Expertise

Nurses working in the ED should have a nursing degree, with additional training in emergency nursing. Depending on their role and responsibilities, ED nurses may be required to have advanced practice training and/or a master's degree. Nurses play a number of roles in the ED.

- Triage nurses assess the severity of a patient's condition and determine their level of urgency to be seen by an emergency Physician. The more severe patients are expedited for a quicker physician assessment.
- Primary ED nurses evaluate the patient's condition, perform preliminary investigations (e.g., blood tests, imaging orders), provide preliminary care (e.g., fluids, wound care), address patient concerns and inform the healthcare team of the patient's status.
- Charge nurses provide oversight and support for overall patient care and flow in the ED, and liaise with other departments to optimize patient investigation, treatment and disposition.
- Nurse managers are responsible for ED operations, including human resources, budgeting, patient and staff satisfaction, and advocacy for ED issues with hospital administration.

EDs may also have patient care assistants who help nurses with patient care.

Highly skilled ED medical and nursing staff can assess and treat patients with a wide range of needs. Typically, these professionals do not have additional specialized training in the care of cancer patients and, depending on the patient's needs, will request consultations from oncologists or other specialists. In addition, other professionals may be called to consult in the ED or help co-ordinate care delivery or disposition, such as pharmacists, social workers, community service workers and others.

3. INFORMATION MANAGEMENT

Every ED has an information management system that stores information on each patient encounter. This information is usually accessible to other healthcare providers in the hospital, and may be sent to the patient's primary care provider or shared with specialists who are providing care to the patient.

Publicly-accessible EDs provide services to anybody who presents for emergency care, regardless of where they live, their socio-economic status or whether they have ever been a patient of the hospital. Patients may present to multiple hospital EDs with disparate ED and hospital information systems. As a result, when a cancer centre patient comes to a publicly-accessible ED staff may not have access to the patient's medical history to guide their care decisions.

Ideally, ED staff should have access to the comprehensive health records of cancer patients. Options to achieve this include:

- Integrating ED and hospital information management systems in the full-service hospital. When a cancer centre patient appears in the facility's ED, their records will be available.
- Developing central online repositories of patient health records that can be shared by participating hospitals in the same catchment area. These records would include inpatient, outpatient and ED information for each patient seen at the participating facilities.
- Providing patients with online access to their medical records to share with ED staff.
- Developing comprehensive, jurisdiction-wide, shared electronic health records.

See the *Cancerpedia: Equipment and Technology* and *Cancerpedia: Health Records* chapters for more information.

D. MANAGEMENT

ED **leadership** includes the Clinical Director, Nurse Manager, Medical Director, nurse and physician educators, and patient flow co-ordinators. The Clinical Director provides support and oversight to the Nurse Manager for operational, staffing and budgetary issues. The Medical Director, who is an emergency medicine Physician, works closely with the Nurse Manager and Clinical Director to ensure the overall quality and safety of care in the ED. Nurse and physician educators provide real-time knowledge translation and skills

development for staff, and arrange continuing medical education based on needs assessments. Patient flow co-ordinators facilitate timely patient flow in the ED, help expedite disposition decisions and act as resources for nursing.

EDs must meet a wide range of **operating standards and guidelines** set by various organizations, for example:

- Accreditation Canada⁶
- The Royal College of Emergency Medicine (U.K.)⁷
- European Society for Emergency Medicine⁸
- Australasian College for Emergency Medicine⁹
- National Emergency Nurses Association (Canada)¹⁰
- Emergency Nurses Association (U.S.)¹¹
- European Society for Emergency Nursing¹²
- College of Emergency Nursing Australasia¹³

Accreditation bodies usually set standards for the effective, efficient and safe functioning of the ED. Many countries have health service accreditation programs, whereas others adopt or adapt the programs of others. Accreditation standards and guidelines include ED requirements, such as having an appropriate mix and the right number of fully-qualified and licensed staff to meet responsibilities, working in interprofessional teams and safety procedures.

Standards and guidelines for ED physical facilities typically include requirements to: meet all planning, design and construction requirements; ensure that the design, layout and physical environment enables tasks to be carried out effectively, efficiently and safely; ensure that workflow and patient flow are optimized, along with infection prevention and control and a safe working environment; and ensure that all equipment is regularly inspected and maintained. For further details and example, see the *Facilities and Equipment* section of this chapter.

Professional regulatory and licensing bodies set standards and guidelines for their members who work in healthcare and within the ED, to ensure they have the necessary qualifications, education and competencies to practice their profession.

EDs need to make **data-informed management decisions**. This includes selecting performance indicators and targets, collecting and monitoring performance in relation to these targets, and focusing efforts on areas that need improvement. Examples of broad areas for performance indicators include:

- Target from time of triage until Physician (or delegate) initial patient assessment
- Target for ED length of stay (i.e., time from triage to disposition decision) for low- and high-acuity patients, and for admitted and discharged patients
- Target from time when an oncology consult is requested until assessment by the consultant
- The frequency of use of medical order sets and medical directives, developed in collaboration by the ED and oncology
- The rate of use of evidence-based guidelines and best practices
- The rate of transfer of emergency information about cancer patients to their most responsible healthcare providers, including oncologists and primary care providers

E. QUALITY

Quality performance in emergency care services includes quality practices over three points in time: i) before a patient comes into the ED; ii) while the patient is in the ED; and iii) after the patient leaves the ED.

Before Coming to the ED

Quality services and practices that target the period before a cancer patient or survivor comes to the ED are meant to avoid unnecessary ED visits by meeting a patient's needs before they escalate. This is better for the patient and optimizes the use of the ED. A study by Barbera et al. (2013) found that patients with moderate

or severe symptom assessment scores for nausea, drowsiness and shortness of breath were associated with ED visits, whereas patients with scores at any severity level for pain, tiredness, poor appetite and poor well-being were significantly associated with ED visits.¹⁴ Depression and anxiety did not appear to increase the rate of an ED visit. The proactive management of anticipated and existing symptoms, such as pain and nausea, may help reduce ED visits for these patients.

Quality initiatives that may help ease a patient's symptoms and minimize the necessity of an ED visit focus on primary care providers. A meta-analysis of the role of primary care providers in cancer care found that factors related to knowledge, attitudes and beliefs can affect primary care providers' ability to participate in cancer care.¹⁵ Patients and specialists were also uncertain about the role that primary care providers could play.

Primary care providers need information on their patients who are receiving or have completed cancer treatment. Cancer centres should work with primary care providers to clarify their role in the treatment of cancer patients, and to develop or provide information, education and protocols to assist primary care providers in taking a more active role in managing and addressing common cancer-related issues. Opportunities to easily communicate with oncology specialists in a timely manner would also help to address patient needs.

In the ED

Quality practices in the ED provide better care and a better care experience for cancer patients and survivors, and optimize the use of emergency care resources. These practices include:

- Priority rating systems, used to assess and triage emergency patients according to the severity of their condition (e.g., Canadian Triage and Acuity Scale).
- Evidence-based clinical practice standards and guidelines, to be used by all ED staff and the interprofessional team. Sources of oncologic emergency clinical guidelines include Alberta Health Services (2014), Cancer Care Nova Scotia (2014), and Todd et al. (2016).¹⁶⁻¹⁸
- Care maps (i.e., clinical pathways), used to standardize the process of care for patients with particular conditions. Care maps reflect evidence-based care and guidelines, help to reduce variability in clinical practice and improve quality outcomes. Care maps have been developed for emergency cancer conditions (e.g., febrile neutropenia, pneumonia in leukemic patients).
- Medical order sets, or standardized lists of evidence-based orders for a specific diagnosis. Order sets identify appropriate tests, therapies and procedures to follow once a specific diagnosis is highly-suspected or known. Not only do electronic order sets improve efficiencies, they improve the quality of care.
- Medical directives, or Physician orders given in advance to approved groups of healthcare providers (e.g., nurses), enabling them to deliver certain procedures or therapies to specific groups of patients without the direct assessment of the Physician. Medical directives expedite the timeliness of patient assessments and management.
- Access to expert oncology consultations 24 hours a day, seven days a week. Typical consultants include medical oncologists, radiation oncologists and cancer surgeons, which are critical for quality oncological emergency care.
- Patient care pathways and lean processes, used to expedite patients through the ED so they get timely and appropriate care. This begins with streamlining the entry process, so patients can be screened and assessed quickly. Consideration should be given to establishing rapid assessment zones for cancer patients and survivors who require urgent attention.

Leaving the ED

Quality practices that target the period when the cancer patient or survivor is leaving the ED help to support the continuity of patient care and may reduce avoidable return visits to the ED. These practices include:

- Clear verbal and written discharge instructions, outlining the patient's diagnosis and care received in the ED, as well as advice on further management, follow-up and when the patient should return to the ED if symptoms or signs progress.
- The transfer of information about the emergency care of cancer patients and survivors to their Primary Care Provider and their most responsible cancer care providers. If follow-up care with an Oncologist is recommended, the ED should forward this request to the appropriate Oncologist and inform the patient.

Quality Performance Management and Continuous Quality Improvement

Requirements for ED quality performance management and continuous improvement include: i) an effective ED safety program; ii) ongoing staff education on quality and safety, which includes safe work practices and the identification and handling of safety issues; iii) a quality management system that includes reporting, monitoring and improving processes and outcomes, and mitigating risks; and iv) protocols for ongoing safety, such as medical emergencies, infection prevention and control, and handling of hazardous waste and substances.

F. THE FUTURE

Oncologic emergency medicine will increasingly develop as a specialized area. Depending on the jurisdiction, this area may be recognized as a subspecialization of emergency medicine. Another option may be the development of oncologic emergency care as a specialty area in selected EDs, practiced by interprofessional teams with additional training and expertise. This team approach would need to incorporate extensive cancer emergency care maps and medical order sets and directives.

Many later-stage cancer patients now continue to receive therapies. These patients are more likely to visit EDs because of treatment-related complications or the severity of their condition. Models that incorporate palliative care specialists directly into the ED have had modest success, whereas integrating palliative care services with emergency medicine may be an effective approach.¹⁹ The latter model requires palliative care specialists to educate ED physicians and be available for consultations.

Finally, the increasing incidence and prevalence of cancer along with longer life expectancies for cancer survivors may influence large hospitals with comprehensive cancer services to integrate a cancer ED into their larger ED. This decision would need to take into account economies of scale.

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