



National Strategy For Chemotherapy Administration
Stratégie Nationale pour l'Administration de la Chimiothérapie

STANDARDS AND COMPETENCIES FOR CANCER CHEMOTHERAPY NURSING PRACTICE



Canadian Association of Nurses in Oncology
Association canadienne des infirmières en oncologie



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ACKNOWLEDGEMENT

CANO/ACIO would like to acknowledge the Standards and Competencies for Cancer Chemotherapy Nursing Practice volunteer development team for their outstanding dedication and commitment to this initiative and for all of their hardwork over the past two years. The following volunteers were essential in the development of this document and helped bring the National Strategy for Chemotherapy Administration vision to life. Our sincerest gratitude to Kristian Burns, Renee Hartzell, Barb Hues, Inara Karrei, Vicki Lejambe, Laura Mercer, Judy Oliver, Karyn Perry, Agnes Piotrowski, Laura Rashleigh, Brenda Ross, Pamela Savage, and Tracy Truant.

CANO/ACIO would also like to acknowledge the following stakeholders for their participation during the consensus building process of this document; Accreditation Canada, Canadian Nurses Association, Pediatric Oncology Group of Ontario, BC Children's Hospital and the Canadian Association of Provincial Cancer Agencies.

DISCLAIMER

These CANO/ACIO Standards and Competencies for Cancer Chemotherapy Nursing Practice are intended for use by trained Registered Nurses (RNs). They provide general guidance on appropriate practice and their use is subject to the registered nurses' judgment in each individual case. The CANO/ACIO Standards and Competencies for Cancer Chemotherapy Nursing Practice are designed to provide information to assist decision-making and are not meant to be prescriptive. Individuals who use this statement are required to make their own determination regarding specific safe and appropriate clinical practices. While care has been taken to ensure that this statement reflects the state of general knowledge and expert consensus about practice in the field at the date of publication, CANO/ACIO does not make any warranty or guarantee in respect to any of the contents or information contained in this statement nor accept responsibility or liability whatsoever for any errors or omissions in the statement, regardless of whether those errors or omissions were made negligently or otherwise.

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CANO/ACIO STANDARDS AND COMPETENCIES FOR CANCER CHEMOTHERAPY NURSING PRACTICE

INTRODUCTION

PURPOSE AND SCOPE

This document has been written to provide standards for the practice, education, and continuing competence of Registered Nurses (RNs) and for the quality practice environment required to ensure optimal cancer chemotherapy nursing practice in Canada. **Cancer Chemotherapy** refers to the wide range of therapeutic options used in the treatment of malignant diseases, including categories such as cytotoxic drugs, biologics, immunotherapies, targeted drug therapies, hormonal treatments, and high dose chemotherapy regimens supported with hematopoietic stem cell transplant¹. The use of the term *person or persons* will represent both persons living with cancer and their families, unless otherwise specified.

This document applies to the practice of Registered Nurses who provide cancer chemotherapy care for adult and pediatric patients in diverse settings throughout Canada where English and French languages are spoken, such as urban and rural, acute and community and inpatient and ambulatory clinics.

These Standards and Competencies have been written to provide general direction to nurses caring for persons receiving cancer chemotherapy to:

1. Determine their *roles* relevant to the Standards and Competencies.
2. Develop *measures* that reflect the outcomes of standards².
3. Establish criteria for *education programs* that develop cancer chemotherapy nursing competencies.
4. Establish criteria for continuing competence programs to maintain competence.
5. Provide a foundation for recommendations to the interdisciplinary team for the *quality practice environments* required for optimal cancer chemotherapy practice.

DEVELOPMENT PROCESS

The National Strategy for Chemotherapy Administration (NSCA) is a three-phased special initiative of CANO/ACIO that seeks to establish national chemotherapy administration standards, competencies and educational resources for oncology nurses across Canada³. In Phase One, a Canadian and international chemotherapy nursing practice environmental scan was carried out using a literature search, snowball survey, and focus groups⁴. Formative criteria for standards and competencies were drawn from the findings of the literature and the environmental scan. Draft chemotherapy nursing practice standards and competencies that reflect the diverse care settings where persons receive chemotherapy care were developed based

¹ Canadian Association of Pharmacists in Oncology (CAPHO). (2004). *Standards of Practice for Oncology Pharmacy in Canada*, (1) 49. North Vancouver, British Columbia: Author

² Canadian Association of Nurses in Oncology/Association Canadienne des Infirmières en Oncologie (CANO/ACIO). (n.d.). *Rationale for Standards of Care*. Retrieved August 20, 2010 from www.cano-acio.ca.

³ CANO/ACIO. (September 2008). *Developing a National Strategy for Chemotherapy Administration*, p.1. Vancouver, British Columbia, Canada: Author.

⁴ CANO/ACIO. (2009). *National Strategy for Chemotherapy Administration Phase I Final Report*, p.6. Vancouver, British Columbia, Canada: Author.

on the above-mentioned formative criteria. At a meeting of oncology nursing experts at the 2009 annual CANO/ACIO conference, the need for a unique Canadian statement of standards was further validated⁵.

Phase Two built upon the foundational work of Phase One, implementing a consensus building approach. Phase One provided the foundational objectives and values, summarized CANO/ACIO member needs and concerns regarding cancer chemotherapy, and summarized the extant literature, providing the context and evidence required for the consensus methodology. During Phase Two, an expert volunteer working group was convened, with representation from multiple provinces in Canada to refine and revise the initial draft standards developed in Phase One. Criteria were developed, modeled from the ASCO/ONS⁶ process, to guide the review of the standards and competencies. Surveys and voting strategies were implemented, to enable feedback on the standards and criteria from all members across broad distances. Consensus was considered one hundred percent agreement of working group members present at the teleconference and web-based meetings. Multiple revisions were developed through small group work to reach a reformulated second version. Further consensus, as guided by the foundational criteria, was sought from the membership of CANO/ACIO, and from national and international stakeholders. The expert working group collated and incorporated the membership and stakeholder feedback in the final standards and competence document. The Third Phase, which is underway, is the implementation and evaluation of the standards and competencies.

SOURCE DOCUMENTS

The CANO/ACIO Standards and Competencies for Cancer Chemotherapy Nursing Practice were derived from a synthesis of the reviewed literature, an environmental scan of Canadian and international chemotherapy nursing practice and expert consensus. The results of the literature review and the environmental scan are available in the following documents:

1. CANO/ACIO National Chemotherapy Administration Nursing Practice Strategy Phase I Final Report, April 6, 2009.
2. CANO/ACIO Ready for Phase II Synthesis of Findings from International Environmental Scan, November 16, 2009.

The reference list and bibliography for the CANO/ACIO Standards and Competencies for Cancer Chemotherapy Nursing Practice list the key documents that informed this body of work.

⁵ CANO/ACIO. (2009). *Final Report Ready for Phase II: Preparing for an Invitational National Strategy for Chemotherapy Administration Workshop*, p.5. Vancouver, British Columbia, Canada: Author.

⁶ Jacobson, J. O., Polovich, M. McNiff, K. K., LeFebvre, K. B., Cummings, C., Galioto, M., Bonelli, K. R., & McCorkle, M. R. (2009). American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards. *Journal of Clinical Oncology*, 27, 5469-5475.

WORKING GROUPS INVOLVED IN THE DEVELOPMENT OF THE STANDARDS AND COMPETENCIES

CANO/ACIO gratefully acknowledges the efforts of the following groups of nurse members who contributed to the envisioning and the development of the CANO/ACIO National Standards and Competencies for Chemotherapy Nursing Practice.

1. CANO/ACIO Think Tank (2007)
2. CANO/ACIO Round Table Workshop: Chemotherapy Safety (2008)
3. CANO/ACIO National Strategy for Chemotherapy Administration (NSCA) Invitational Workshop (2009)
4. CANO/ACIO NSCA Standards and Competencies Working Group (2010 and 2011)
5. CANO/ACIO NSCA Evaluation Working Group (2010 and 2011)
6. CANO/ACIO NSCA Invitational Workshop (2010)
7. Members and stakeholders involved in the consensus process (2010 and 2011)

THE CANADIAN CONTEXT FOR CANCER CHEMOTHERAPY IN THE TREATMENT OF ADULT AND PEDIATRIC PATIENTS WITH CANCER

The following summary highlights key factors that impact the nursing care of persons receiving cancer chemotherapy care in Canada.

COMPLEXITY OF CANCER CHEMOTHERAPY TREATMENT

Chemotherapy drugs are primarily used for the treatment of cancer. Recently, the use of cancer chemotherapy for cancer treatment has increased significantly, stimulated by new knowledge about cancer biology, innovative methods of targeting biotherapy to specific cancer cell characteristics, and the increased use of cancer chemotherapy or biotherapy as an adjuvant to surgery and radiation treatment. Treatment regimens are complex, often delivered cyclically over extended periods by a variety of routes, and may involve the use of mechanical or vascular access devices.

RISKS OF CANCER CHEMOTHERAPY DRUGS⁷

“There are many stressors and acute and chronic adverse effects that persons receiving cancer chemotherapy may experience that require specialized nursing care and supportive interventions.”⁸ Many cancer chemotherapy drugs are highly toxic to cells. Exposure to cytotoxic cancer chemotherapy drugs and their waste during preparation, administration, and disposal is an occupational hazard for health care workers, as these drugs are known to be mutagenic, carcinogenic and teratogenic⁹. Additionally, persons receiving chemotherapy and their family members can also be exposed to the hazards of chemotherapy drugs when they handle contaminated equipment or body fluids. The increasing complexity in cancer chemotherapy protocols inherently increases risks.

⁷ Cancer Nurses Society of Australia (CNSA). (2003). Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs, p.1. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

⁸ CNSA. (2003). Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs, p.1. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

⁹ CNSA. (2003). Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs, p.1. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

SHIFTING MODELS FOR CANCER CHEMOTHERAPY CARE¹⁰

In the past, people have received cancer chemotherapy in specialized hospitals or treatment centers. Smaller centers and clinics in metropolitan, rural and remote communities are now able to provide chemotherapy services because of improvements in side effect management, demands for cost containment, advances in technology, an emphasis on consumer choice, and a desire to provide cancer care and treatment closer to home¹¹. In addition, many persons are receiving cancer chemotherapy in their homes¹². Nurses working in different jurisdictions are involved in the treatment and supportive care of the person and family, as persons move through multiple settings to receive their chemotherapy care. Health care practitioners must communicate and collaborate across systems and organizations to create chemotherapy treatment plans, carry out comprehensive health care assessments, and provide the necessary education and psychosocial support to facilitate self-care, administration and monitoring. This education includes preparing persons, to evaluate and respond to side effects and adverse events. Continuity of care is essential for patient safety, and yet challenging to ensure; transfers of care between settings require communication and collaboration, shared understanding of clinical management, and access to resources.

THE ROLE OF THE PERSON RECEIVING CANCER CHEMOTHERAPY AND FAMILY

The person receiving cancer chemotherapy must understand the self-care required during treatment and know how to access resources to handle problems or concerns safely. Frequently the period for greatest potential toxicity¹³ from cancer chemotherapy occurs when the person is at home. The family and significant others help to provide support to the person receiving treatment and require knowledge and skill to carry out that role. Effective education and preparation is essential.

VARIABLE ACCESS TO CANCER CHEMOTHERAPY RESOURCES AND EXPERTISE

In Canada, groups of cancer experts advocate for oncology practice and advise the federal government about the need for changes in cancer care. Advances in chemotherapy practice and the development of expertise in evidence-based chemotherapy care, may not be translated to providers at the local, regional or provincial levels. Registered Nurses throughout Canada work in diverse and sometimes, disconnected clinical settings, teams, and jurisdictions to provide cancer chemotherapy care. These nurses have variable access to the guidelines, standards, education and continuing competence programs, and the chemotherapy expertise required for optimal practice¹⁴.

¹⁰ CNSA. (2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*, p.1. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

¹¹ CNSA. (2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*, p.15. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

¹² CANO/ACIO. (2009). *National Chemotherapy Administration Nursing Practice Strategy Phase I Final Report*, p. 15. Vancouver, British Columbia, Canada: Author.

¹³ National Cancer Institute Cancer Therapy Evaluation Program. (1999). *Common Toxicity Criteria Quick Reference. Common Toxicity Criteria Manual Version 2.0*, p.3.

¹⁴ CANO/ACIO. (2009). *National Chemotherapy Administration Nursing Practice Strategy Phase I Final Report*, p.24. Vancouver, British Columbia, Canada: Author.

DIVERSE ROLES OF CANADIAN REGISTERED NURSES IN CANCER CHEMOTHERAPY CARE

Registered Nurses in different agencies and clinical settings have diverse roles in ensuring safe and competent cancer chemotherapy care¹⁵ such as nurses who:

- Assess capacity for self-care.
- Provide cancer chemotherapy education, including explaining the chemotherapy plan of care.
- Identify, organize and ensure provision of resources and supports for management of self-care.
- Administer chemotherapy in a variety of settings including clinics, inpatient units, and home environments.
- Provide telephone support for the management of symptoms related to cancer and cancer treatment including the management of mechanical devices used to deliver ambulatory infusions.
- Advocate for the supports required to ensure a quality practice environment and on-going competence.
- Research aspects of chemotherapy care including symptom management and models of care delivery, and facilitate dissemination and uptake of evidence-based knowledge into clinical practice.
- Adapt and interpret standards for the practice environment and care providers.

CANO/ACIO CANCER CHEMOTHERAPY NURSING PRACTICE STANDARDS AND COMPETENCIES

Standards for cancer chemotherapy nursing practice have been written to reflect both the CANO standards of practice and chemotherapy best practice¹⁶. The standards articulate what Registered Nurses are expected to do to demonstrate cancer chemotherapy competence and are underpinned by the [CANO/ACIO Position Statement for Cancer Chemotherapy Nursing Practice](#)¹⁷. The literature and Canadian focus groups identified the four areas for Canadian cancer chemotherapy nursing standard development, which are as follows:

- A.** Accountability for Cancer Chemotherapy Nursing Practice and Care in Canada by Registered Nurses.
- B.** Quality Practice Environment for Optimal Cancer Chemotherapy Nursing Practice.
- C.** Educational Requirements for Developing Competence in Cancer Chemotherapy.
- D.** Cancer Chemotherapy Continuing Competence Program.

¹⁵ CANO/ACIO. (2009). *National Chemotherapy Administration Nursing Practice Strategy Phase I Final Report*, p.47. Vancouver, British Columbia, Canada: Author.

¹⁶ CANO/ACIO. (2006). *Practice Standards and Competencies for the Specialized Oncology Nurse*. Vancouver, British Columbia, Canada: Author

¹⁷ CANO/ACIO (2010). *Position Statement for Cancer Chemotherapy Nursing Practice*. Vancouver, British Columbia, Canada: Author

The first standard, Accountability for Cancer Chemotherapy Nursing Practice and Care in Canada by Registered Nurses, describes the overarching expectations for cancer chemotherapy nursing practice in Canada. Registered Nurse competencies are detailed within this standard and reflect best chemotherapy nursing practice based on a review of evidence and expert consensus. The CANO/ACIO Practice Standards and Competencies for the [Specialized Oncology Nurse](#) provided the conceptual framework for the articulated competencies¹⁸. The articulated competencies provide generalist, specialist and advanced Registered Nurses, educators, and administrators with descriptors of competent cancer chemotherapy nursing practice. In addition, these competencies can form the basis for the development of measurement tools for assessing and monitoring cancer chemotherapy nursing practice.

The remaining three standards in the document are foundational for optimal cancer chemotherapy nursing practice. These standards do not include corresponding competencies, as the competencies for cancer chemotherapy nursing practice are described in standard A.

Standard B, Quality Practice Environment for Optimal Cancer Chemotherapy Nursing Practice, details the organizational systems, policies and procedures, and continuity of care required for optimal cancer chemotherapy nursing practice. Standard C, Educational Requirements for Developing Competence in Cancer Chemotherapy, defines the educational program requirements for nurses to develop competence, including evaluation criteria. The final standard, Cancer Chemotherapy Continuing Competence Program, articulates the requirements for an annual continuing competency program for Registered Nurses, including methods for identifying learning needs and strategies to meet learning goals.

¹⁸ CANO/ACIO. (2006). *Practice Standards and Competencies for the Specialized Oncology Nurse*. Vancouver, British Columbia, Canada: Author

STANDARD A.

ACCOUNTABILITY FOR CANCER CHEMOTHERAPY NURSING PRACTICE AND CARE IN CANADA BY REGISTERED NURSES

CANO/ACIO POSITION STATEMENT #2:

Cancer chemotherapy should be delivered by Registered Nurses and patients receiving chemotherapy for the treatment of cancer should receive care from Registered Nurses.

Patients receiving chemotherapy have unpredictable outcomes. Complex patients with unpredictable outcomes fall under the domain of Registered Nurses (College of Nurses of Ontario, 2009, p.1). In addition to the nature of the patient and of chemotherapy care, many oncology nurses work in isolated settings where immediate and consistent support of experts is not standard. Telephone triage of patients is an integral component of most oncology out-patient chemotherapy practice and also requires in-depth, independent assessment and decision-making abilities.

Nursing practices with unpredictable outcomes and a high degree of autonomy fall outside the level of judgment and critical thinking expected of Registered Practical Nurses or Licensed Practical Nurses (CNO, 2009, p.11). Therefore, CANO/ACIO strongly believes that the designation Registered Nurse is the minimum foundation required to provide cancer chemotherapy-care. This belief aligns with the chemotherapy practice statements adopted by other national oncology nursing organizations (such as the Cancer Nurses Society of Australia and, in the USA, the Oncology Nursing Society (ONS); with national standards for safe medication administration (Canadian Partnership Against Cancer), and with Canadian safety initiatives (Accreditation Canada).

The American Society of Clinical Oncology and Oncology Nursing Society (2000) state “only qualified physicians, physician assistants, advanced practice nurses or registered nurses administer chemotherapy” (Jacobson, Polovich, McNiff, LeFebvre, Cummings, Galioto, et al., 2009, p. 4).¹⁹

Registered Nurses shall provide safe and competent cancer chemotherapy nursing care. Standards for cancer chemotherapy nursing practice have been written to reflect each of the CANO/ACIO practice domains²⁰. Corresponding competencies are articulated in the bullet points below each standard.

¹⁹ CANO/ACIO (2010). *Position Statement on Cancer Chemotherapy Administration and Care*. p.2. Vancouver, British Columbia, Canada: Author.

²⁰ CANO/ACIO. (2006). *Practice Standards and Competencies for the Specialized Oncology Nurse*. Vancouver, British Columbia, Canada: Author.

1. COMPREHENSIVE HEALTH ASSESSMENT:

Registered Nurses providing cancer chemotherapy care shall perform and document comprehensive health assessments at the onset of cancer chemotherapy treatments and continuing throughout the cancer care continuum.

- a.** RNs perform an initial health assessment that identifies any factors that will impact the person's cancer chemotherapy experience. This may include:
 - i. Pre-existing health problems including allergies, medications and any previous exposure to cancer chemotherapy medications.
 - ii. Age and stage of development.
 - iii. Psychosocial factors.
- b.** RNs perform ongoing health assessments in a timely manner. This includes:
 - i. Before each chemotherapy cycle.
 - ii. Before renewal of self-administered, non-cyclical chemotherapy prescriptions (e.g. oral such as imatinib; subcutaneous such as interferon).
 - iii. In response to person's concerns.
 - iv. When health status changes (e.g. physical, emotional, mental, spiritual, cognitive, developmental, environmental changes).
 - v. When side effects occur.
 - vi. When there is evidence of adverse events and/or toxicity.
- c.** RNs construct a plan of care in collaboration with persons to address issues identified during assessments and comprehensively document the assessment, interventions and outcomes.

2. SUPPORTIVE AND THERAPEUTIC RELATIONSHIPS:

Registered Nurses providing cancer chemotherapy care will establish, monitor, and maintain supportive and therapeutic relationships while providing cancer chemotherapy care to persons living with cancer.

- a.** RNs consider the emotional, cultural, and spiritual context of persons initial and ongoing care such as:
 - i. Fears and misconceptions
 - ii. Need for language assistance
 - iii. Ability to cope
 - iv. Other concerns specific to the person
- b.** RNs work with persons to identify support services needed to manage their cancer chemotherapy and initiate referrals as appropriate.
- c.** RNs monitor the therapeutic relationship over time as outcomes of interventions are evaluated and needs evolve.

3. MANAGEMENT OF CANCER SYMPTOMS AND TREATMENT SIDE EFFECTS:

Registered Nurses providing cancer chemotherapy care will manage cancer symptoms and treatment side effects in collaboration with the inter-disciplinary health care team.

- a.** RNs maintain and apply current knowledge and understanding of the role, mechanism and management of side-effects of cancer chemotherapy specific to the populations in which they practice.
- b.** RNs recognize and apply principles of cancer chemotherapy safety specific to the route of administration.
- c.** RNs apply the principles of safe handling and disposal of chemotherapeutic agents, body fluids and contaminated equipment (e.g., tubing and body fluids).
- d.** RNs manage infusions (e.g. vascular access devices) and equipment (e.g. ambulatory infusion pumps) identified as appropriate relative to the treatment protocol, person's preference and institutional resources available.
- e.** RNs document assessments, interventions and outcomes in the person's health record using reliable and valid tools, when available.

4. TEACHING AND COACHING:

Registered Nurses providing cancer chemotherapy care will provide teaching and coaching specific to the assessed learning needs of persons receiving cancer chemotherapy.

- a.** RNs assess readiness to learn by evaluating:
 - i. Age and developmental level.
 - ii. Existing knowledge level.
 - iii. Expectations about disease and treatment.
 - iv. Response to new knowledge.
- b.** RNs pace teaching based on the person's readiness to learn.
- c.** RNs provide persons with knowledge specific to their cancer treatment related to the following:
 - i. Purpose, mechanism of action, route and schedule of the cancer chemotherapy and related medications.
 - ii. Immediate, early, late and delayed side effects of cancer chemotherapy and their management differentiating between expected, non-urgent side effects and those requiring immediate medical intervention.
 - iii. Safe use of mechanical devices, such as infusion pumps.
 - iv. Vascular access device assessment and care.
 - v. Safe-handling of chemotherapy, contaminated equipment and body fluids.
 - vi. Rationale for the required monitoring parameters.
 - 1. Frequency of blood tests and other diagnostic investigations.
 - 2. Self-report of symptoms and well-being.
- d.** RNs use information resources based on best practice guidelines, protocols, and standards.
- e.** RNs provide opportunities for reinforcement of education and validation of the person's understanding.
- f.** RNs evaluate outcomes, share relevant findings and concerns with the interdisciplinary team and document teaching provided.

5. FACILITATING CONTINUITY OF CARE/NAVIGATING THE SYSTEM:

Registered Nurses providing cancer chemotherapy care work to promote continuity of care and help persons navigate the health care system.

- a.** RNs facilitate cancer chemotherapy treatment and care to be given in the most appropriate setting along the cancer continuum, with consideration given to person specific needs.

- b.** RNs facilitate a process for persons communicating with the appropriate health care professional (who, when, how to call) to enable access of resources for assistance.
- c.** RNs communicate and collaborate with appropriate health care providers during transitions in care (e.g. within an organization or across settings) to address system barriers, promote continuity of care and promote safety.
- d.** RNs assist persons in accessing comprehensive supportive care (e.g. psychosocial oncology, spiritual care, home care).

6. DECISION-MAKING AND ADVOCACY:

Registered Nurses providing cancer chemotherapy care promote autonomous decision-making and advocate for the well-being of persons receiving cancer chemotherapy care.

- a.** RNs provide the information, education and/or support to facilitate person's decision making and autonomy in the informed consent processes.
- b.** RNs advocate for the persons wishes and decisions in relation to their cancer chemotherapy care.

7. PROFESSIONAL PRACTICE AND LEADERSHIP:

Registered Nurses providing cancer chemotherapy care participate in and support professional practice and leadership.

- a.** RNs recognize the limits of their competence and shall not perform cancer chemotherapy care for which they lack competency or an ability to manage the possible outcomes of the skill.
 - i. RNs collaborate with health professionals to make decisions about the agency's capacity to provide safe chemotherapy care services based on the level of competence of involved staff and the clinical facilities available.
 - ii. When access to chemotherapy expertise is limited, RNs seek out mentors in other agencies or through professional associations such as CANO/ACIO or CNA/AIIC.
 - iii. RNs act as mentors and resource persons to nursing colleagues and students.
- b.** RNs complete an educational program prior to accepting responsibility for persons requiring cancer chemotherapy care.
- c.** RNs demonstrate continuing competency related to their role in cancer chemotherapy care at least annually.
- d.** RNs use research and evidence-based knowledge in providing care to persons receiving cancer chemotherapy. This may include:
 - i. Using research findings in practice.
 - ii. Critically evaluating research articles.
 - iii. Supporting access to clinical trials.
 - iv. Identifying researchable problems or questions.
 - v. Identifying potential and actual gaps in cancer chemotherapy care.
 - vi. Supporting, participating in or initiating research related to cancer chemotherapy.
 - vii. Working with the interprofessional team to find evidence-based answers.
 - viii. Participating in professional oncology associations to further the practice of cancer chemotherapy nursing.
- e.** RN's work towards completion of the national oncology certification exam offered by the Canadian Nurses Association, if feasible, and maintain the certification credential CON(C).
- f.** RNs recognize and critically analyse situations for potential ethical and legal issues and apply ethical frameworks to support persons' decision-making, accessing resources to assist as required.

STANDARD B.

QUALITY PRACTICE ENVIRONMENT REQUIRED FOR OPTIMAL CANCER CHEMOTHERAPY NURSING PRACTICE

CANO\ACIO POSITION STATEMENT #1:

Cancer chemotherapy is high risk and complex

Cancer chemotherapy encompasses cytotoxic, cytostatic and biologic agents used to modify the body's response to malignant disorders. These agents can be highly toxic and present specific risks for patients, health care providers and care-givers. As such, the care of patients receiving these drugs requires specific knowledge, skill and judgment within an environment that supports quality practice²¹.

CNA AND CFNU JOINT POSITION STATEMENT:

The Canadian Nurses Association (CNA) and the Canadian Federation of Nurses Unions (CFNU) (2006) indicate in their joint position statement on practice environments, that quality practice environments maximize outcomes for clients, and maximize outcomes for the system and the nurse²². Registered nurses are obligated to promote and advocate for quality cancer chemotherapy practice environments with systems, structures and resources that facilitate safety for all in that setting. This is a shared responsibility between the organizations that provide cancer chemotherapy administration and care, the RN, the health care team, and additional essential stakeholders²³.

1. ORGANIZATIONAL SYSTEMS:

Registered Nurses shall advocate and promote adequate systems to ensure a quality practice environment for the care of persons receiving cancer chemotherapy within their organizations^{24,25,26}. This includes advocating and promoting the following:

- a. Access to the treatment plan and the cancer chemotherapy order.
- b. A standardized approach for calculating dosage, including standardized units.
- c. Access to the person's health information to confirm that elements fall within treatment plan parameters, including:
 - i. Relevant information on the person's health conditions, including: diagnosis, health history, current medications and allergies, current height and weight.
 - ii. Recent laboratory values and investigations.
- d. A process for addressing health information, laboratory investigations and assessment results that fall outside of the treatment plan parameters²⁷.
- e. Informed consent process.

²¹ CANO/ACIO. (2010). *Position Statement for Cancer Chemotherapy Nursing Practice*, p.1. Vancouver, British Columbia, Canada: Author.

²² Canadian Nurses Association (CNA) and the Canadian Federation of Nurses Unions (CFNU). (2006). *Joint Position statement: Practice Environments: Maximizing Client, Nurse and System Outcomes*, p.1. Retrieved August 20, 2010, from http://www.cna-aic.ca/CNA/practice/environment/practice/default_e.aspx.

²³ CNA & CFNU. (2006). *Joint Position statement: Practice Environments: Maximizing Client, Nurse and System Outcomes*, p.1. Retrieved August 20, 2010, from http://www.cna-aic.ca/CNA/practice/environment/practice/default_e.aspx.

²⁴ Jacobson, et al. (2009). American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards. *Journal of Clinical Oncology*, 27, 5469-5475.

²⁵ United Kingdom Department of Health NHS (UKNHS). (2004). Peer review program: Chemotherapy specific indicators. *Manual for Cancer Services Version 3.0*. Retrieved from <http://www.cquins.nhs.uk>

²⁶ CNSA. (2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

²⁷ Clinical Oncological Society of Australia (COSA). (2008). *Guidelines for the Safe Prescribing, Supply and Administration of Cancer Chemotherapy*. Retrieved August 24, 2010 from <http://www.cosa.org.au/File/Reports/Guidelines%20for%20Chemo%20book.pdf>

- f.** A safe system for preparation of cancer chemotherapy (including oral medication) by a pharmacist or pharmacy technician²⁸. If the RN is required to mix and prepare cancer chemotherapy, they shall advocate for appropriate education on the preparation of cytotoxic medication, and policies, procedures and equipment for the safe preparation, handling and disposal of cancer chemotherapy materials according to Canadian standards for occupational health and safety and for safe handling of cytotoxics. Standards of practice for Canadian Pharmacists are available from the National Association of Pharmacy Regulatory Authorities²⁹.
- g.** Working conditions that support the safe administration of chemotherapy including adequate lighting and space, maximum work load standards, and strategies to promote well-being and work life balance³⁰.
- h.** Medication administration records to record administration of chemotherapy drugs.
- i.** Documentation processes to record assessment, planning, interventions and evaluation of care including the administration of cancer chemotherapy.
- j.** Emergency access to health care for the management of adverse events 24 hours a day, seven days a week. This may include care/supervision by telephone with emergency instructions, clinicians at the treatment center, or an emergency department versed in the care of chemotherapy patients.
- k.** Access to reference information including prescribed drugs and drug protocols, their actions, side effects and any specific implications for cancer chemotherapy administration and patient care.

2. ORGANIZATIONAL POLICIES AND PROCEDURES

Registered Nurses shall advocate and promote appropriate policies, procedures and processes related to cancer chemotherapy care within their organization that address the following:

- a.** Roles and responsibilities for the chemotherapy practice of RNs.
- b.** Educational programs for RNs to develop competence to care for persons receiving cancer chemotherapy.
- c.** A continuing cancer chemotherapy competency program.
- d.** Standards for cancer chemotherapy orders including:
 - i. Standards for prescribing orders. (including restrictions on who can prescribe cancer chemotherapy).
 - ii. Standardized order regimens and supporting references and documentation for order variations.³¹
 - iii. Process for order verification. (appropriateness of prescribed order for the person's diagnosis, condition, right drug, date and time, person's identity, allergies, administration route and rate, medication sequence, medication label, medication expiry, and dose calculations).
 - iv. A process for two health care clinicians with competence in chemotherapy processes to check separately all elements included in prescribing, dispensing and administering the drug.³²
 - v. Pretreatment assessment with a framework and valid tools.
 - vi. Route selection (e.g. Peripheral or Central Vascular Access Device) and assessment.
 - vii. Monitoring, education and discharge requirements for persons receiving cancer chemotherapy.
 - viii. Documentation.
- e.** Management and reporting of side effects, toxicities and other adverse events.

²⁸ Vandenberg, T., Trudeau, M., Coakley, N., Nayler, J., DeGrasse, C., Green, E., Mackay, J.A., McLennan, C., Smith, A., Wilcock, L. & the Regional Models of Care Systemic Treatment Project Team. (2007). Regional models of care for systemic treatment: Standards for the organization and delivery of systemic treatment. *Evidenced-Based Series #12-10: Section 1. Cancer Care Ontario*. Retrieved July 2008, from www.cancercare.on.ca

²⁹ National Association of Pharmacy Regulatory Authorities (NAPRA). (April 2003). *The Model Standards of Practice for Canadian Pharmacists*. Ottawa, Ontario, Canada: McNeil Publication.

³⁰ CNSA. (July 2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*, p.4. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

³¹ Jacobson, et al. (2009). American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards. *Journal of Clinical Oncology*, 27, 5469-5475.

³² Cohen, M.R. (2010). Medication errors. *Nursing*, 40 (1), 14.

- f.** Safe handling of hazardous drugs, including the following:
- i. Personal protective equipment appropriate to the route of administration/ potential exposure meeting provincial and national occupational health and safety standards.
 - ii. Drug administration equipment that minimizes risk of exposure.
 - iii. Cancer chemotherapy spill management and waste disposal.
 - iv. Drug preparation equipment, including a biological safety cabinet that meets all provincial and national safety standards guiding their use³³.
- g.** Education and support of persons living with cancer for the self-management of chemotherapy, including oral chemotherapy. This includes:
- i. Supplies and resources including psychosocial support.
 - ii. Operation of equipment needed to administer chemotherapy (e.g. subcutaneous needles, portable infusion pumps).
 - iii. Care of vascular access devices.
 - iv. Medication administration and side effect management.
 - v. Safe handling of chemotherapy.
 - vi. Lifestyle adjustments.
 - vii. Ongoing care and follow-up required.

3. CONTINUITY OF CARE:

Registered nurses shall advocate and promote collaborations and communication between settings and providers responsible for the care of persons receiving cancer chemotherapy to develop processes, policies and procedures ensuring continuity and safe transitions in care.

³³ CAPHO. (November 2009). *Standards of Practice for Oncology Pharmacy in Canada (V 2)*. North Vancouver, British Columbia, Canada: Author. Retrieved July 2010, from http://www.capho.org/index_e.html

STANDARD C

EDUCATIONAL REQUIREMENTS FOR DEVELOPING COMPETENCE IN CANCER CHEMOTHERAPY

CANO/ACIO POSITION STATEMENT #3

Specific knowledge and skills are required by Registered Nurses before administering or providing care to persons receiving cancer chemotherapy.

Based on cancer chemotherapy best practices as defined by international oncology nursing organizations, CANO/ACIO believes that the education program for Registered Nurses preparing to care for persons receiving cancer chemotherapy includes theoretical, clinical, and continuing competency components³⁴.

1. RNs shall complete the requirements for a chemotherapy educational program prior to accepting responsibility for persons requiring cancer chemotherapy care^{35,36,37}.
2. The cancer chemotherapy education program shall include a theoretical and clinical evaluation component, including supervised clinical practice³⁸.
 - a. The organization develops a valid evaluation process where participants, at a minimum, meet the outlined CANO/ACIO chemotherapy standards and competencies within this document (Standard A).
 - b. Objective assessment of a learner's competence is completed by an RN with advanced competence (knowledge, skills, critical thinking, clinical judgment) in cancer chemotherapy care.
 - c. Organization with limited/no resources to assess competence shall develop an alternate collaborative approach.
3. The education program shall include, at a minimum, the following topics:
 - a. Principles of cancer chemotherapy, including cancer cell biology, goals of treatment, cellular kinetics of normal and malignant cells, classifications and mechanism of action, drug selection, and standard treatment and research protocols.
 - b. Assessment of the person receiving cancer chemotherapy and their family.
 - c. Principles of safe chemotherapy administration by all routes.
 - d. Principles and requirements for safe handling of cancer chemotherapy agents and related waste.
 - e. Toxicities, side effects, and adverse events and associated with cancer chemotherapy, including early identification, ongoing monitoring, and principles of prevention and management of these adverse effects and toxicities.
 - f. Selection, care and maintenance of vascular access devices.
 - g. The use of mechanical devices required for care, such as ambulatory infusion pumps.
 - h. Psychosocial oncology care and options and guidelines for interprofessional referrals.
 - i. Ethical and legal issues associated with the administration of cancer chemotherapy.
 - j. Organizational processes and available client education and resources.
 - k. Documentation

³⁴ CANO/ACIO. (2010). *Position Statement for Cancer Chemotherapy Nursing Practice*, p.3. Vancouver, British Columbia, Canada: Author.

³⁵ American Society of Clinical Oncologists- Oncology Nurses Society. (2010). *Standards for Safe Chemotherapy Administration*, Retrieved August 30, 2010, from <http://www.asco.org/safety>

³⁶ UKNHS. (2004). Peer review program: Chemotherapy specific indicators. *Manual for Cancer Services Version 3.0*, Retrieved from <http://www.cquins.nhs.uk>

³⁷ CNSA. (2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

³⁸ CANO/ACIO. (1995). *Standards for Nursing Practice and Education Related to Administration of Cancer Chemotherapy*. Vancouver, British Columbia, Canada: Author

4. Organizations shall determine and provide education on additional competencies required to provide care within their system, and evaluate the outcomes. The focus of this additional education should include:
 - a. Type of cancer chemotherapy regimens commonly administered.
 - b. Clinical skills required to provide chemotherapy care identified for their practice environment, which may include:
 - i. Chemotherapy administration skills such as intravenous bolus, continuous infusion, oral, intra-cavitary instillations, intra-arterial, intraperitoneal or subcutaneous or intramuscular injections.
 - c. The RNs' role in the cancer chemotherapy care of patients in their setting, such as an in-patient unit, out-patient ambulatory clinic, community, telephone triage or chemotherapy administration unit.
 - d. Specific population needs, related to the RNs role, including cultural considerations. For example, for the care of children with cancer, the education program shall include content relevant to the developmental stage of the child and family, the pediatric cancer diagnoses and the unique needs of the child and family.
5. An objective evaluation of learning shall be conducted after completion of the theoretical education. CANO/ACIO recommends that this assessment be based on the [CANO/ACIO Cancer Chemotherapy Nursing Practice Competencies in Standard A](#). The method of evaluation (e.g. oral, written) shall depend on the organization and its resources. The evaluation should elicit the RN's ability to:
 - a. Identify relevant components of a history, physical, and psychosocial assessment.
 - b. Interpret data and develop a plan for care and teaching.
 - c. Describe how to provide chemotherapy care and safely administer cancer chemotherapy according to organizational policy, if applicable.
 - d. Describe potential complications, adverse events, side effects, and toxicities, and appropriate interventions.
 - e. Identify appropriate education and support for the person receiving treatment.
 - f. Demonstrate knowledge of cancer chemotherapy protocols and guidelines.
6. The clinical practice component follows the completion of the theoretical component and shall include supervised clinical experience with an RN who has specialized knowledge, skill, critical thinking, and clinical judgment in cancer chemotherapy care. The clinical component shall include, at a minimum, the following:
 - a. Demonstration of assessment and clinical skills, the interpretation of data and the approach used by the RN with persons living with cancer.
 - b. Demonstration of the CANO/ACIO chemotherapy competencies relevant to their practice setting.
 - c. Access to clinical support and information on the use of agents, indications for use, protocols, procedures or equipment.
 - d. An objective and subjective evaluation of the clinical experience. CANO/ACIO recommends that this assessment be based on the CANO/ACIO Cancer Chemotherapy Nursing Practice Competencies and organization specific goals and standards ([see Standard A](#)).

³⁹ CANO/ACIO. (2010). *Position Statement for Cancer Chemotherapy Nursing Practice*, p.1. Vancouver, British Columbia, Canada: Author.

STANDARD D

CANCER CHEMOTHERAPY CONTINUING COMPETENCE PROGRAM

CANO/ACIO POSITION STATEMENT #3:

Specific knowledge and skills are required by Registered Nurses before administering or providing care to persons receiving cancer chemotherapy.

Based on cancer chemotherapy best practices as defined by international oncology nursing organizations, CANO/ACIO believes that the education program for Registered Nurses preparing to care for persons receiving cancer chemotherapy includes theoretical, clinical, and continuing competence components³⁹.

CNA NATIONAL FRAMEWORK FOR CONTINUING COMPETENCE AND CANO/ACIO STANDARDS

Registered Nurses are required to demonstrate annually, the ongoing ability to integrate and apply the knowledge, skills, judgment, and personal attributes (attitudes, values, and beliefs) required to practice cancer chemotherapy administration safely and ethically in their designated roles and settings. Maintaining this ongoing ability involves a continual process linking the Code of Ethics for Registered Nurses (CNA, 1997), the CANO/ACIO Standards of Care⁴⁰, and life long learning⁴¹.

1. RNs shall demonstrate continuing competence in cancer chemotherapy annually^{42,43,44,45}.
2. A cancer chemotherapy continuing competence program shall support RNs to acquire, maintain, and advance knowledge, skills, critical thinking and clinical judgment related to:
 - a. Cancer chemotherapy agents and protocols
 - b. Equipment
 - c. Policies and procedures
 - d. Symptom management
 - e. Monitoring parameters
 - f. Adverse event monitoring
 - g. Safe handling and administration
3. A cancer chemotherapy continuing competence program shall support RNs to:
 - a. Assess their learning needs related to care of the patient receiving cancer chemotherapy in their designated role and setting, using identified tools and agreed upon subjective and objective measures. These tools may be derived from the CANO/ACIO Competencies for Cancer Chemotherapy Practice in Canada and provincial requirements.

⁴⁰ CANO/ACIO. (2006). *Practice standards and competencies for the specialized oncology nurse*. Vancouver, British Columbia, Canada: Author. Retrieved July 2009, from http://www.cano-acio.ca/~ASSETS/DOCUMENT/Practice/CONEP_Standards2006September28_REVISDFor_20Website.pdf

⁴¹ Canadian Nurses Association (CNA). (2000). *A National Framework for Continuing Competence Programs for Registered Nurses*. Retrieved June 28, 2010, from http://www.cna-aiic.ca/CNA/documents/pdf/publications/National_Framework_Continuing_Competence_e.pdf

⁴² Jacobson, et al. (2009). American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards. *Journal of Clinical Oncology*, 27, 5469-5475.

⁴³ United Kingdom Department of Health NHS. (2004). Peer review program: Chemotherapy specific indicators. *Manual for Cancer Services*. Version 3.0. Retrieved from <http://www.cquins.nhs.uk>

⁴⁴ CNSA. (2003). *Position Statement on the Minimum Education and Safety Requirements for RNs Involved in the Administration of Cytotoxic Drugs*. Retrieved March 2009, from http://www.cnsa.org.au/publications_policies_pub.htm

⁴⁵ CANO/ACIO. (1995). *Standards for Nursing Practice and Education Related to the Administration of Cancer Chemotherapy*. Vancouver, British Columbia, Canada: Author

- i. Methods for identification of learning needs shall include self-assessment and one or more of the following:
 - 1. Peer/Colleague Feedback on Performance
 - 2. Practice Interview
 - 3. Review of Professional Portfolio
 - 4. Written Examination⁴⁶
- ii. Develop individualized learning plans to support the RNs to achieve their specified goals. Strategies to achieve the goals may include:
 - 1. Mentorship
 - 2. Attendance at education sessions
 - 3. Review of relevant literature
 - 4. Completion of certification programs and maintenance of certification
(e.g. CNA Oncology Certification)
 - 5. Completion of self-learning programs
 - 6. Participation in development of new education programs and materials or other creative learning strategies
- iii. Report achievement of continuing competence. Tools and methods for reporting evidence of continuing competence in chemotherapy may include:
 - 1. Peer/colleague feedback
 - 2. Professional portfolio
 - 3. Continuing education hours
 - 4. Documentation of results from continuing education programs and certification programs
 - 5. Hours of practice
 - 6. Written examination
 - 7. Structured clinical examination

⁴⁶ CNA. (2000). *A National Framework for Continuing Competence for Registered Nurses*, p.12. Retrieved June 28, 2010, from http://www.cna-nurses.ca/CNA/nursing/regulation/competence/default_e.aspx.

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APPENDIX A

DEFINITIONS

ADVERSE EVENT

“Any unfavorable or unintended symptom, sign, or disease (including abnormal lab) temporarily associated with the use of a medical treatment, or procedure that may or may not be considered relevant to the medical treatment or procedure. Such effects can be intervention related, dose related, route related, patient related, caused by an interaction with another drug.”⁴⁷

CANCER CHEMOTHERAPY

The wide range of therapeutic options used in the treatment of malignant diseases, including categories such as cytotoxic drugs, biologics, immunotherapies, targeted drug therapies, hormonal treatments, and high dose chemotherapy regimens supported with hematopoietic stem cell transplant⁴⁸.

CANCER CHEMOTHERAPY REGIMEN

One or more cancer chemotherapy drugs used alone or in combination in a protocol, generally administered cyclically over a prescribed period of time⁴⁹.

CANCER CHEMOTHERAPY CARE

The support required by persons during cancer chemotherapy to maintain health, to monitor their experience of chemotherapy, and to manage problems that arise. This may include but is not limited to assessment, therapeutic communication, coordination of care, education and information, access to resources, psychosocial support, and referral to specialized services and professionals to manage identified problems.

COACHING

“A patient education method that guides and prompts patients to be active participants in behavior change. Coaching directs patients through an activity in an effort to improve outcomes. This direction might include education, goal setting, encouragement, and support of activities to reach personal objectives.”⁵⁰

CONTINUING COMPETENCE

“The ongoing ability of a registered nurse to integrate and apply the knowledge, skills, and judgment, and personal attributes required to practice safely and ethically in a designated role and setting.”⁵¹

INDEPENDENT DOUBLE CHECK

“An independent double check is a process in which a second practitioner conducts a verification. Such verification can be performed in the presence or absence of the first practitioner. In either case, the most critical aspect is to maximize the independence of the double check by ensuring that the first practitioner does not communicate what he or she expects the second practitioner to see, which would create bias and reduce the visibility of an error.”⁵²

LEADERSHIP

“Essential element for quality professional practice environments where nurses can provide quality nursing care. Key attributes of a nurse leader include being an: advocate for quality care, a collaborator, an articulate communicator, a mentor, a risk taker, a role model and a visionary”⁵³

⁴⁷ National Institutes of Health, National Cancer Institute. (2003). *Common Terminology Criteria for Adverse Events (CTCAE)- Glossary Report*, p.2. Retrieved August 20, 2010, from https://ctep.cancer.gov/Cancer_Therapy_Evaluation_Program

⁴⁸ CAPhO. (2004). *Standards of Practice for Oncology Pharmacy in Canada* (V 1) p.49. North Vancouver, British Columbia: Author.

⁴⁹ Jacobson, J. O., Polovich, M. McNiff, K. K., LeFebvre, K. B., Cummings, C., Galioto, M., Bonelli, K. R., & McCorkle, M. R. (2009). American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards. *Journal of Clinical Oncology*, 27, p.3.

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⁵² Institute for Safe Medication Practices Canada. (2005). *Independent Double Check*. p.1. Retrieved August 23, 2010 from <http://www.ismp-canada.org/definitions.htm>

⁵³ CNA. (2011). *Leadership: Succession Planning for Nursing Leadership*. Retrieved on March 31, 2011 from www.cna-aic.ca.

PROFESSIONAL PRACTICE

“Each Registered Nurse is accountable for safe, compassionate, competent and ethical nursing practice. Professional practice occurs within the context of the Code of Ethics for Registered Nurses (CNA, 2008), provincial\ territorial standards of practice and scope of practice, legislation and common law. Registered nurses are expected to demonstrate professional conduct as reflected by the attitudes, beliefs and values espoused in the Code of Ethics for Registered Nurses. Professional registered nurse practice is self regulating. Nursing practice requires professional judgment, interprofessional collaboration, leadership, management skills, cultural safety, advocacy, political awareness and social responsibility. Professional practice includes awareness of the need for, and the ability to ensure, continued professional development. This ability involves the capacity to perform self-assessments, seek feedback and plan self-directed learning activities that ensure professional growth. Registered nurses are expected to use knowledge and research to build an evidence-informed practice.”⁵⁴

QUALITY PRACTICE ENVIRONMENT

A quality practice environment maximizes outcomes for clients, nurses, and systems. Quality practice environments demonstrate the following characteristics: communication and collaboration, responsibility and accountability, realistic workload, leadership, support for information and knowledge management, professional development and a workplace culture that values the wellbeing of clients and employees.⁵⁵

SAFE HANDLING

“The use of engineering controls, administrative controls, work practice controls and personal protective equipment to minimize occupational exposure to hazardous agents.”⁵⁶

SIDE EFFECTS

“Any result of a drug or therapy that occurs in addition to the intended effect, regardless of whether it is beneficial or undesirable.”⁵⁷

SPECIALIZED ONCOLOGY NURSE

“A Registered Nurse who has a combination of expanded education focused on cancer care and experience, such as two years in a setting where the primary focus is cancer care delivery. The Specialized Oncology Nurse might acquire specialty education through a variety of ways; for example, enrolment in an undergraduate nursing program, completion of an Oncology Certificate Program, distance specialty education, or registration in and completion of the certification exam offered by the Canadian Nurses Association and attainment of the distinction CON(C). The Specialized Oncology Nurse is one who works in a specialized inpatient setting, such as an oncology unit, or bone marrow transplant unit, or in an ambulatory setting where focused on the delivery of cancer care, or in a screening program, or in a supportive care setting, or community setting offering palliative care.”⁵⁸

TOXICITY

“Toxicity is not clearly defined by regulatory organizations. (National Cancer Institute (NCI) defines) toxicity ... as an adverse event that has a possible, probable, or definite attribution to cancer chemotherapy including investigational chemotherapy.”⁵⁹

⁵⁴ CNA. (2010). *Canadian Registered Nurse Examination Competencies: Professional Practice*. Retrieved on March 31, 2011 from

http://www.cna-aiic.ca/CNA/nursing/mexam/competencies/default_e.aspx

⁵⁵ Canadian Nurses Association and the Canadian Federation of Nurses Unions. (2006). *Joint Position statement: Practice Environments: Maximizing Client, Nurse and System Outcomes*, p. 2. Retrieved August 20, 2010, from http://www.cna-aiic.ca/CNA/practice/environment/practice/default_e.aspx

⁵⁶ Polovich, M. (2005). Developing a hazardous drug safe-handling program. *Community Oncology*, 2(5), 403-405.

⁵⁷ McGraw-Hill. (2002). *Side Effects. Concise Dictionary of Modern Medicine*. The McGraw-Hill Companies, Inc.

⁵⁸ CANO/ACIO. (July 2001). *Standards of Care*. Retrieved March 31st 2011 from www.cano-acio.ca

⁵⁹ National Cancer Institute (NCI). (1999). *Common Toxicity Criteria Quick Reference. Common Toxicity Criteria Manual Version 2.0*, p.3.

APPENDIX B

NATIONAL STRATEGY FOR CHEMOTHERAPY ADMINISTRATION: STANDARDS AND COMPETENCIES WORKING GROUP VOLUNTEERS

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APPENDIX C

CANO/ACIO Position Statement for Cancer Chemotherapy Nursing Practice

APPENDIX D

[http://www.cano-acio.ca/~ASSETS/DOCUMENT/Member%20Communications/
positionstatementFINAL.pdf](http://www.cano-acio.ca/~ASSETS/DOCUMENT/Member%20Communications/positionstatementFINAL.pdf)



National Strategy For Chemotherapy Administration
Stratégie Nationale pour l'Administration de la Chimiothérapie



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Canadian Association of Nurses in Oncology
Association canadienne des infirmières en oncologie

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