



# A Model for Integrating Acupuncture into Supportive Care in Oncology

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## Abstract

Evidence for the efficacy of the use of acupuncture for supportive care in an oncology setting has prompted clinicians to establish guidelines to safely and effectively deliver acupuncture services within the context of conventional care. Developing standard operating procedures and adhering to established practice guidelines facilitates the safe provision of acupuncture services. We provide a feasible model for the provision of acupuncture alongside conventional medical care to adults and children undergoing treatment for cancer at an urban, academic medical center.

**Key Words:** medical oncology, pediatric oncology, neoplasms, integrative medicine, acupuncture, medicine, traditional Chinese medicine, clinical practice guidelines

## Introduction

Acupuncture has emerged as having a therapeutic role for symptom management among adults and children with cancer.<sup>1</sup> A literature search reveals close to 800 articles published over the past decade on the role of acupuncture within cancer care. Systematic reviews have found that acupuncture is an effective supportive care modality for the management of chemotherapy-induced nausea/vomiting, pain, radiation induced xerostomia and anxiety.<sup>2,3</sup> Clinical studies have also reported that acupuncture may be effective in reducing hot flashes experienced by adults with breast and pancreatic cancer, decreasing lymphedema, and for the management of insomnia.<sup>2,4,5,6</sup>

There is still much to learn about the mechanisms by which acupuncture may impart a beneficial effect to adults and children with cancer. Several studies demonstrate that acupuncture may have a regulatory effect on the neural, endocrine and immunologic systems.<sup>7,8</sup> The effect of acupuncture on adrenocorticotrophic hormone and serotonin, dopamine, and norepinephrine may explain its effect on pain, depression and anxiety.<sup>5,9</sup> Evidence also suggests acupuncture needling may encourage connective tissue health and promote analgesic effects.<sup>10</sup>

The expanded use of acupuncture within existing supportive care regimens and the described benefit reported by children and adults with cancer have prompted clinicians

to establish guidelines to safely and effectively deliver acupuncture services within the context of conventional care. The Society for Integrative Oncology has published guidelines on the use of acupuncture in general oncology<sup>11</sup> and specifically for adults with lung<sup>12</sup> and breast<sup>13</sup> cancer. These guidelines provide an overview of the evidence in order to inform clinicians, patients and researchers on the safety and efficacy of the use of acupuncture in the oncology setting.<sup>11,12,13,14</sup>

Acupuncture is recommended for adults experiencing poorly controlled pain and xerostomia<sup>11</sup> and for children experiencing chemotherapy-induced nausea/vomiting.<sup>15</sup> Guidelines specific to adults with lung cancer recommend acupuncture for peripheral neuropathy and for anxiety, fatigue and quality of life in patients with breast cancer.<sup>12,13</sup>

With the increasing evidence for safety and efficacy of acupuncture in oncology, there is a further need to establish guidelines for the provision of acupuncture services and its integration within conventional medical institutions. We describe acupuncture practice guidelines for treating adults and children with cancer in a comprehensive supportive care program within an urban academic medical setting.

## Model of Care

Established in 1998, the Integrative Therapies Program (ITP) was developed to provide supportive care services to children and adolescents with cancer. The ITP was the first fully integrated complementary and alternative program in the United States for pediatric oncology. Located in the outpatient unit of the Herbert Irving Child and Adolescent Cancer Center, the ITP specializes in clinical care, research, and education for children with cancer and their families from diagnosis into survivorship.

Treatments are provided in all areas of patient care, including the outpatient and inpatient settings, radiation oncology, and the pediatric emergency room. Acupuncture services began in 2005 and in 2014 expanded into several adult oncology divisions and the adult outpatient infusion center. To ensure access to acupuncture across all socioeconomic groups, acupuncture is provided free of charge to all patients.

## General Considerations

Provision of acupuncture and other integrative therapies such as massage, acupressure, aromatherapy, and mind-body therapies are provided directly alongside conventional care—a hallmark feature of ITP. Delivering acupuncture treatments without interfering with the timely delivery of conventional care requires close collaboration and communication with nursing staff, who

often serve as the point person to communicate immediate needs for symptom management. Acupuncture is most frequently delivered in settings where specific complaints may be immediately addressed such as in the outpatient chemotherapy infusion center or in the hospital room during an inpatient stay. Providing acupuncture treatments concurrent with conventional care minimizes interruption in the flow of standard treatment, with the added benefit of minimizing the number of patient appointments.

To guide the delivery of care, protocols were established through collaboration between ITP clinicians and the conventional medical team [Figure 1]. Clean needle technique guidelines are followed as administered by the Council of Colleges of Acupuncture and Oriental Medicine.<sup>16</sup> The Center for Disease Control (CDC) practice guidelines for safely administering care to immunocompromised patients, or those who have or are suspected of infectious disease, are strictly adhered to in all settings.<sup>17</sup> The development of standard operating procedures facilitates the safe provision of services, fosters a productive relationship between the ITP and the conventional medical team, provides a framework for quality control and evaluation, and establishes a structure for research initiatives.

The education of the conventional medical staff was essential to breaking down the barriers of delivering acupuncture. The ITP recruited experienced licensed acupuncturists with at least five years of experience and who were able to communicate effectively about the potential risks and benefits of acupuncture to other members of the healthcare team. The ITP also initiated an education day where oncologists, nurses, and other medical professionals could experience acupuncture and learn about its application in the medical setting. Clinician experience with acupuncture has facilitated collaboration among all medical disciplines by providing them with a thorough understanding of the underlying theory, diagnostic approach, and clinical application.

## Referral Pattern

Adults and children are eligible for an acupuncture consultation from the time of initial diagnosis and may be referred by an oncologist, ITP clinician, oncology fellow, nurse practitioner, social worker, or other clinical staff. Patients may also self-refer or learn about ITP from another patient. Upon referral, an ITP acupuncturist meets with the patient and their family to provide a comprehensive overview of the risks and benefits of acupuncture and assess whether the patient is likely to benefit from acupuncture for a specified symptom. Eligible candidates for acupuncture services are coordinated through the program's clinical coordinator.

Prior to the initiation of acupuncture services, treatment concerns raised by either the oncologist or the ITP acupuncturist

are reviewed, and the safest method of delivery is determined. Following physician approval, an informed consent form is completed and all risks and benefits are again reviewed with the patient and their family. Once acupuncture has been initiated, ongoing treatment continues at the discretion of the providing acupuncturist and request of the patient. If there is a significant change in the patient's medical condition, the patient's primary oncologist may be contacted again to provide approval to continue acupuncture treatment [Figure 1].

Circumstances in which a second approval may be obtained include a change in the severity of an existing condition, arrival of a new condition, disease progression, conditions that require additional supportive medical care, (e.g., mechanical ventilation, hemodialysis, oscillation), and entering a new phase of treatment, (e.g., radiation to chemotherapy or chemotherapy to stem cell transplant). Acupuncture treatments may be discontinued if other integrative therapies may be more beneficial for the condition or treatment is directed toward family based care such as in the end of life setting.

## Patient Assessment and Treatment

A review of the medical record and oncologic treatment plan coupled with an intake, which includes the chief complaint(s), and a review of systems based upon traditional Chinese medicine (TCM) is performed on each patient. A TCM examination includes four diagnostic methods: inspection, auscultation and olfaction, inquiry and palpation. Observation includes assessment of the tongue (including color, form, coating), patient's body shape and facial complexion. Listening includes assessing strength and quality of the voice and breath, presence of cough or congestion, and sounds related to the quality and intensity of pain. Smelling includes assessing the presence, location, intensity and nature of pathogenic odors. Inquiry includes the onset and development of the chief complaint, including any associated symptoms. In addition, a thorough history is conducted to understand both the patient's current constitution and if possible, his/her constitution pre-cancer diagnosis and treatment.

Palpation of the radial pulse bilaterally is conducted, and depth, speed, strength, shape and rhythm are noted. Palpation of other areas of the body may be used when appropriate. This assessment process leads to the identification of the individual's TCM pattern of disharmony and the development of an initial treatment plan based upon the patient's constitution, severity of symptoms, response to treatment (both conventional and integrative) and the conventional medical plan.

This assessment, performed at each clinical encounter by the licensed acupuncturist, provides the basis for the acupoint prescription. Often, symptoms may change rapidly. In these clinical

circumstances, the patient is reassessed using the described methods, and the treatment plan is modified accordingly. By integrating this approach, the ITP adheres to the traditional practice of TCM in lieu of a prescription-based approach.

ITP acupuncturists perform daily rounds in the adult and pediatric outpatient infusion centers and on the pediatric inpatient and intensive care units. Services are also provided in the pediatric radiation center and pediatric emergency department. Integrating acupuncture with conventional cancer treatment allows for immediate attention to acute treatment side effects, enhances symptom management and reduces anxiety associated with treatment or disease. For example, ITP routinely provides acupuncture treatment prior to or during the beginning of a chemotherapy infusion associated with nausea and vomiting with the objective of reducing or avoiding the side effect altogether.

The ITP also maintains a private treatment room for patients who require more privacy or request treatment on days outside of a scheduled treatment appointment. All treatments are documented in the electronic medical record (EMR) including the chief complaint, related signs and symptoms, TCM diagnosis, treatment principle, acupuncture points needled, number of needles inserted and withdrawn and length of time of needle retention. The most recent platelet count and any adverse events, such as acute bruising or bleeding, are also recorded.

## Coordination of Care

The ITP team meets weekly to discuss patients undergoing treatment as well as those patients who have completed therapy. During these multidisciplinary meetings, treatment plans are developed, coordinated, evaluated and revised as necessary. Team meetings with oncologists, nursing, and disease-specific teams also occur weekly where new and existing patients are discussed and treatment plans are established. Members of the ITP team regularly attend medical and psycho-social rounds, pediatric palliative care, and mortality and morbidity meetings. Our model ensures open and clear communication between all members of the medical team.

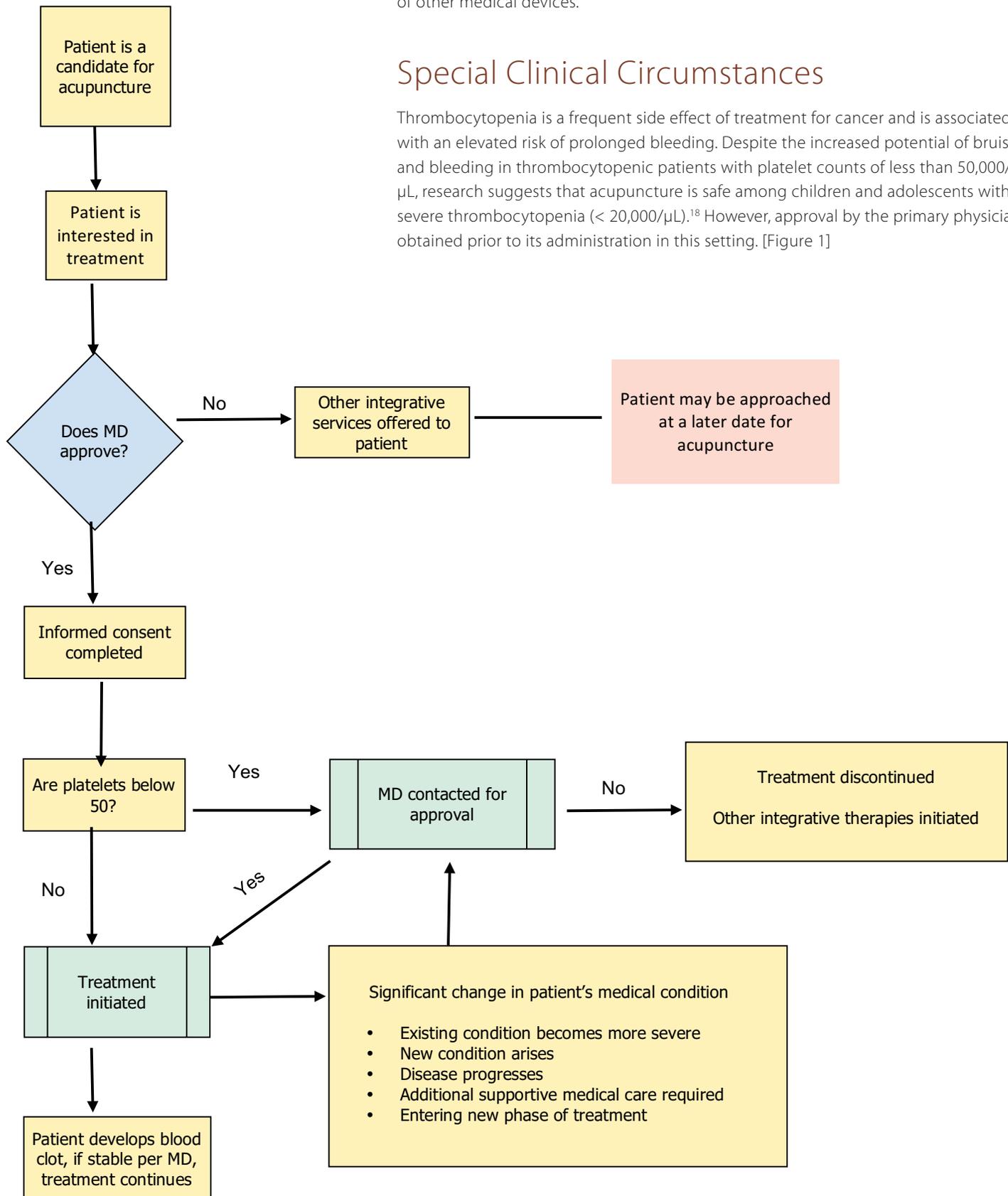
Delivering acupuncture around scheduled medical procedures requires flexibility by the acupuncturist. ITP clinicians work closely with the nursing staff to coordinate treatment around scheduled conventional care, as patients may be late returning from a procedure or may need to have an unanticipated procedure that could preclude or shorten the time allotted for acupuncture. As the program has matured and inter-professional relations have strengthened, it has resulted in the near seamless integration of conventional and complementary treatment. However, modification of acupuncture delivery is sometimes required to accommodate patients' positioning on the bed or chair or to

Figure 1 Acupuncture Clinical Care Model

navigate necessary medical equipment. During these times, acupuncture point prescriptions may need modification and are only administered to areas that are free and clear of other medical devices.

## Special Clinical Circumstances

Thrombocytopenia is a frequent side effect of treatment for cancer and is associated with an elevated risk of prolonged bleeding. Despite the increased potential of bruising and bleeding in thrombocytopenic patients with platelet counts of less than 50,000/ $\mu\text{L}$ , research suggests that acupuncture is safe among children and adolescents with severe thrombocytopenia ( $< 20,000/\mu\text{L}$ ).<sup>18</sup> However, approval by the primary physician is obtained prior to its administration in this setting. [Figure 1]



Adults and children who are severely neutropenic, absolute neutrophil count (ANC) <500 cells/ $\mu$ L, are at greater risk for infection. Prospective studies have found that acupuncture is safe in the setting of severe neutropenia.<sup>19</sup> Moreover, studies performed among adults have found that acupuncture is not only safe in the setting of neutropenia but may actually have a beneficial effect on median leukocyte value.<sup>20,21</sup> Most recently, a prospective trial among children with cancer found no increase in adverse events in the setting of neutropenia.<sup>22</sup> Our current standard of practice does not exclude the provision of acupuncture for children and adolescents with severe neutropenia.

Lymphedema and deep vein thrombosis (DVT) are two clinical circumstances where ITP acupuncturists are guided by the oncologist's assessment of the patient's evolving condition to ensure safe delivery of care. Acupuncture has been found to be safe and effective for patients with lymphedema;<sup>23</sup> however, the patient's oncologist is contacted prior to initiating acupuncture. Acupuncture needle insertion along the affected limb is initiated only with physician approval and otherwise avoided.

Special attention is warranted when blood clots are present due to the potential effect of acupuncture on the movement of blood.<sup>24</sup> Acupuncture is administered only after the oncologist provides approval and determines the clot is stable. Acupuncture is always contraindicated near or around areas where the integrity of the skin is compromised, directly or adjacent to a tumor site, or near an intravenous line or port.

## Needling Considerations

Adults and children with cancer may or may not be any more sensitive to acupuncture needling sensations compared to a non-cancer population. As per routine TCM practice, patients with cancer should be assessed for constitutional strengths and weakness, level of fatigue, hunger and thirst and previous experience with acupuncture. Caution should be taken with those who are in a weakened state, overly fatigued, have not eaten, or are dehydrated. Choice of needle length, gauge, and method of manipulation is based upon the patient's presenting constitution, the area to be needled, and the desired treatment response.

## Unique Considerations for the Pediatric and Adolescent Population

Children with cancer have a high acceptance rate of integrative therapies.<sup>25</sup> When introducing acupuncture to children and parents, a step-wise approach is implemented to ensure the comfort with and understanding of acupuncture. First, a detailed description of acupuncture and its function from a TCM and conventional medical approach is explained. The acupuncturist shows the patient an acupuncture needle and explains where the needle(s) will be placed, the desired treatment outcome (e.g., reduce nausea, stop pain). The practitioner describes the sensation that will most likely be experienced and the length of time of needle retention.

Any questions that the child or their parents have are answered. Needles are generally retained longer with older children and adolescents than with toddlers and infants, where needles are inserted, stimulated and may be immediately withdrawn. Sometimes children will ask that their parent receive acupuncture first. This gives the parent a chance to relay their experience to their child and reassure them that it is safe and comfortable.

Prior to needle insertion, all patients (children and adults) are informed that if they become uncomfortable at any time during the treatment they may request that one or all of the needles be immediately withdrawn. After the needles are inserted, the acupuncturist remains with all patients during the treatment to ensure close monitoring during the acupuncture session.

## Conclusion

Acupuncture is an accepted supportive care modality for both adults and children with cancer.<sup>2</sup> As cancer centers begin to fully integrate acupuncture into supportive care regimens, it is important to consider its safe and timely delivery. Experienced acupuncturists, who have an understanding of conventional cancer treatment and are able to work alongside the medical, radiological and surgical oncology teams, can have a significant impact on the care of patients undergoing cancer treatment.

Open communication between the medical team, the patient and their family, other support services and the acupuncturist leads to collaborative comprehensive cancer care. Essential to the safe and effective delivery of acupuncture in the oncology setting is the development of a comprehensive integrative acupuncture treatment plan that is reviewed and modified as necessary as the patient's medical care evolves. We provide a model for its integration to adults and children undergoing treatment for cancer.

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