

Integrative Oncology: International Perspectives

Integrative Cancer Therapies
Volume 18(1): 1–11
© The Author(s) 2019
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1534735418823266
journals.sagepub.com/home/ict

Suzanne J. Grant, PhD, MPS, BAppSc, BA^{1,2} , Jennifer Hunter, PhD, MScPH, BMed^{1,3} , Dugald Seely, ND, MSc, FABNO^{4,5}, Lynda G. Balneaves, PhD, RN⁶, Elio Rossi, MD⁷, and Ting Bao, MD, DABMA, MS⁸

Abstract

Interest in integrative oncology (IO) is growing globally. Patients with cancer are actively using traditional complementary and integrative medicine (TCIM) as part of their cancer and survivorship care. Published studies from around the world report increasing use of TCIM by people living with cancer. This article summarizes the presentations that took place during a symposium titled, “Integrative Oncology: International Perspectives” at the International Research Congress on Integrative Medicine and Health in Baltimore, 2018. The purpose of the presentations was to examine whether cancer services across a variety of geographical regions, including Australia, Canada, the United States, and the European Union, were actively responding to cancer survivors’ demand for TCIM. The presenters highlighted utilization rates and both facilitators and barriers to the provision of IO services in their respective countries and regions. The audience discussion following the presentations drew out many noteworthy perspectives.

Keywords

integrative oncology, complementary therapy, integrative medicine, supportive cancer care, traditional complementary and integrative medicine, TCIM

Submitted November 1, 2018; revised December 6, 2018; accepted December 7, 2018

Introduction

Advances in cancer treatment and prevention have led to the reduction in mortality from cancer, but as cancer survivors live longer, they are often left with side effects related to their conventional treatments or symptoms resulting from their cancer. Survivors frequently seek to address these needs with traditional complementary and integrative medicine (TCIM). A meta-analysis of surveys describing TCIM use in adult cancer patient populations from Australia, Canada, Europe, New Zealand, and the United States reported a rise from an estimated 25% in the 1970s and 1980s to more than 32% in the 1990s and to 49% after 2000.¹

Integrative oncology (IO) has emerged within hospitals and community settings in response to the increasing role that people with cancer and survivors have in managing their own care, the growing usage and evidence-base of TCIM, and the importance of a therapeutic alliance between conventional cancer care and TCIM that respects the treatment preferences and values of patients (Box 1).² The development of

IO services, however, is often ad hoc and fragmented, reflecting local factors rather than coordinated regional or national planning and policy. Consequently, despite the overall high use and demand for TCIM, at least for some countries, there continues to be a mismatch between patients’ needs and IO service provision.^{3–5}

¹Western Sydney University, Penrith, NSW, Australia

²Chris O’Brien Lifecare Comprehensive Cancer Centre, Camperdown, NSW, Australia

³The University of Sydney, Australia

⁴Ottawa Integrative Cancer Centre, Ottawa, ON, Canada

⁵Canadian College of Naturopathic Medicine, Toronto, ON, Canada

⁶University of Manitoba, Winnipeg, MB, Canada

⁷Coordinating Center of Complementary Medicine—Local Health Unit Tuscany North West, Lucca, Italy

⁸Memorial Sloan Kettering Cancer Center, NY, USA

Corresponding Author:

Suzanne J. Grant, Western Sydney University—NICM Health Research Institute, Locked Bag 179 Penrith, New South Wales 2751, Australia.
Email: s.grant@westernsydney.edu.au



Box 1. Definition of Integrative Oncology.

“Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”²(p. 7)

In this article, leading health care professionals and researchers from 3 continents (North America, Europe, and Australia) present an overview of IO service provision in their regions and its implications for clinical practice, health service delivery, education, and research. We have sought to identify common trends and future directions for IO service provision; gain insight into unmet patient needs and the financial, informational, cultural, and logistical facilitators and barriers for IO; and obtain knowledge about organizational and educational aspects, including strategies and policies, to support the development and uptake of IO services.

The article draws on the *Integrative Oncology: International Perspectives* symposium presented at the 2018 International Congress on Integrative Medicine and Health in partnership with the Academic Consortium for Integrative Medicine and Health, held in Baltimore in May 2018. Table 1 provides a summary of the information provided by each speaker.

United States IO Landscape

Estimated TCIM use in the United States is 38% across the general population.⁶ Prevalence is even higher among cancer patients and survivors, with 50% to 60% using TCIM.¹ Both hospital and independent IO clinics offer various forms of TCIM services, including mind and body practices, natural products and dietary supplements, and lifestyle modifications (dietary consultation/exercise programs). In hospital and cancer centers, TCIM is mainly offered in a coordinated, integrative manner alongside conventional cancer services (see Box 1).

Over the past 8 years, TCIM use in US cancer centers has steadily increased. According to a recent systematic review, the most frequent services offered within the 45 National Cancer Institute (NCI)-designated comprehensive cancer centers were acupuncture and massage (73.3% each), meditation and yoga (68.9% each), and consultations on nutrition (91.1%), dietary supplements (84.4%), and herbs (66.7%).⁷ In comparison to a previous study conducted in 2009, this translates to more than 30% growth in integrative medicine modality offerings: acupuncture (30.3%, $P < .005$), massage (30.7%, $P < .002$), meditation (32.8%, $P < .001$), and yoga (30.6%, $P < .002$). Compared with the 2009 results, the number of cancer centers providing information on integrative

medicine has also increased for all modalities, except guided imagery. In addition, more than 60% of NCI-designated cancer centers now offer physician consultations on integrative medicine.⁷

Extensive research on the effectiveness of some TCIM modalities commonly used by cancer survivors has led to several published guidelines on indications for their use.^{8,9} IO services at US cancer centers utilize these guidelines along with available therapies to provide personalized, evidence-based treatment for patients. In major US IO centers, patients typically meet with an integrative medicine physician for an initial consultation that covers diet, lifestyle, and natural products. Together, the physician and patient develop an individualized integrative medicine prescription that best utilizes appropriate modalities during and after cancer treatment. Often, acupuncture and massage therapy are recommended for pain reduction. Meditation, music therapy, and other types of mind-body approaches are recommended for anxiety and stress reduction. Exercise is typically recommended to all cancer patients and survivors because of robust evidence on its positive impact on quality of life.¹⁰

In the United States, IO services are often grouped with palliative care as a component of supportive care services. In major cancer centers, IO services are offered both within the hospital setting to inpatients and outpatients and at other community locations for outpatients. Financially, TCIM services are typically paid for out-of-pocket. Whereas a few TCIM services such as acupuncture or integrative medicine consultations may be covered by some insurance companies, many are not. Philanthropy may cover the cost of some hospital inpatient TCIM services or group classes, such as yoga. The types of TCIM services offered outside hospital settings by independent clinics, however, can vary significantly and are rarely covered by health insurance.

TCIM literacy in oncology for physicians is being facilitated by the development of specific training courses. Both the University of Michigan¹¹ and Memorial Sloan Kettering (MSK)¹² offer an IO fellowship for junior physicians. MD Anderson Cancer Center¹³ offers integrative medicine program workshops to health care professionals interested in learning about IO care. MSK also offers oncology courses for acupuncturists and provides a comprehensive website on natural products and other TCIM therapies—MSK *About Herbs*¹⁴—which has had over 20 million visits to date.

Barriers to the provision of IO services include a lack of sustainable funding for IO research, truly integrative models that implement IO at the time of cancer diagnosis, business models that increase the impact and efficiency to deliver IO care, and formal training programs to cultivate IO practitioners.⁷

In summary, IO services offered in the United States by major cancer centers are usually evidence based and

Table 1. International Comparison of IO Services.

	United States	Canada	Australia	Italy	Western Europe/UK
TCIM use	50%-60%	47%-61%	43%-65%	22%	22%-45%
IO SERVICES	Most of the 45 NCI comprehensive cancer centers offer IO, mostly mind and body practices, consultations for natural products, and lifestyle. Most have IO physicians	Mainly community-based IO clinics, few in-hospital settings; range of mind and body practices, consultations, and classes	26% Of public/private cancer services (n = 71) offer TCIM; >10 major IO centers; mostly mind and body practices; few IO physicians; low access in rural/remote regions	58% Of public cancer services (n = 30) have TCIM, none in South Italy; mostly traditional medicine practices and natural products; many IO physicians	23% Public services offer TCIM. 28 major IO centers in Europe; 142 NHS centers in UK; NHPs, mind-body therapies; IO physicians mainly in Europe, not UK
Funding	Philanthropy important source of funding, otherwise fee for service; no insurance for most TCIM services; some rebates for acupuncture	No public funding for TCIM, limited private health insurance, high out-of-pocket costs, and reliance on volunteers and philanthropy	Mixed funding models are common. Limited private insurance; philanthropy and volunteers help subsidize high out-of-pocket costs	IO services provided at no cost to patients; moderate out-of-pocket costs for natural products (per pharmaceuticals)	Varies by country; combinations of public sector, private health insurance, and direct costs to patients
Information	Large amount of online resources for patients and practitioners; numerous training opportunities for health care professionals/physicians	Low TCIM literacy and lack of integrated, reliable information.; minimal IO training in health care professional education	Few reputable websites; low health literacy; guidelines for discussing TCIM, but oncologists have limited knowledge; no IO training	Limited patient information (except Tuscany); since 2008 annual IO congresses, 1 postgraduate IO course	Germany KOKON: IO competency. Other IO/TCIM professional bodies exist. 83% IO centers conduct research
Culture	Patients are very open to TCIM and powerful advocates for IO. Physicians and oncologists are gradually more supportive	Two-tiered system with high TCIM patient interest, yet low awareness and mistrust by oncology health care professionals	Oncologists “lump” all TCIM together as unproven. Organization policies are ad hoc, and some ban use. No CALD or indigenous IO care	Low advocacy from patient associations; oncologists are wary that IO provision reflects cultural norms, not evidence	High advocacy from patient associations; variable acceptability by the physicians. ECIBC breast cancer guidelines group has a TCIM expert

Abbreviations: TCIM, traditional complementary and integrative medicine; IO, integrative oncology; NCI, National Cancer Institute; NHS, National Health Services; NHP, Natural Health Practitioners; KOKON, Competence Network for Complementary Medicine in Oncology; ECIBC, European Commission Initiative on Breast Cancer; CALD, Culturally and linguistically diverse.

focused on major modalities such as diet, lifestyle, mind-body approaches, and natural product advice. The provision of IO services is rising because of a range of factors that include patient demand. Independent clinics also offer TCIM that may or may not be as evidence based and is often not covered by insurance. Further standardization in this field may be warranted to optimize the quality of IO care provided across the United States.

Canadian IO Landscape

A large proportion of Canadian cancer patients and survivors use TCIM but have little access to hospital-based IO services. Estimates for TCIM use by adults with cancer in Canada range from 47%⁵ to 61%,¹⁵ and up to 91% in some

populations.¹⁶ For pediatric cancer populations, recent surveys indicate that between 29% and 64% use TCIM following diagnosis.¹⁷⁻¹⁹

The provision of TCIM services is primarily home- or clinic-based and is available mainly in urban areas. TCIM is typically offered through solo practitioner practices; but some multidisciplinary practices exist. Models of care where TCIM is integrated with the conventional health care system are rare. Indigenous healing traditions have also been minimally addressed within conventional care settings.

Over the past decade, several IO services have emerged in Canada. These IO services typically operate without any formal relationship with a publicly funded cancer center. Two of the most prominent include the following:

- *InspireHealth*: Led by a medical doctor with a team of TCIM and allied health care professionals, this center offers a range of therapies, programs, and classes to patients and their family members.²⁰ Funding comes from government grants, philanthropy, fee-for-service, volunteers, and membership fees.
- *Ottawa Integrative Cancer Centre (OICC)*: The OICC opened in 2011 and is a multipractitioner, naturopathic doctor–led center active in both research and clinical care for patients. It offers a range of services, including acupuncture, clinical nutrition, massage therapy, mind-body medicine, naturopathic medicine, physiotherapy, psychotherapy, traditional Chinese medicine, and yoga therapy.

Although independent clinics exist, hospital-based IO services are limited in Canada. Examples include the following:

- *Tom Baker Cancer Centre, Calgary*: The IO Program focuses on mind-body therapies, including mindfulness-based stress reduction, yoga, and expressive arts. Education resources are provided, including a monthly seminar.
- *Jewish General Hospital, Montréal*: The volunteer-run Hope and Cope Program offers supportive care services to patients and caregivers. The iThrive program offers a variety of therapies, including peer support, meditation, exercise, art therapy, nutrition information sessions, and massage. Specialized programs for young families and adults living with cancer are available.
- *Ontario and Alberta: The Wellspring Program* is a community-based network of 9 support centers that provide complementary therapies and supportive services to cancer patients and family members.

The lack of accessible IO programs in Canada means that the majority of patients navigate TCIM services independently, with little guidance from oncology health care professionals.⁵ As a result, patients often are misinformed and incur significant costs on ineffective or untested natural products and potentially use therapies that interact negatively with conventional treatments or are unsafe. Stress and anxiety, and loss of trust in the therapeutic relationship with physicians are also consequences.^{21,22}

The Canadian health care system provides no coverage for TCIM services except through private health insurance. Access is limited to those who have coverage or can pay out-of-pocket for TCIM services. The fee-for-service funding model that most TCIM practitioners and clinics rely on creates a significant challenge to TCIM uptake in Canada and the development of IO services. In a health care system where hospital- and community-based medical services are

provided at no cost to the user, the idea of paying out-of-pocket for health care services, such as TCIM, is antithetical to the core principles of universality and accessibility. Recently, however, the perceptions regarding a fee-for-service model have changed because of changes to the Canadian health transfer system that may reduce funding for some regions.²³ To be successful, IO services in Canada will need to be creative in seeking funding from government, philanthropic, fee-for-service, and grant sources and utilize fee structures, such as subsidized care or sliding scales for low-income patients, that support equity and accessibility.

There are several additional challenges to IO services in Canada. Overall, the integration of TCIM within the conventional health care system has been limited, despite 80% of Canadians reporting using some form of complementary therapies.²⁴ Culturally, conventional medicine has not been receptive to TCIM, evidenced by numerous editorials and letters in leading Canadian medical journals and newspapers.^{25,26} This reluctance may be a consequence of the limited TCIM content in health professional education programs,⁵ which in turn may result in conventional health care professionals perceiving there to be a lack of evidence and questioning the value of TCIM.

There have also been several high-profile cases in Canada in which patients of TCIM practitioners have been harmed or died unexpectedly. The subsequent media attention may have affected conventional health care professionals' attitudes toward TCIM, including the safety of IO. These cases have also raised questions about the regulation of TCIM practitioners in Canada, which differs across provinces and territories with regard to which practitioners are regulated and their scope of practice.

There have been, however, some beginning steps toward IO in Canada. For example, the University of Toronto in 2015 developed a continuing education program for oncology pharmacists that included a TCIM component. The OICC has also provided educational and observation opportunities in IO for health care professionals and students. At a practice level, the Complementary Medicine Education and Outcomes (CAMEO) program opened in 2007 at the British Columbia Cancer Agency with the aim of supporting patients, family members, and oncology health care professionals to make safe and informed decisions about complementary therapies.²⁷ A wide range of decision support and knowledge translation programs were developed by CAMEO, including a patient and family member education program, a one-on-one decision support program, and a variety of education and synthesis resources. More than 1500 individuals received services from CAMEO in the 7 years it was in operation, and education programs for patients and health care professionals continue to exist online.²⁸ Finally, the Canadian Cancer Trials Group recently announced the formation of the Symptom Control disease

site, which will consider both pharmaceutical and nonpharmaceutical interventions, including TCIM. The acknowledgment of complementary therapies within this conventional research agency bodes well for the future of IO in Canada.

Australian IO Landscape

The prevalence of TCIM use by people with cancer living in Australia increased from 22% in 1996²⁹ to 65% in 2008.^{29,30} Whereas the majority of TCIM is accessed in the community, either self-prescribed or from a TCIM practitioner in the primary health care sector, there is evidence of increasing access from specialized cancer services.

Results from a 2016 study found that around a quarter of institutions with specialized secondary care cancer services offered some form of IO service.^{31,32} Like general cancer services, IO services were clustered mainly in urban areas. Compared with earlier surveys,^{33,34} there was a notable growth in the number of IO services, with a little more than half of the 71 services being introduced in the past 6 years and an additional 12 services in the planning stages.

Although most of the cancer services surveyed in 2016 offered a very limited amount of IO,^{31,32} at least 10 major IO centers in Australia have been identified.³⁵ Examples of the different types of IO centers include the following:

- *Olivia Newton-John Cancer Wellness & Research Center*: This is an adjunct to a public hospital where the majority of IO services are funded by the hospital; services include oncology massage, acupuncture, and music therapy.
- *Solaris Cancer Care*: This is a registered charity with around 250 volunteers providing free or low-cost IO services across 5 centers in hospital and community settings; services include massage, reflexology, reiki, yoga, tai chi, and art.³⁶
- *Chris O'Brien Lifehouse*: This is a not-for-profit cancer hospital that offers subsidized and low-cost IO services, including oncology massage, acupuncture, exercise, yoga, tai chi, meditation, reflexology, and integrative medicine consultations.³⁷

Similar to the 10 IO centers evaluated in 2015,³⁵ the vast majority of IO services offered by the cancer services surveyed in 2016 were mind and body practices.^{31,32} Massage, touch, or body alignment therapies were common (76%), with a little more than half of the massage services being provided by a certified oncology massage therapist. Psychological well-being services such as mindfulness, meditation, art therapy, and music therapy were also very common (72%). Movement modalities such as tai chi, qi gong, and yoga were on offer by 39% of the cancer services. Notably, none of the TCIM practitioners providing these services are statutorily

regulated in Australia. Three TCIM professions are statutorily regulated (Chinese medicine practitioners, osteopaths, and chiropractors). However, only 12% of IO services offered acupuncture, and no Chinese herbal medicine, chiropractic, or osteopathic services were provided.

Evidence-based IO advice or consultations from either a medical practitioner or pharmacist were provided by 18% of the IO services.^{31,32} Other than this, access to natural products or recommendations regarding their use were rarely available. The finding highlighted an obvious mismatch between the low levels of service provision compared with the much higher reported use of natural products. Reasons for this observation are yet to be fully investigated.

Funding for IO in Australia is mixed, with services relying on multiple sources (patient payments, insurance rebates, philanthropy, and volunteers).^{31,32} Mostly, patients contributed toward the cost of the therapy, with the exception being IO services provided by volunteers. Patients with private health insurance may receive partial reimbursement for some of these IO services, and none of the services provided attracted public health insurance rebates. Equity is, therefore, a concern; cancer survivors have partially attributed the lack of funding to perceptions that IO is a luxury service.³⁸ However, this notion was strongly refuted by IO users claiming that it is not “just feel good stuff” and is essential to recovery.³⁸ Others have described IO services as “an oasis in the hospital.”³⁶

Access to reliable IO information is important not only for patients and their caregivers but for oncology health care professionals. Surveys in Australia consistently find that oncologists have self-identified knowledge gaps and want to learn more about IO.³⁹⁻⁴¹ This finding is not surprising because currently there are no formal IO training programs for health care professionals in Australia. In addition, there is very limited consideration of IO in institutional guidelines and policies. Ironically, the paucity of information, guidelines, and training for health care professionals is contrasted with an exponential growth of research in the field of IO, both in Australia and internationally.

In summary, although the growth of TCIM offered to patients with cancer in a hospital environment appears to be growing in Australia, for the most part, the scope and “integrative” nature of IO services remains limited.^{32,35,38} Many of the IO services in Australia exist precariously, relying on a base of fundraising and philanthropic donations and high out-of-pocket costs that reflects a lack of top-down policy and funding support from both the public and private health sectors. It is uncertain whether the growth in IO will continue in Australia and the existing centers will prove sustainable.

The European IO Landscape

TCIM use by patients with cancer in Western Europe is estimated to be 37% but varies considerably across the different

European countries, with higher prevalence in German-speaking (41%) and Mediterranean (39%) countries and lower prevalence in the United Kingdom (32%) and Scandinavia (31%).¹

Studies suggest that there has been an exponential increase over the past 15 years in the number of cancer centers offering IO across Europe. A mapping study conducted in 2013 captured those public health services providing IO services.⁴² Information from 123 (52.1 %) of the 236 cancer centers contacted found that nearly half of the responding centers (47.5%) provided IO services. IO services were predominantly provided by the public health sector (69.9%), followed by a smaller number of privately owned centers (19.6%).

Many of these centers state that they have treatment protocols to guide therapy.^{42,43} The most frequently provided therapy was acupuncture (55.3%). In contrast to the high service provision of mind and body practices by IO services in Australia, Canada, and the United States, IO centers in Europe offered more natural products and traditional medicine; the most commonly provided were homeopathy (40.4 %), herbal medicine (38.3 %), and traditional Chinese medicine (36.2%). Treatments were mainly directed at reducing adverse reactions to chemotherapy and radiation (23.9%), in particular nausea and vomiting (13.4%), pain (10.9%) and fatigue (10.9%), secondary symptoms of iatrogenic menopause (8.8%), and anxiety and depression (5.9%).⁴²

Despite the relatively low prevalence of reported TCIM use by patients with cancer in Italy (22%; 95% CI = 10%-35%),¹ many regions are integrating TCIM into the public hospital systems. These integrative services are available to all patients, including those with cancer. In a survey of the region of Tuscany, 91 public clinics providing TCIM services were identified. Of these 91 clinics, 45 provided acupuncture and traditional Chinese medicine, 23 homeopathy, 13 Western herbal medicine, and 10 other nonconventional therapies (eg, manual therapies).⁴⁴ TCIM was provided after the payment of a fee similar to the other medical specialties (24€), but it was free of charge for patients with cancer, with the remaining costs being covered by the public health system. Like many pharmaceuticals, natural products incur out-of-pocket costs (eg, homeopathic, herbal medicines, dietary supplements).

IO services provided by the National Health Service (NHS) in the United Kingdom are considerably different to what is generally offered in Europe. A 2012 survey reported that around 105 NHS cancer services were offering TCIM.⁴⁵ In contrast with Europe, mind and body practices were mostly offered. Counseling, which is not typically considered a TCIM therapy, was most frequently provided (82%), followed by reflexology (62.0%), aromatherapy (59.1%), reiki (43.0%), and massage (42.2%).⁴⁵

Regarding training and education of health care professionals, European initiatives such as the Competence Network for Complementary Medicine in Oncology have

been established to develop, implement, and evaluate an interdisciplinary competence network in IO. Several courses on integrative medicine and IO are available in European universities, with chairs of complementary and integrative medicine at the University Charité in Berlin, University of Bern, University of Duisburg-Essen, University of Frankfurt, University of Zurich, Friedrich Schiller University in Jena, University of Wien. In Italy, the University of G. Marconi in Roma offered a 2-year master's degree in IO from 2014-2017, which is now operational at the University of Chieti. It also worth noting that every hospital and institution surveyed in 2013 that offered IO services also periodically provides refresher and continuing medical education courses for their health care professionals.

Along with Europe-wide initiatives, countries such as Italy have been proactive in the research and development of IO clinical practice. A national working group of IO was established in 2012. The working group is composed of experts from different TCIM fields who periodically meet to define IO therapeutic protocols aimed at reducing the adverse effects of anticancer treatments and improving the quality of life of cancer patients and survivors. Also, the Association for Research on Integrative Oncological Therapies—ARTOI was founded in 2012 to deepen the study, research, and application of oncological treatments through the integrated use of multiple therapeutic options.⁴⁶

The presence of IO services in public and private hospitals across Europe, where oncologists and experts of TCIM work side by side, has helped overcome many cultural barriers and mutual distrust. However, a relative lack of knowledge of IO therapies still exists on the part of many conventional physicians that prevents a full cultural acceptance of this process of integration. Top-down leadership and policy has been observed to help break down these professional cultural barriers. A small but relevant example of positive collaboration between oncologists and experts in TCIM was the Resolution no. 418/2015 passed by the Tuscan Regional Government and promoted by the Tuscan Tumor Institute⁴⁷ and the Tuscan Regional Centre of Integrative Medicine. The resolution ratified the use of TCIM to treat some cancer-related symptoms and side effects of anticancer therapy and, in compliance with equality in health care, to guarantee patients the opportunity to integrate TCIM therapies that are considered safe and effective and have few side effects with their usual oncological treatments.⁴⁸ As a consequence of this regional policy, there are now at least 8 qualified and accredited IO public hospital clinics working in close collaboration with the oncology departments; all IO consultations provided by these clinics incur no out-of-pocket costs; a patient information flyer about TCIM in oncology was created and is distributed by all the oncology departments of Tuscany⁴⁹; 2 international IO congresses in 2016 and 2018 were held in collaboration with Tuscany Tumors Institute and attended by hundreds of

physicians, including many oncologists; and finally, a specific research program for the evaluation of the effectiveness of TCIM for cancer care was financed with regional funds.⁵⁰

Discussion

The range and type of IO cancer services across the 3 continents and the ways in which patients access TCIM as part of their cancer care varied considerably both within and between the countries presented. Notable differences were identified in the types of TCIM services commonly offered by IO centers and associated out-of-pocket costs. Common across all services was the aim to treat the whole person, to be patient centered, and to appropriately integrate TCIM with conventional cancer care. Consistently, patient demand for IO was an important driver that was modified by a variety of cultural attitudes, health service policy, and funding models. The desire to provide safe, evidence-based therapies was only one of many complex factors influencing service provision. Equitable IO services funded by the NHS aimed at minimizing out-of-pocket costs appeared to be more common in Western European countries and the United Kingdom.

Regarding the types of IO services provided, concerns around safety, particularly the risk of interactions with active cancer treatment and insufficient evidence of benefits, are postulated as significant barriers to IO support from oncologists.^{31,51} This includes uncertainties around quality of care, which is related to the regulation of TCIM practitioners and natural products.

The findings from this symposium session identified various contradictions and factors other than potential benefits and risks that influenced service provision. For example, in Australia, it is unclear why the majority of TCIM practitioners working in IO services were self-regulated or unregulated professions, whereas acupuncturists, a regulated profession with an adequate evidence base and safety profile, were less commonly provided. IO physicians were available in most IO centers in the United States and increasingly in Western Europe, yet IO physicians are few and far between in the 3 Commonwealth countries. Compared with Europe, the services of IO physicians in other countries are restricted largely to the provision of advice and guidance, rather than “prescribing” natural products. The cultural acceptability of natural products and traditional medicine was proposed as a reason why products with sufficient evidence of safety and effectiveness were commonly available in IO services in Western European countries, yet rarely dispensed by IO services in other countries. Potential advantages of an IO service dispensing natural products include improved quality control,⁵² greater convenience for the patient, better follow-up care, and potentially lower out-of-pocket costs.

There was evidence suggesting a steady growth in the number of cancer centers offering IO in North America, Australia, and Western Europe. It is likely, however, that in many of the countries and regions reviewed in this article, demand for IO services in general, along with specific TCIM interventions, remains greater than supply. As such, many people will continue to access TCIM therapies and services in ways that are neither coordinated nor integrated with their conventional cancer care, and for some, there will be ongoing inequities with regard to access and affordability.

Access also depends on the patient actually finding the IO service or a provider who is skilled in treating people with cancer and being informed about what TCIM is available and how it might support their cancer care.³⁸ Information about IO is in the top 5 unmet needs for cancer survivors.⁵³⁻⁵⁷ It is estimated that less than one-fifth of cancer patients and survivors who use TCIM have done so at the recommendation of a medical practitioner.⁵⁸ For those patients who have heard about TCIM, many seek to have an informative discussion about use and prefer to access these services from a practitioner skilled in treating patients with cancer.³⁸ Standardized, evidence-informed patient information in paper and online formats; proactive continuing education of TCIM and conventional health professionals; and developing clinical practice guidelines and improving access to reliable, evidence-based information about TCIM indications, interactions, and contraindications for health professionals were used in various ways by all the countries and regions as a means of improving IO knowledge and communication.

Challenges with funding and the provision of affordable IO services was a common and substantial barrier experienced across all 3 continents. Improved survival coupled with an aging population means that cancer prevalence will continue to increase and threaten the sustainability of many cancer services, including IO. Demonstrating the value of IO necessitates that along with providing quality services that are safe, efficacious, and cost-effective,⁵⁹ the outcomes that patients consider are important and their experiences with the services they receive will increasingly become the deciding factor.⁶⁰ It is critical that the “value proposition” is understood and communicated to the dominant biomedical culture within the health service. What does IO offer? What is IO’s health, social, and economic value? What are the costs and risks (including the risk of not offering IO services and evidence-based advice)? What do patients want and what are their experiences with cancer services that do and do not provide IO?

During the symposium presentation and ongoing discussions, the usefulness of comparative research of health services and policies was affirmed as a way to identify overarching strategies to facilitate the establishment or expansion of an IO

Table 2. Integrative Oncology Professional Organizations.

Australia	Clinical Oncology Society of Australia (COSA): Complementary and Integrative Therapies (CIT) Group ⁶²
Canada	Oncology Association of Naturopathic Physicians
China	Chinese Association of Integrative Medicine: Oncology Specialty Committee ⁶³
Germany	Competence Network for Complementary Medicine in Oncology (KOKON) ⁶⁴
International	Society of Integrative Oncology (SIO) ⁶⁵
Italy	Association Research Therapies Integrative Oncology (ARTOI) ⁴⁹
Korea	Korean Society of Integrative Oncology ⁶⁶
Spain	Sociedad Española de Salud y Medicina Integrativa (SESMI) ⁶⁷
United Kingdom	British Society for Integrative Oncology (BSIO) ⁶⁸
United States of America	Oncology Association of Naturopathic Physicians (OncANP) ⁶⁹

Table 3. Strategies for Establishing and Expanding Integrative Oncology (IO) Services.

Establishing an IO Center	Expanding an IO Center
Identify successful IO services to explore options for how to establish an IO service, sustainable business models, which TCIM services to provide, and recruiting and credentialing TCIM practitioners. Seek top-down support at the organizational and policy levels, and bottom-up support from the community and local champions	Find ways to make the work of nurses and oncologists easier. Collaborate with the health care team to demonstrate firsthand the benefits of IO. Take advantage of any opportunity to share evidence-based information about TCIM with hospital staff
Culture: patient groups, professions, and corporate Focus on the importance of cultural competence and respect between health care professions and when responding to a patient's values, preferences, and culture. Challenge negative attitudes (eg, IO is a nonessential service and not evidence based)	Proactively create a presence to negate "not being on the radar" of supportive cancer care services. Address any organizational policy that prevents IO service development. Challenge negative attitudes (eg, IO is a nonessential service and not evidence based)
Health literacy and practitioner education about benefits and risks Engage stakeholders, listen and proactively address uncertainties about TCIM efficacy and safety. Identify reputable examples of user-friendly information (paper and electronic) for patients, practitioners, and providers about clinical indications and existing evidence	Ensure continuing education sessions for health professionals. Enable easy access to IO clinical resources for patients, practitioners, and providers about clinical indications and existing evidence
Research Consider using an experience-based co-design, participatory action research model to engage relevant stakeholders. Establish a pilot program as a research initiative. Collaborate with other established IO research programs	Collect patient-reported outcomes on symptom burden and patient feedback about their experiences with IO and preferences. Improve translation by sharing the results of clinical research with hospital staff and management
Funding Identify and advocate for funding opportunities within the overarching health system of the country or region (eg, public health funding, private health insurance funding, philanthropy) and ways to support patients with financial hardship. Make the case for value-based IO health care that places patients' values at the center of service delivery and funding decisions	

Abbreviations: TCIM, traditional complementary and integrative medicine.

service. Professional organizations have emerged in many countries in response to the growth of IO and present a way to develop evidence-informed IO (Table 2). Strategies for establishing and expanding IO services identified at the symposium are similar to findings elsewhere⁶¹ (Table 3). In collaborating internationally, we hope to evaluate not just the health care outcomes but the economic and social value of integrating TCIM into cancer services. All presenters spoke to the need to continue discussions and to collaborate internationally on the following:

- a minimum data set of questions to include when mapping IO service provision in cancer centers for comparable data between regions and countries, and over time;
- a minimum data set of patient-reported outcome measures to be collected and, ideally, pooled for comparison on IO health outcomes and experiences; and
- safe and effective approaches to providing biologically based therapies within a supportive cancer care context.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Suzanne J. Grant,  <https://orcid.org/0000-0002-9491-203X>.

Jennifer Hunter,  <https://orcid.org/0000-0002-6109-9134>.

References

- Horneber M, Bueschel G, Dennert G, Less D, Ritter E, Zwahlen M. How many cancer patients use complementary and alternative medicine: a systematic review and metaanalysis. *Integr Cancer Ther.* 2012;11:187-203.
- Witt CM, Balneaves LG, Cardoso MJ, et al. A comprehensive definition for integrative oncology. *J Natl Cancer Inst Monogr.* 2017;2017(52). doi:10.1093/jncimonographs/lgx012
- Ben-Arye E, Schiff E, Mutafoglu K, et al. Integration of complementary medicine in supportive cancer care: survey of health-care providers' perspectives from 16 countries in the Middle East. *Support Care Cancer.* 2015;23:2605-2612.
- Bonacchi A, Toccafondi A, Mambrini A, et al. Complementary needs behind complementary therapies in cancer patients. *Psychooncology.* 2015;24:1124-1130.
- King N, Balneaves LG, Levin GT, et al. Surveys of cancer patients and cancer health care providers regarding complementary therapy use, communication, and information needs. *Integr Cancer Ther.* 2015;14:515-524.
- Clarke TC, Black LI, Stussman BJ, Barnes PM, Nahin RL. Trends in the use of complementary health approaches among adults: United States, 2002-2012. *Natl Health Stat Report.* 2015;(79):1-16.
- Yun H, Sun L, Mao JJ. Growth of integrative medicine at leading cancer centers between 2009 and 2016: a systematic analysis of NCI-designated comprehensive cancer center websites. *J Natl Cancer Inst Monogr.* 2017;2017(52). doi:10.1093/jncimonographs/lgx004
- Lyman GH, Greenlee H, Bohlke K, et al. Integrative therapies during and after breast cancer treatment: ASCO endorsement of the SIO clinical practice guideline. *J Clin Oncol.* 2018;36:2647-2655.
- Deng GE, Rausch SM, Jones LW, et al. Complementary therapies and integrative medicine in lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest.* 2013;143(5, suppl):e420S-436S.
- Brown JC, Ligibel JA. The role of physical activity in oncology care. *J Natl Cancer Inst Monogr.* 2017;2017(52). doi:10.1093/jncimonographs/lgx017
- Herman PM, Dodds SE, Logue MD, et al. IMPACT—Integrative Medicine Primary Care Trial: protocol for a comparative effectiveness study of the clinical and cost outcomes of an integrative primary care clinic model. *BMC Complement Altern Med.* 2014;14:132.
- Health Policy Analysis. *Evaluation of the Health Care Homes Program—Evaluation Plan.* Canberra, Australia: Australian Government Department of Health; 2017.
- Federal Coordinating Council for Comparative Effectiveness Research. *Report to the President and the Congress.* Washington, DC: US Department of Health and Human Services; 2009.
- Khorsan R, Coulter ID, Crawford C, Hsiao AF. Systematic review of integrative health care research: randomized control trials, clinical controlled trials, and meta-analysis. *Evid Based Complement Alternat Med.* 2011;2011:636134.
- Garland SN, Valentine D, Desai K, et al. Complementary and alternative medicine use and benefit finding among cancer patients. *J Altern Complement Med.* 2013;19:876-881.
- Sewitch MJ, Yaffe M, Maisonneuve J, Prchal J, Ciampi A. Use of complementary and alternative medicine by cancer patients at a Montreal hospital. *Integr Cancer Ther.* 2011;10:305-311.
- Tomlinson D, Hesser T, Ethier MC, Sung L. Complementary and alternative medicine use in pediatric cancer reported during palliative phase of disease. *Support Care Cancer.* 2011;19:1857-1863.
- Valji R, Adams D, Dagenais S, et al. Complementary and alternative medicine: a survey of its use in pediatric oncology. *Evid Based Complement Alternat Med.* 2013;2013:527163.
- Adams D, Whidden A, Honkanen M, et al. Complementary and alternative medicine: a survey of its use in pediatric cardiology. *CMAJ Open.* 2014;2:E217-E224.
- Hilton L, Elfenbaum P, Jain S, Sprengel M, Jonas WB. Evaluating integrative cancer clinics with the claim assessment profile: an example with the InspireHealth Clinic. *Integr Cancer Ther.* 2018;17:106-114.
- Balneaves LG, Weeks L, Seely D. Patient decision-making about complementary and alternative medicine in cancer management: context and process. *Curr Oncol.* 2008;15(suppl 2):S94-S100.
- Balneaves LG, Wong ME, Porcino AJ, Truant TLO, Thorne SE, Wong ST. Complementary and alternative medicine (CAM) information and support needs of Chinese-speaking cancer patients. *Support Care Cancer.* 2018;26:4151-4159.
- Gardner W, Fierlbeck K, Levy A. Breaking the deadlock: towards a new intergovernmental relationship in Canadian healthcare. *Healthc Pap.* 2014;14:7-15.
- Esmail N. Complementary and alternative medicine: use and public attitudes 1997, 2006, and 2016. <https://www.fraserinstitute.org/studies/complementary-and-alternative-medicine-use-and-public-attitudes-1997-2006-and-2016>. Accessed September 7, 2018.
- Grocott HP. Complementary and alternative medicine in anesthesia: are we really going there? *Can J Anaesth.* 2016;63:1-2.
- Vogel L. Ontario college beats retreat on alternative therapies. *CMAJ.* 2012;184:E41-E42.
- Balneaves LG, Truant TLO, Verhoef MJ, et al. The Complementary Medicine Education and Outcomes (CAMEO) program: a foundation for patient and health professional education and decision support programs. *Patient Educ Couns.* 2012;89:461-466.

28. Complementary Medicine Education and Outcomes Research Program (CAMEO). <http://www.cameoprogram.org>. Accessed September 7, 2018.
29. Begbie SD, Kerestes ZL, Bell DR. Patterns of alternative medicine use by cancer patients. *Med J Aust*. 1996;165:545-548.
30. Oh B, Butow P, Mullan B, et al. The use and perceived benefits resulting from the use of complementary and alternative medicine by cancer patients in Australia. *Asia Pac J Clin Oncol*. 2010;6:342-349.
31. Smith CA, Hunter J, Ussher JM, et al. *Integrative Oncology in Australia 2016: Mapping Service Provision and Exploring Unmet Needs*. Penrith, New South Wales, Australia: Western Sydney University; 2017.
32. Smith CA, Hunter J, Delaney GP, et al. Integrative oncology and complementary medicine cancer services in Australia: findings from a national cross-sectional survey. *BMC Complement Altern Med*. 2018;18:289.
33. Lim E, Vardy JL, Oh B, Dhillon HM. Integration of complementary and alternative medicine into cancer-specific supportive care programs in Australia: a scoping study. *Asia Pac J Clin Oncol*. 2017;13:6-12.
34. Raszeja VM, Jordens CF, Kerridge IH. Survey of practices and policies relating to the use of complementary and alternative medicines and therapies in New South Wales cancer services. *Intern Med J*. 2013;43:84-88.
35. Lim E, Vardy JL, Oh B, Dhillon HM. Mixed method study to investigate models of Australian integrative oncology. *J Altern Complement Med*. 2017;23:980-988.
36. Williams AM, Bulsara CE, Joske DJ, Petterson AS, Nowak AK, Bennett KS. An oasis in the hospital: the perceived benefits of a cancer support center in a hospital setting offering complementary therapies. *J Holist Nurs*. 2014;32:250-260.
37. Grant SJ, Marthick M, Lacey J. Establishing an integrative oncology service in the Australian healthcare setting—the Chris O'Brien Lifehouse Hospital experience [published online September 17, 2018]. *Support Care Cancer*. doi:10.1007/s00520-018-4460-2
38. Hunter J, Ussher J, Parton C, et al. Australian integrative oncology services: a mixed-method study exploring the views of cancer survivors. *BMC Complement Altern Med*. 2018;18:153.
39. King T, Grant S, Taylor S, Houteas K, Barnett C, White K. A CAM do approach: the attitudes, use and disclosure of the use of complementary and alternative medicine (CAM) in those with myeloma. *Clin Lymphoma Myeloma Leukemia*. 2015;15:e317-e318.
40. Burnett L, Dhillon H, Vardy J. Knowledge and attitudes of oncologists about complementary and alternative therapies used by cancer patients. *AJC*. 2013;12:229-238.
41. Newell S, Sanson-Fisher RW. Australian oncologists' self-reported knowledge and attitudes about non-traditional therapies used by cancer patients. *Med J Aust*. 2000;172:110-113.
42. Rossi E, Vita A, Baccetti S, Di Stefano M, Voller F, Zanobini A. Complementary and alternative medicine for cancer patients: results of the EPAAC survey on integrative oncology centres in Europe. *Support Care Cancer*. 2015;23:1795-1806.
43. Rossi E, Di Stefano M, Firenzuoli F, Monechi M, Baccetti S. Add-on complementary medicine in cancer care: evidence in literature and experiences of integration. *Medicines (Basel)*. 2017;4:E5.
44. Regione Toscana. Ambulatori di medicina complementare. <http://www.regione.toscana.it/documents/10180/23335/Ambulatori+di+medicina+complementari/0a20215a-3340-45ee-9efb-297295c85992?version=1.1>. Accessed December 19, 2018.
45. Egan B, Gage H, Hood J, et al. Availability of complementary and alternative medicine for people with cancer in the British National Health Service: results of a national survey. *Complement Ther Clin Pract*. 2012;18:75-80.
46. Association Research Therapies Integrative Oncology (ARTOI). <https://www.artoi.it/>. Accessed August 8, 2018.
47. Horrigan B, Lewis S, Abrams DI, Pechura C. Integrative medicine in America—how integrative medicine is being practiced in clinical centers across the United States. *Global Adv Health Med*. 2012;1:18-94.
48. Region of Tuscany. Regional Act n. 418 of 07-04-2015. Integrazione delle medicine complementari nella Rete oncologica dell'Istituto Toscano Tumori. [Integration of complementary medicines in the Oncology Network of the Tuscan Institute of Tumors.] <http://www301.regione.toscana.it/bancadati/atti/DettaglioAttiG.xml?codprat=2015DG00000000324>. Accessed December 28, 2018.
49. Knutson L, Johnson PJ, Sidebottom A, Fyfe-Johnson A. Development of a hospital-based integrative healthcare program. *J Nurs Adm*. 2013;43:101-107.
50. Brown J, Morgan T, Adams J, et al. *Complementary Medicines Information Use and Needs of Health Professionals: General Practitioners and Pharmacists*. Sydney, New South Wales, Australia: National Prescribing Service; 2008.
51. Robotin MC, Penman AG. Integrating complementary therapies into mainstream cancer care: which way forward? *Med J Aust*. 2006;185:377-379.
52. Hunter J. Applying evidence-based-medicine when prescribing herbal products. *OA Alternative Med*. 2013;1:21-25.
53. Brennan ME, Butow P, Spillane AJ, Boyle F. Patient-reported quality of life, unmet needs and care coordination outcomes: moving toward targeted breast cancer survivorship care planning. *Asia Pac J Clin Oncol*. 2016;12:e323-e331.
54. Hodgkinson K, Butow P, Fuchs A, et al. Long-term survival from gynecologic cancer: psychosocial outcomes, supportive care needs and positive outcomes. *Gynecol Oncol*. 2007;104:381-389.
55. Butow PN, Bell ML, Aldridge LJ, et al; Psycho-Oncology Co-operative Research Group (PoCoG) CALD team. Unmet needs in immigrant cancer survivors: a cross-sectional population-based study. *Support Care Cancer*. 2013;21:2509-2520.
56. Lobb EA, Joske D, Butow P, et al. When the safety net of treatment has been removed: patients' unmet needs at the completion of treatment for haematological malignancies. *Patient Educ Couns*. 2009;77:103-108.
57. Molassiotis A, Yates P, Li Q, et al; STEP Study Collaborators. Mapping unmet supportive care needs, quality-of-life per-

- ceptions and current symptoms in cancer survivors across the Asia-Pacific region: results from the International STEP Study. *Ann Oncol*. 2017;28:2552-2558.
58. Hunter D, Marinakis C, Salisbury R, Cray A, Oates R. Complementary therapy use in metropolitan and regional Australian radiotherapy centres; do patients report effective outcomes? *Support Care Cancer*. 2016;24:1803-1811.
 59. Huebner J, Prott FJ, Muecke R, et al; Prevention and Integrative Oncology of the German Cancer Society Working Group. Economic evaluation of complementary and alternative medicine in oncology: is there a difference compared to conventional medicine? *Med Princ Pract*. 2017;26:41-49.
 60. Gentry S, Badrinath P. Defining health in the era of value-based care: lessons from England of relevance to other health systems. *Cureus*. 2017;9:e1079.
 61. Lim E, Vardy JL, Oh B, Dhillon HM. Comparison of integrative medicine centers in the USA and Germany: a mixed method study. *Support Care Cancer*. 2017;25:1865-1872.
 62. Clinical Oncology Society of Australia (COSA) Complementary and Integrative Therapies (CIT) Group. Retrieved from <https://www.cosa.org.au/groups/complementary-integrative-therapies/about/>
 63. Chinese Association of Integrative Medicine: Oncology Specialty Committee. Retrieved from: www.caim.org.cn/fhjs/1170.jhtml
 64. Competence Network for Complementary Medicine in Oncology (KOKON). Retrieved from <http://www.cam-cancer.org>
 65. Society for Integrative Oncology. Retrieved from <https://integrativeonc.org/>
 66. Korean Society of Integrative Oncology. Retrieved from <http://www.ksio.kr/?lang=en>
 67. Sociedad Española de Salud y Medicina Integrativa: (SESMI). Retrieved from <http://sesmi.es/>
 68. British Society for Integrative Oncology. Retrieved from <https://bsio.org.uk/>
 69. Oncology Association of Naturopathic Physicians (OncANP). Retrieved from <https://oncanp.org/>