

Quality Cancer Care for Adolescents and Young Adults: A Position Statement

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ABSTRACT

Purpose

This consensus-based position statement on behalf of the LIVESTRONG Young Adult Alliance (Alliance) offers recommendations to enhance oncologic care of adolescent and young adult (AYA) patients with cancer.

Background

In 2005 to 2006, the National Cancer Institute and the Lance Armstrong Foundation jointly sponsored the Adolescent and Young Adult Oncology Progress Review Group (PRG). The PRG report included the directive to develop standards of care for AYA patients with cancer and to disseminate these guidelines to the community. To this end, the Alliance convened a meeting of experts (clinicians, researchers, and advocates) in June 2009 and derived this position statement.

Results

Quality care for AYAs depends on four critical elements: timely detection; efficient processes for diagnosis, initiation of treatment, and promotion of adherence; access to health care professionals who possess knowledge specific to the biomedical and psychosocial needs of this population; and research that will ultimately derive objective criteria for the development of AYA oncology care guidelines. Achieving quality care for AYAs will require assistance with management of disease and treatment effects; cognizance of the unique psychosocial context for AYA growth and development; assessment of and attention to cognitive, psychiatric, and psychosocial issues; facilitated transition to treatment care; and referral to age-appropriate information and support services.

Conclusion

Dissemination of recommendations stated here will raise awareness of the need for AYA-specific care guidelines and assist providers in the delivery of care that is responsive to the distinct needs of AYAs with cancer.

J Clin Oncol 28:4862-4867. © 2010 by American Society of Clinical Oncology

INTRODUCTION

The incidence of cancer in young people ages 15 to 30 years has steadily increased during the past 25 years.¹ In 2009, an estimated 62,000 people in the United States between the ages of 20 to 39 years old will have been diagnosed with invasive cancer.² Cancer is a leading cause of nonaccidental death among adolescents and young adults in the US.³ Despite advances in cancer prevention, early detection, and treatment over the past several decades, survival rates and quality-of-life (QOL) outcomes for adolescents and young adults (AYAs) diagnosed with cancer have not improved to the extent they have for younger children and older adult cancer populations.⁴⁻⁶ Progress in advancing biomedical and psychosocial outcomes for AYAs

has been limited by a number of factors, including suboptimal knowledge of and access to specialized care, inconsistent referral practices, limited research on cancer in this age group accompanied by limited access to and participation in clinical trials, inconsistency in treatment and follow-up care, and limited psychosocial resources and services with an AYA-specific focus.^{1,6-11}

The current lack of evidence-based guidelines and standards of care specific to AYAs with cancer results in health care providers, either appropriately or perhaps inappropriately, treating AYAs based on guidelines developed for the treatment of children or older adults. Referral patterns are arbitrary and usually based on the patient's age—those under 18 are commonly referred to pediatric oncology specialists and those 18 or older are referred to adult

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Submitted May 17, 2010; accepted August 5, 2010; published online ahead of print at www.jco.org on September 20, 2010.

The LIVESTRONG™ Young Adult Alliance, a program of the Lance Armstrong Foundation, provided funding and staff support for the Standards of Care for Adolescents and Young Adults with Cancer Meeting and this resulting position paper.

The ideas and opinions expressed herein are those of the authors and the LIVESTRONG™ Young Adult Alliance. Endorsement by the author's or Alliance member's individual institutions is not intended, nor should it be inferred.

Authors' disclosures of potential conflicts of interest and author contributions are found at the end of this article.

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0732-183X/10/2832-4862/\$20.00

DOI: 10.1200/JCO.2010.30.5417

oncology specialists—and neither group has the majority of its patients in the AYA age range of 15 to 39. While prospective research and data for this age group are sparse, retrospective analyses of disease-specific protocols within this 15- to 39-year-old age range are beginning to distinguish cancer biology and treatment responses in the AYA population from that in older adults and children.^{3-6,12-14} Furthermore, current institutional environments and care settings created for the treatment of children or older adults with cancer are not fully equipped to address the unique needs of a highly mobile AYA population experiencing multiple demands such as work, school, raising children, and assisting aging parents, all of which can be potential barriers to optimal treatment adherence. To date, we lack state-of-the-art therapies, protocols, and evidence-based practice guidelines for AYAs diagnosed with cancer.

Recognizing the need to improve outcomes for AYAs across the cancer control continuum, the National Cancer Institute (NCI) and the Lance Armstrong Foundation jointly sponsored the Adolescent and Young Adult Oncology Progress Review Group (AYAO PRG) in 2005 to 2006. This group reviewed the biologic, biomedical, and psychosocial aspects of cancer diagnosis and treatment in the AYA population and published imperatives for improving measurable outcomes in a report entitled “Closing the Gap: Research and Care Imperatives for Adolescents and Young Adults with Cancer.”¹⁵ The LIVESTRONG™ Young Adult Alliance (Alliance), a coalition of 110 organizations representing clinicians, researchers, and patient advocates, created a 5-year strategic implementation plan for the AYAO PRG recommendations.¹⁶ This implementation plan includes a strategy to “Develop standards of care guidelines for AYAO programs and patients, and [to] disseminate these guidelines to the community.”¹⁶ To facilitate this effort, on June 7 to 8, 2009, the Alliance convened an expert panel of 28 individuals representing cancer centers, academia, community-based care settings, and nonprofit service agencies (Appendix, online only).

This position statement is the product of that collaboration. It is a preliminary step toward enhancing care for AYAs by providing consensus recommendations intended to supplement existing standards of care that apply to all oncology patients, such as the clinical practice guidelines in oncology disseminated by the National Cancer Comprehensive Network.¹⁷ By putting forth these recommendations, we hope to raise awareness of the need for evidence-based guidelines for AYA care and, in the interim before development of those guidelines, assist NCI-designated cancer centers, community cancer centers and hospitals, and private oncology practices in delivering optimal quality cancer care for AYAs. This position statement reflects distinct needs related to the diagnosis, treatment, and care of AYAs with cancer, as suggested by emergent research and clinical observations.¹⁸⁻²²

SUMMARY OF RECOMMENDATIONS

The Alliance recommends the following: formulation of standards of care for AYAs with cancer that ensure excellence throughout the continuum of care from awareness and timely detection through treatment, survivorship, or end of life care; access to and availability of health professionals with the education, training, and experience necessary for providing age-appropriate medical, psychosocial, and supportive care services (a physician champion is essential); consider the resources of the facility that provides care (eg, NCI-designated cancer center v community hospital); for facilities that cannot provide direct access to AYA-specific care, locate and encourage facilitated access to AYA-specific oncology care within the oncology community at-large; develop and apply scientific standards to support efficacious treatment protocols for AYA patients with cancer; promote awareness and education for providers, particularly around need to increase participation of AYAs in clinical trials; and develop and implement strategies

Personnel, Components, and Services	Continuum of Care		
	Diagnosis and Treatment	Survivorship	End-of-Life Care
AYA Champion Pediatric Oncologist Adult Oncologist Oncology Specialists (radiation, surgery, gynecology, etc) Oncology Nurse Primary Care Provider Patient/Peer Navigator Mental Health Professionals (psychologist, social worker) Palliative Care Specialist Religious/Spiritual Counsel/Chaplaincy Legal Counsel Peer Support Community-Based Patient Service Organizations Child Life Specialist (for patients with children)	→		
Physical Therapist, Fitness Trainer, Coach Nutritionist/Dietitian Geneticist/Genetic Counselor Reproductive Endocrinologist/Fertility Specialist Sexual Health Specialist Vocational Rehabilitation/Occupational Therapist	→		
AYA-Trained Hospice Team			→

Fig 1. AYA cancer care personnel, components, and services. AYA, adolescents and young adults.

for integrating the critical elements outlined in this consensus statement into clinical practice in a way that allows for systemic evaluation of measurable outcomes and advancements in care based on these measurements.

PERSONNEL, COMPONENTS, AND SERVICES

Consistent with the Institute of Medicine's report on quality cancer care,²⁰ treating programs or institutions must have internal or adjunct access to facilities, personnel, and services that enhance care for AYA patients with cancer. Currently, AYA cancer care is delivered through large academic institutions, NCI-designated cancer centers, free-standing community cancer programs, ambulatory care clinics (eg, radiation clinics and chemotherapy infusion units), medical oncology groups, and individual practices. Wherever the location of care, it is imperative that those treating AYA patients with cancer have access to an appropriate knowledge base and expertise appropriate to each AYA's diagnosis. Oncology care providers who are educated to specific issues related to AYAs with cancer (eg, fertility preservation, preventing social isolation, potentially differential responses to treatment based on protocols selected) are better equipped to provide

tailored AYA oncology care. To expect every treatment setting, from large institutions to private oncology practices, to possess all the personnel, facilities, and components needed for the best treatment of the AYA patient with cancer is not realistic. The resources available to these institutions vary enormously. Given this reality, providers and treating institutions can reasonably be expected to have knowledge of ancillary and supportive care opportunities for AYAs with cancer and to provide referrals to appropriate sources within care networks or in the broader community, as opposed to being expected to have an AYA-specific specialist on staff.

There is, however, potential value in the identification of an AYA champion—an oncology care provider who is available to other physicians and oncology care providers for the purposes of consultation within institutions and communities and across oncology-related disciplines and departments. Ideally, this AYA champion would be educated to the specifics of AYA oncology as well as adult and pediatric oncology issues. Practically, a more likely scenario is a model in which an AYA champion is a specialist who collaborates and coordinates care across different services (eg, pediatric oncology, adult oncology, gynecology, urology, radiation oncology, surgery). To assure that the unique needs of AYA patients are met, an AYA champion could,

Table 1. Critical Elements, Sample Strategies, and Outcome Measures for Improving Survival

Critical Element	Sample Strategy	Possible Outcome Measure
Early detection and diagnosis	Educational programs for primary care physicians and nurse practitioners that raise their awareness of cancer and cancer risks in AYAs	Awareness of cancer risks in AYAs among primary care providers
	Collaborations among health care and advocacy groups to improve knowledge of AYA cancer in the medical community	AYA awareness and knowledge of cancer health risks and preventive behaviors (eg, sun exposure, testicular self-exam, breast self-exam) Screening standards established and implemented
Timely referral, initiation of treatment, and adherence	Develop shared models of care for integration of primary and oncology care	Length of time from symptom report to diagnosis
	Apply existing quality control standards for the diagnosis and treatment of all cancers to AYAs	Length of time of transition from primary care referral to oncology care system
	Monitor and assure adherence to treatment protocol	Treatment adherence/compliance rates
	Integrate age-appropriate psychosocial and supportive care services	Quality control and outcomes standards
Health care providers knowledgeable of biomedical and psychosocial issues specific to AYAs	Genetic testing and counseling	Determine prevalence of genetically related cancers in AYAs
	Establish systems for referral and use of services either within institutions or through community agencies that serve AYAs	Provider knowledge of differential impact of therapies on AYAs as compared to pediatric and older adult populations
	Provide access to an AYA champion and ancillary health care providers knowledgeable about AYA needs	Number of clinical care programs with access to AYA-specific multidisciplinary expertise
AYAO-specific research	Provision of evidence-based treatment protocols for AYA patients	Percent of all AYA patients who have accessed AYA-specific expertise and services
	Promote networking and training around utilization of evidence-based protocols and clinical trial availability	Percent of AYA patients treated per available AYA-specific protocol Patient satisfaction
	Develop evidence-based standards for best practices for AYA cancer treatment	Proportion of AYA cancers for which AYA-specific clinical trials have been developed
	Develop treatment protocols and clinical trials for AYA-specific cancers	Proportion and absolute number of AYA patients entered on clinical trials
	Establish venues for disseminating knowledge and education about clinical trials	Availability of biospecimens and number of investigations utilizing biospecimens in research
Perform longitudinal, prospective cohort studies to investigate biomedical and psychosocial outcomes	Coordinate collection, utilization, and analyses of biospecimens according to best practices	Availability of program announcements or requests for applications calling for AYA-specific biomedical, psychosocial, and behavioral research
	Conduct studies of health services utilization and cost-benefit analyses	Survival rates, quality of survival, and key determinants of these outcomes Use of health services; cost-benefit ratios

Abbreviations: AYAs, adolescents and young adults; AYAO, adolescent and young adult oncology.

among other activities, seek to increase the availability and enrollment of AYAs on clinical trials, promote multidisciplinary tumor board discussions of AYA patients that include pediatric and medical oncology representation, and provide access to age- or developmentally appropriate psychosocial care (including supportive counseling and peer support programs).

Figure 1 offers a graphic representation of recommended personnel, components, and services integral to AYA optimal care and suggests when along a continuum of care these elements should be activated. While many of these elements can be considered critical for the care of cancer patients of any age, we suggest that due to AYAs' unique physiology, cancer manifests differently in AYAs than in

Table 2. Critical Elements, Sample Strategies, and Outcome Measures for Improving QOL and Quality of Care Throughout the Cancer Care Continuum

Critical Element	Sample Strategy	Possible Outcome Measure
Assistance with disease and treatment effects (ie, symptom management, fertility preservation, sexual dysfunction, and body image)	Patient education programs that provide AYAs with knowledge regarding treatment options and the potential physical and QOL implications of cancer therapy	Patient knowledge of treatment-related health risks
	Provide access to a systematic and standardized symptom management, pain control, and palliative care program	Treatment adherence
	Inform reproductive-age patients of cancer-related fertility risks as early in treatment planning as possible (per the ASCO guideline ²⁴) and refer as needed to an appropriate fertility preservation specialist	Compliance with ASCO guidelines for addressing fertility issues, including utilization of fertility preservation
	Provide knowledge of body image concerns (eg, hair loss, body disfigurement, weight loss/gain) and access to practical resources to address them (eg, wigs and prosthetics)	Referral patterns to appropriate and ancillary supportive care services Physical and mental health function, including pain status and fatigue, and extent to which function interferes with QOL
Cognizance among providers of the unique psychosocial context for AYA growth and development	Educational programs to increase provider knowledge of unique AYA issues related to psychosocial, legal, financial, genetic testing, palliative care, etc needs	Demonstrable knowledge of psychological/developmental needs relevant to adolescence and young adulthood
	Create age-appropriate environments and policies (eg, access to same-age peers, Internet access, flexible clinic hours around school and work, and waiting rooms/lounges outfitted with age-appropriate media/materials)	Evidence of advanced clinical training specific to AYAs
	Provide or refer to resources for developmentally appropriate end-of-life care, including planning for death	Availability of AYA-appropriate patient education materials and resources
Assessment of and attention to cognitive, psychiatric, and psychosocial needs of AYA patients	Clinical interview/psychosocial assessment evaluating social functioning (eg, work, school, and relationships with family and friends), sexual health, mental health status (including suicide assessment when indicated), religion and spirituality, psychiatric symptoms, cognitive functioning, and financial/legal issues	Utilization of mental health counseling, psychosocial support, and supportive care services
	Ongoing monitoring of cognitive, psychiatric, and psychosocial function, as well as referral to resources to address identified needs	Psychosocial adaptation, HRQOL
	Assess for substance use/abuse and refer to treatment, when indicated	Referral patterns to appropriate psychosocial support services
	Promote AYAs' knowledge and competence in medical decision-making and involvement in self-care (self-efficacy)	Cancer-related self-efficacy
	Promote communication between AYA patients and family members (including spouses/partners, parents, young children) and between AYA patients and health care providers	Provider-patient communication
	Provide access to resources to develop advanced directives, wills, and/or trusts	Possession of advanced directives
Referral to available age-appropriate resources during treatment	Provide or refer patient to reputable community and Internet-based educational and support resources	AYA utilization of mental health counseling/support services
	Establish relationships with community partners and agencies	Linkages between treating institution/practice and community-based agencies serving AYAs
	Provide awareness, assessment, and support of practical issues while under treatment, such as child care, transportation, and housing	Adherence to recommended treatment
	Assist AYA patients in assessing the impact of their treatment plan on their education/work/career plans	Adequate insurance coverage; financial needs addressed
	Assist with the navigation of financial and insurance issues when needed	
Facilitation of transition to survivorship	Survivorship care plan available to patients and other appropriate health providers	Possession of a survivorship care plan
	Provide early education related to the transition of an adolescent from pediatric to adult settings/providers	Health behaviors (cancer screening, use of sunscreen, smoking, diet, etc)
	Assist AYA survivors in developing appropriate self-management behaviors, including health literacy, coping skills, and understanding of treatment implications	Successful transition to adult settings and/or providers
	Provide resources for managing co-morbidities and ongoing late effects	Health services utilization (primary care, oncologic care, specializations)
	Provide lifetime access to portable treatment records	HRQOL, self-efficacy, health literacy
	Provide access to health insurance information	Health insurance status

Abbreviations: QOL, quality of life; AYA, adolescents and young adults; ASCO, American Society of Clinical Oncology; HRQOL, health-related quality of life.

children and older adults. The personnel listed in this document must be cognizant of how this affects AYAs' psychology and overall QOL, and thus must be educated to administer biomedical and psychosocial therapies or interventions appropriate to this population. The companion manuscript "Adolescent and Young Adult Oncology Training for Health Professionals: A Position Statement" addresses the elements of training and education that health professionals committed to the care of AYAs should receive.^{2,3}

CRITICAL ELEMENTS, CLINICAL CARE STRATEGIES, AND MEASURABLE OUTCOMES FOR IMPROVING AYAO CARE

Improvements in treatment outcomes, survival rates, and QOL for this age-specific population depend on four critical elements: timely detection; efficient processes for diagnosis, initiation of treatment, and promotion of adherence; access to health care professionals who possess knowledge specific to the biomedical and psychosocial needs of this population, including knowledge of the evidence-based treatment protocols for achieving best outcomes for AYAs; and rigorous AYA-specific research. Examples of clinical care strategies reflecting these elements are summarized in Table 1, along with examples of suggested outcome measures to demonstrate the effect of these AYA-specific elements on survival.

IMPROVING QUALITY OF CARE AND QOL ACROSS THE CANCER CARE CONTINUUM

As described elsewhere,^{1,8,11} research has begun to identify the unique impacts of cancer on QOL issues for AYAs. Thus, clinical care and investigations of cancer's impact on QOL and psychosocial outcomes must take into account the stage of life at which cancer is diagnosed in these young people.

To enhance QOL and quality of care for AYA patients with cancer, providers must address the specific health and psychosocial needs of AYAs. Doing so will require: assistance with the management of disease and treatment effects, particularly fertility and body image issues; cognizance of the unique psychosocial context for AYA growth and development; assessment of and attention to cognitive, psychiatric, and psychosocial effects and needs; facilitated transition to off-treatment care; and referral to available age-appropriate information and support services when indicated. Sample strategies for achieving these objectives are summarized in Table 2.²⁴ Ultimately, the success of clinical care strategies may be determined by observation and measurement of the outcomes or competencies listed in Tables 1 and 2.

NEXT STEPS AND CHALLENGES

The recommendations set forth here are intended to be a first step toward raising awareness of the need for guidelines of care in AYA

oncology. As next steps in an implementation strategy for developing standards of care, the Alliance recognizes the need to test and validate the extent to which recommendations proposed here in fact result in improved survival and QOL outcomes. As clinical programs and new models of care for treatment of AYA patients emerge, studies need to derive objective evidence demonstrating the efficacy of critical components and strategies that ultimately will form clinical care guidelines. Complex issues exist that make the creation of guidelines challenging, including but not limited to the following: health systems outside the US use different terminology and a narrower age range to define the AYA oncology population; these facts, in addition to their greater dedicated resources, make it difficult to apply their lessons learned in the US;^{25,26} the US health system consists of multiple tiers of health care professionals, from general practitioners within the community to oncology specialists at large NCI-designated cancer centers, making increased awareness of AYA oncology and the provision of specialized care throughout the system difficult; the development of systematic research methods and measurable outcomes depends on the availability of funded research opportunities and settings, and all in a time of limited resources and economic pressures; and the ability to address research questions related to this age-specific population is dependent on the accrual of sufficient numbers of AYA patients to studies and clinical trials for statistical analyses to have analyzable power.

CONCLUSION

We set forth these recommendations for the oncology community to stimulate interest and illustrate the need to enhance quality of care for AYAs. Evidence-based guidelines for AYAO care will offer providers objective criteria by which they can assess the quality of care provided in their programs to this age-specific population. In the interim, health care providers in all settings may improve treatment outcomes and QOL for AYAs with cancer by adopting recommendations in this position statement.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

The author(s) indicated no potential conflicts of interest.

AUTHOR CONTRIBUTIONS

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REFERENCES

1. Bleyer A, O'Leary M, Barr R, et al: Cancer Epidemiology in Older Adolescents and Young Adults 15 to 29 Years of Age, Including SEER Incidence and Survival: 1975-2000. Bethesda, MD, National Cancer Institute, NIH Pub. No. 06-5767, 2006. <http://www.seer.cancer.gov/publications/aya/>
2. Bleyer A, Barr R: Cancer in young adults 20 to 39 years of age: Overview. *Semin Oncol* 36:194-206, 2009
3. Bleyer A: The adolescent and young adult gap in cancer care and outcome. *Curr Probl Pediatr Adolesc Health Care* 35:182-217, 2005
4. Bleyer A: Young adult oncology: The patients and their survival challenges. *CA Cancer J Clin* 57:242-255, 2007

5. Tai E, Pollack LA, Townsend J, et al: Differences in non-Hodgkin lymphoma survival between young adults and children. *Arch Pediatr Adolesc Med* 164:218-224, 2010
6. Thomas DM, Seymour JF, O'Brien T, et al: Adolescent and young adult cancer: A revolution in evolution? *Intern Med J* 36:302-307, 2006
7. Albritton K, Bleyer WA: The management of cancer in the older adolescent. *Eur J Cancer* 39:2584-2599, 2003
8. Evan EE, Zeltzer LK: Psychosocial dimensions of cancer in adolescents and young adults. *Cancer* 107:1663-1671, 2006
9. Haase JE, Phillips CR: The adolescent/young adult experience. *J Pediatr Oncol Nurs* 21:145-149, 2004
10. Shama W, Lucchetta S: Psychosocial issues of the adolescent cancer patient and the development of the Teenage Outreach Program (TOP). *J Psychosoc Oncol* 25:99-112, 2007
11. Zebrack B, Hamilton R, Smith AW: Psychosocial outcomes and service use among young adults with cancer. *Semin Oncol* 36:468-477, 2009
12. Boissel N, Auclerc MF, Lhéritier V, et al: Should adolescents with acute lymphoblastic leukemia be treated as old children or young adults? Comparison of the French FRALLE-93 and LALA-94 trials. *J Clin Oncol* 21:774-780, 2003
13. Nachman JB, La MK, Hunger SP, et al: Young adults with acute lymphoblastic leukemia have an excellent outcome with chemotherapy alone and benefit from intensive postinduction treatment: A report from the children's oncology group. *J Clin Oncol* 27:5189-5194, 2009
14. Stock W, La M, Sanford B, et al: What determines the outcomes for adolescents and young adults with acute lymphoblastic leukemia treated on cooperative group protocols? A comparison of Children's Cancer Group and Cancer and Leukemia Group B studies. *Blood* 112:1646-1654, 2008
15. Adolescent and Young Adult Oncology Progress Review Group: Closing the Gap: Research and Care Imperatives for Adolescents and Young Adults with Cancer. Bethesda, MD, Department of Health and Human Services, National Institutes of Health, National Cancer Institute, and the LiveStrong Young Adult Alliance, NIH Publication No. 06-6067, 2006. http://planning.cancer.gov/library/AYAO_PRG_Report_2006_FINAL.pdf
16. LIVESTRONG Young Adult Alliance: Closing the Gap: A Strategic Plan: Addressing the Recommendations of the Adolescent and Young Adult Oncology Progress Review Group. Austin, TX, Lance Armstrong Foundation, 2007. <http://www.livestrong.org/pdfs/LAF-YAA-Report-pdf>
17. National Comprehensive Cancer Network, Inc: NCCN Clinical Practice Guidelines in Oncology. http://www.nccn.org/professionals/physician_gls/f_guidelines.asp
18. Abrams AN, Hazen EP, Penson RT: Psychosocial issues in adolescents with cancer. *Cancer Treat Rev* 33:622-630, 2007
19. Eiser C, Kuperberg A: Psychosocial support for adolescents and young adults, in Bleyer WA, Barr RD, Albritton KH, et al (eds): *Cancer in Adolescents and Young Adults*. Berlin, Springer-Verlag, 2007, pp 365-373
20. Adler NE, Page AEK (eds): *Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs*. Washington, DC, Institute of Medicine, National Academies Press, 2007. <http://www.iom.edu/Reports/2007/Cancer-Care-for-the-Whole-Patient-Meeting-Psychosocial-Health-Needs.aspx>
21. Zebrack B, Bleyer A, Albritton K, et al: Assessing the health care needs of adolescent and young adult cancer patients and survivors. *Cancer* 107:2915-2923, 2006
22. Zebrack BJ, Mills J, Weitzman TS: Health and supportive care needs of young adult cancer patients and survivors. *J Cancer Surviv* 1:137-145, 2007
23. Hayes-Lattin B, Mathews-Bradshaw B, Siegel S: Adolescent and young adult oncology training for health professionals: A position statement. *J Clin Oncol* 28:4858-4861, 2010
24. Lee SJ, Schover LR, Partridge AH, et al: American Society of Clinical Oncology recommendations on fertility preservation in cancer patients. *J Clin Oncol* 24:2917-2931, 2006
25. Palmer S, Thomas D: A practice framework for working with 15-25 year-old cancer patients treated within the adult health sector. Melbourne, Australia, onTrac@PeterMac Victorian Adolescent and Young Adult Cancer Service, 2008. <http://www1.petermac.org/ontrac/pdf/AYA-Practice-Framework.pdf>
26. Whiteson M: The Teenage Cancer Trust: Advocating a model for teenage cancer services. *Eur J Cancer* 39:2688-2693, 2003

