1. If a patient has been treated at a location where there is not a survivorship care plan completed and/or there is not access to a pediatric cancer center, how would you recommend that a clinician counsel these patients accurately about health surveillance recommendations?

Response from Dr. Hudson:

*If a survivor presents for care without a survivorship care plan and/or there is not access to a pediatric cancer center, general information about treatment approaches used for specific pediatric malignancies (and their evolution over the years) should be available in pediatric oncology textbooks (e.g., Principles and Practice of Pediatric Oncology, editors Pizzo PA and Poplack DG) or online resources like the National Cancer Institute Physician Data Query. This information, combined with history, physical examination, and even limited treatment data from medical records, can identify the likely therapeutic interventions (surgery, radiation, chemotherapy, transfusion, hematopoietic cell transplantation) utilized. In the absence of local providers with the expertise to advise a follow-up plan, national experts in the treatment and late effects of pediatric malignancies can be identified through CureSearch Children’s Oncology Group and the Physician Data Query and contacted for consultation.*
2. Do you think the evidence is robust enough to confidently conclude that there is not an increased risk of congenital malformations in offspring born to childhood cancer survivors?

Response from Dr. Hudson:

Robust data are available from multiple population-based and large cohort studies (reviewed in the article) that do not support an excess risk of major congenital malformations, single gene disorders, or chromosomal syndromes in children born to survivors of childhood cancer. However, substantial evidence supports the excess risk of pregnancy complications (fetal malposition, pregnancy loss, preterm birth, and delivery of low birth weight infants) among female survivors treated with pelvic, uterine, or ovarian radiation.

3. A child’s mother asks you for a percentage estimate of her child’s risk of developing infertility after the cancer treatment is completed. Do you give this specific information and, if so, how would you determine such a percentage?

Response from Dr. Hudson:

The risk of infertility can be estimated based on the specific agents/modalities included in the planned treatment protocol. There is a potential risk for infertility if treatment will include surgery, radiation, or chemotherapy that negatively affects the hypothalamic-pituitary-gonadal axis. In particular, the type and cumulative doses of chemotherapeutic agents and radiation treatment volumes and doses should be considered. The risk of infertility may be substantial if high cumulative doses of alkylating agents and/or gonadal radiation are planned. Based on information from published data, the risk of infertility can typically be estimated to be “low” or “high.” The “intermediate” risk group is often difficult to assign because individual sensitivity to gonadotoxic agents clearly influence risk.
4. Do you recommend any ovarian function testing prior to chemotherapy in postmenarchal patients?

Response from Dr. Hudson:
I do not recommend ovarian function testing as a routine in postmenarchal patients because this information is not generally pertinent in planning therapy for a pediatric malignancy.

5. Childhood cancer patients are often clinically most familiar with one team of providers providing comprehensive care during their treatment and early follow-up. As the transition to adulthood occurs, we are recognizing the importance of continuing to address the “late effects” of pediatric cancer therapy. However, from a patient perspective, finding appropriate long-term follow-up care can be daunting as it often appears more fractured. Do you have any suggestions on how to assist childhood cancer survivors in smoothly transitioning to adult care providers, such as an ob-gyn, so that the topics that you bring up in this article can be discussed? Additionally, at what age should this transition occur and who would you suggest as the ideal provider for this group of patients so that we can most effectively educate this population (ie, reproductive endocrinology, maternal-fetal medicine, general ob-gyn providers, pediatric oncologists, adult oncologists, or others)?

Response from Dr. Hudson:
I prefer the “shared-care” model in which the pediatric oncology center works collaboratively with community physician(s) to characterize the survivor’s health needs and proactively monitor for potential cancer-related health risks. When remission has been maintained for several years after completion of therapy, the focus of follow-up care typically changes from one of cancer surveillance to cancer-treatment health risk surveillance. Engaging community providers early in this process provides a foundation for education about cancer-related health risks, risk-based health surveillance, and risk-reduction measures that can be considered in primary care interventions. Ongoing communication about survivorship issues facilitates the ultimate
transition from pediatric oncology care that usually occurs between ages 18 years to 21 years, and instills confidence in survivors that community providers are familiar with their unique health needs. As most oncology practices (both medical and pediatric) are focused on treatment of patients with active cancer, identification of a primary care community provider is important, especially when a survivor has complex medical issues that require the services of multiple subspecialists. This individual, who may be a pediatrician, family physician, internist, or obstetrician-gynecologist, plays a critical role in assuring optimal coordination of care among multi-disciplinary providers.

6. Please describe any advances on the horizon for the treatment of childhood cancer that you foresee will affect reproductive outcomes. Will there be cancer treatments or adjunctive therapies that will avoid damage to the reproductive system, and if so, can you explain the physiologic principles by which this may be achieved?

**Response from Dr. Hudson:**

*Research is underway evaluating molecularly targeted cancer therapies that block the growth and spread of cancer at a cellular level. If successful, these agents can be used instead of cytotoxic therapies like chemotherapy and radiation. Efforts to avoid the normal tissue injury associated with cytotoxic therapy have motivated the development of risk-adapted, response-based treatments that are standardly used by pediatric oncologists today. Therapy is routinely limited for children and adolescents with clinically and biologically favorable cancer presentations. Response assessment by imaging modalities like positron emission tomography likewise facilitates identification of individuals with good responses who may benefit from therapy reduction as well as those with poor responses who may require escalation of therapy to optimize disease control.*