



Patients' and Physicians' Experiences With Sperm Banking and Infertility Issues Related to Cancer Treatment

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Patients' Experiences

Schover, L., Brey, K., Lichtin, A., Lipshultz, L., & Jeha, S. (2002). Knowledge and experience regarding cancer, infertility, and sperm banking in younger male survivors. *Journal of Clinical Oncology*, 20, 1880–1889.

Study Summary

The purpose of this descriptive study was to explore knowledge, attitudes, and experiences regarding cancer-related infertility and sperm banking in male patients between the ages of 14–40 at diagnosis. Patients were identified from tumor registries at two large cancer centers and included in the study if they had undergone pelvic surgery or had been treated with chemotherapy or radiation to the whole body, pelvis, brain, or abdomen. A questionnaire was mailed to 904 men and was completed by 201 men (response rate 27%). The questionnaire asked participants about their knowledge regarding cancer-related infertility and sperm banking and their attitudes regarding children and parenthood after cancer. The majority of the men were married, well educated with a bachelor's degree or higher, diagnosed at the age of 30, and Catholic or Protestant. The most frequent cancer types were leukemia, Hodgkin's disease, non-Hodgkin's lymphoma, testicular cancer, and brain tumors. The average length of time since diagnosis was three years. Forty-eight percent had biologic children before the cancer diagnosis, and 10% had a biologic child conceived after cancer treatment. Forty-one percent of the men wanted children in the future and were concerned about cancer-related infertility. Only 60% of the men indicated that a health-

care professional had discussed the possibility of infertility as a side effect of cancer treatment, and just 51% remembered discussing the option of sperm banking before treatment. The men identified the following individuals who discussed infertility with them: oncology physicians (55%), nurses (21%), family physicians (8%), or family members or friends (12%). Sperm banking was more likely to be discussed with men treated in private oncology clinics (62%) compared with cancer centers (52%) or hospitals (20%), and more frequently by oncology physicians (40%), followed by nurses (14%). Only 24% of the respondents banked sperm before treatment. The most frequent reasons for not banking sperm were lack of information (25%), already having all the children desired (20%), and not wanting more children in the future (15%). The men who discussed infertility with their physicians were more knowledgeable about cancer-related infertility and more likely to bank sperm. Results from the knowledge questions indicated that one-third of the respondents did not know that sperm quality often was reduced after a cancer diagnosis, infertility is more common after adolescent cancer treatment in males than in females, infertility treatments do not require a large quantity of sperm cells, most men will not have good fertility after treatment, and children of cancer survivors do not have an increased risk of cancer. The majority of respondents felt that the cancer experience increased their value and awareness of family life and parenting skills. A majority of the respondents were concerned about living to see their children grow up (66%) and leaving their spouse to function as a single parent (73%).

Application to Patient Care

- **Results indicated that 41% of the respondents definitely wanted children in the future; however, only 24% actually banked sperm. Reasons for not banking sperm included lack of information, already having all the children desired, and not wanting children in the future. Men who were more knowledgeable about infertility were more likely to bank sperm.**

These results highlight the immense need for education and open discussion with patients who are of childbearing age and facing cancer treatment. With the advances in cancer treatment, healthcare professionals also should focus on patients' long-term quality of life as cancer survivors. In preparing for chemotherapy with fertility-impairing potential, all patients should be questioned about their desire to have children. Male patients wanting children in the future should be educated about the process of sperm banking and given information about local facilities. Topic areas identified by the respondents that necessitated more information included sperm quality after a cancer diagnosis, gender differences in fertility after treatment, and general information about fertility treatments. Respondents also were unclear about their children's risk for cancer. Patients should be given the opportunity to have genetic counseling before their cancer treatment. Discussing their children's risks may allay any fears and encourage patients to bank sperm prior to the initiation of treatment.

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- **Physicians conducted the majority of infertility and sperm-banking discussions. The study participants indicated that 21% of nurses discussed infertility and only 14% discussed sperm banking.**

Several reasons may exist that could explain nurses' minimal involvement. First, nurses, being primarily female, may feel uncomfortable discussing these topics with male patients. Second, nurses may have limited contact with patients prior to the initiation of chemotherapy or radiation treatments. As the authors conclude, all patients should be counseled and given the opportunity to make informed decisions about banking sperm if they so desire. Oncology nurses may include this information with chemotherapy or radiation treatment education. Physicians should be notified if patients voice a desire to bank sperm, as the initiation of treatment may need to be delayed if medically possible.

- **The majority of respondents felt that the cancer experience increased their values and awareness of family life and parenting skills; however, they were concerned about living to see their children grow up and leaving their spouses as single parents.**

Although patients may have difficulty thinking about surviving cancer when faced with a cancer diagnosis and treatment, patients should be informed that the cancer experience could be positive and result in a strengthening of family relations. Nurses should openly discuss survivorship issues, such as changes in family dynamics, family members' emotions and reactions, and family planning after cancer treatment. Furthermore, patients should be encouraged to discuss their fears about death and leaving their spouses and children.

Physicians' Experiences

Schover, L.R., Brey, K., Lichtin, A., Lipshultz, L.I., & Jeha, S. (2002). **Oncologists' attitudes and practices regarding banking sperm before cancer treatment.** *Journal of Clinical Oncology, 20*, 1890–1897.

Study Summary

The purpose of this descriptive study was to explore oncologists' knowledge, attitudes, and practices regarding patient referrals for sperm banking before cancer treatment. Surveys were mailed to 718 physicians and fellows from two cancer centers and 26 smaller hospitals or private practice groups, and 162 questionnaires were returned (response rate 24%). The question-

naire included a 15-item, true-or-false knowledge test (see Figure 1), and questions regarding attitudes toward sperm banking, patient factors influencing referral to bank sperm, and specific practices in discussing sperm banking and fertility after cancer treatment. Results indicated that male physicians had significantly higher knowledge scores than female physicians. The majority of physicians were not sure about the costs of sperm banking, the number of samples needed, or that infertility is more common in male rather than female pediatric cancer survivors. Although 91% of the physicians felt that sperm banking should be offered to all eligible men at risk for infertility related to cancer treatment, only 10% reported offering sperm banking to all eligible men. Thirty-eight percent of the physicians estimated seeing more than 20 eligible men;

however, 48% indicated that they offered sperm banking less than a quarter of the time to never. If physicians saw 6–20 eligible men per year, they were more likely to discuss sperm banking. Perceived barriers in offering sperm banking were difficulty in finding convenient banking facilities (51%), not having adequate time to discuss sperm banking (50%), and concerns that costs may not be feasible for patients (49%). Physicians would be less likely to refer patients for sperm banking if patients were positive for HIV (84%), were homosexual (54%), had aggressive disease that necessitated immediate treatment (57%), or had poor prognosis (55%). However, they were more likely to refer if patients were recently engaged or married (41%), expressed an

How Much Do You Know About Sperm Banking and Infertility Related to Cancer Treatment?

	True	False
1. Many young men with cancer have low sperm counts and motility at the time of their diagnosis.	<input type="checkbox"/>	<input type="checkbox"/>
2. Research has shown that there is an increased risk of birth defects in children conceived from semen collected during the first week of chemotherapy or radiation therapy.	<input type="checkbox"/>	<input type="checkbox"/>
3. The costs of banking sperm are typically more than \$2,000 including initial freezing of semen samples and fees to store samples for five years.	<input type="checkbox"/>	<input type="checkbox"/>
4. To have adequate semen samples for sperm banking, you need to collect three to six semen samples before cancer treatment begins.	<input type="checkbox"/>	<input type="checkbox"/>
5. With modern infertility treatments, it is worthwhile to bank sperm even if the count and motility of the samples is quite low.	<input type="checkbox"/>	<input type="checkbox"/>
6. If a teenager banked sperm, the samples would probably be useless by the time he wanted to have children.	<input type="checkbox"/>	<input type="checkbox"/>
7. The children of men who have survived cancer typically have only the same lifetime risks of cancer as the general population.	<input type="checkbox"/>	<input type="checkbox"/>
8. Sperm samples that have lowered count and motility survive being frozen and thawed just as well as better quality samples.	<input type="checkbox"/>	<input type="checkbox"/>
9. Semen samples for sperm banking can be collected daily over several days and still have adequate counts and motility for cryopreservation.	<input type="checkbox"/>	<input type="checkbox"/>
10. The preferred method of collecting semen for sperm banking is by using a condom during intercourse.	<input type="checkbox"/>	<input type="checkbox"/>
11. Infertility after treatment for pediatric cancer is more common in boys than in girls.	<input type="checkbox"/>	<input type="checkbox"/>
12. It is no longer worthwhile to use banked sperm for intrauterine insemination since in vitro fertilization is always more cost-effective.	<input type="checkbox"/>	<input type="checkbox"/>
13. Most young teenage boys have good enough sperm quality to make it worthwhile to bank sperm.	<input type="checkbox"/>	<input type="checkbox"/>
14. With today's cancer treatments, most male patients will retain or regain adequate fertility so that banking sperm is just added insurance.	<input type="checkbox"/>	<input type="checkbox"/>
15. A patient with a post-thaw sperm count of less than one million per mL and a motility of 20% would be a good candidate to use his samples for intrauterine insemination of his wife.	<input type="checkbox"/>	<input type="checkbox"/>

Answer Key

1. True, 2. False, 3. False, 4. False, 5. True, 6. False, 7. True, 8. True, 9. True, 10. False, 11. True, 12. False, 13. True, 14. False, 15. False

FIGURE 1. QUESTIONS USED TO ASSESS PHYSICIANS' KNOWLEDGE OF SPERM BANKING

Note. From "Oncologists' Attitudes and Practices Regarding Banking Sperm Before Cancer Treatment" by L.R. Schover, K. Brey, A. Lichtin, L.I. Lipshultz, & S. Jeha, 2002, *Journal of Clinical Oncology, 20*, p. 1894. Copyright 2002 by the American Society of Clinical Oncology. Reprinted with permission.

interest in having children in the future (75%), or had detailed educational materials on banking (65%). A majority of the respondents indicated that sperm banking should be offered to teenagers, and 78% felt that both parents and teenage patients should be present when the topic is discussed.

Application to Patient Care

- **Although a majority of the physicians indicated that men at risk for infertility should be offered sperm banking, only 10% offered this to all eligible men. The most frequent barriers were difficulty in finding a banking facility, lack of time to discuss sperm banking, and perceived high cost for patients.**

These barriers may be overcome through educational materials that include information about local banking facilities, infertility issues related to cancer treatment, sperm banking, and procedure costs. Patients could be given the materials to read and consider, and plan a follow-up discussion with the physician or nurse to answer any questions or address any concerns. Several Web sites may be helpful for patient information regarding infertility and sperm banking, including www.sperm-banks.com, www.cancer.gov, and www.clevelandclinic.org/reproductiveresearchcenter.

- **Physicians were more likely to refer patients for sperm banking if patients were recently engaged or married, expressed an interest in having children**

in the future, or had information. They were less likely to refer if patients were HIV-positive or homosexual or had an aggressive disease or poor prognosis.

These results highlight the importance of providing sperm-banking information to all men at risk for infertility so that patients can make informed decisions that meet their specific personal choices. Healthcare professionals must examine their attitudes and belief systems and avoid patient stereotyping. With the advances in HIV treatment, long-term survival is promising. Patients with an aggressive disease and life-threatening symptoms should be counseled that immediate treatment is critical; however, the sperm-banking procedure only may delay treatment for a 24-hour period.