



Interactive Media on Banking Sperm Before Cancer Therapy

Grant Number: R44CA088088-04

Abbreviated Abstract

The goal of this R44 II proposal was to create the final version of an interactive, multimedia educational CD-ROM on banking sperm before cancer treatment. Banking on Fatherhood has two parts, one for oncology health care professionals that includes a medical update on sperm banking and a section on improving counseling skills; and one for patients and their family members to help them make the most informed, timely decision about whether to bank sperm. A final prototype was created, and approximately 20 physician fellows were randomized to fill out questionnaires before or after viewing it. The same design was used with patients. Outcomes included the score on a T/F knowledge test, attitude items, and items evaluating the ease of use and utility of BOF. Our panel of experts also gave us feedback on the prototype. A natural history study is being conducted to compare knowledge, rates of sperm banking, and decisional conflict and satisfaction in men recruited over 3 months and given a brochure about sperm banking before cancer treatment vs. men recruited over 6 months who view BOF and get a copy to take home. Health care providers who see men in this age group with cancer will also evaluate the BOF CD-ROM. We hope to demonstrate that our product increases knowledge among health care providers and patients, produces more positive attitudes towards banking sperm, and actually increases rates of sperm banking in our target institutions.

Primary Investigator

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Leslie Schover, Ph.D.: Leslie R. Schover, Ph.D. is a psychologist with a special interest in sexual problems and infertility-related distress after cancer. She is currently Professor of Behavioral Science at the University of Texas M. D. Anderson Cancer Center. She is the author of numerous scientific journal articles and book chapters, and four books, as well as the patient education booklets published by the American Cancer Society, *Sexuality and Cancer: for the Woman with Cancer and Her Partner*, and *Sexuality and Cancer: for the Man with Cancer and His Partner*. She is currently funded by the American Cancer Society to develop an internet-based version of a sexual counseling problem for couples after prostate cancer and by the National Cancer Institute to develop and evaluate a peer counseling program on reproductive health after breast cancer, in partnership with Sisters Network®, Inc., a national advocacy program for African-American Breast cancer survivors. She also has been the academic partner in an R25/R44 small business grant to produce and evaluate a computerized educational tool and decision aid on banking sperm before cancer treatment. In 2004 she co-chaired a

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scientific conference on "Parenthood after Cancer" focusing on a variety of topics related to cancer and fertility. The proceedings were published in March, 2005 as a JNCI Monograph.

Paul Martinetti, MD: A licensed physician, Paul's passion is in interactive health communication. Paul directs the multimedia initiatives at AXIS, and he also leads the development of multi-user, data-driven systems that provide information at the point of need. Over the past seven years, he has worked as a technology partner in various capacities with over 20 pharmaceutical companies. Before joining AXIS, Paul founded the Interactive Marketing Group at Dudnyk Healthcare Communications and was its Senior Director. Before that, he was Director of Medical Services at Human Touch InterMedia, where he was instrumental in leading the medical direction for interactive projects for major pharmaceutical clients. In addition to his medical/technology director roles, Paul is a certified teacher of secondary sciences and expert and has taught high school and university students topics such as general and organic chemistry and advanced Macromedia Flash programming.

Research Team & Affiliations

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Expert panel members: Our thanks to these busy professionals who gave their time to evaluate Banking on Fatherhood without any financial compensation: Ashok Agarwal, Ph.D., The Cleveland Clinic Foundation Lindsay Nohr Beck, Fertile Hope Andrea Canada, PhD, UT M. D. Anderson Cancer Center Donna Copeland, PhD, UT M. D. Anderson Cancer Center Anne Flamm, JD, UT M. D. Anderson Cancer Center Corey Gonzales, PhD, Private Practice Kate Howell, Xytex, Inc. Armand Karow, PhD, Xytex, Inc. Larry Lipshultz, MD, Baylor College of Medicine Marvin Meistrich, PhD, UT M. D. Anderson Cancer Center Jeffrey Murray, MD, Cook Children's Medical Center Susan Nessim, Cancervive Selma Schimmel, Vital Options Stephen Shalet, MD, Christie Hospital NHS Trust Anthony J. Thomas, Jr., MD, The Cleveland Clinic Foundation Doug Ulman, The Lance Armstrong Foundation Louise Villejo, MPH, UT M. D. Anderson Cancer Center W. Hamish B. Wallace, MD, Royal Hospital for Sick Children Karen Warfield, formerly of California Cryobank, Inc.

Special thanks to: Connie Dresser, Program Director, HCIRB, NCI Brian Iglesias, Grants Management Specialist, National Cancer Institute Neil Matheson, President, CEO, and Founder of AXIS Healthcare Communications Jeff Mullican, CFO of AXIS Healthcare Communications

Total Budget

\$1,302,388.00



Research Objectives

Aim 1: Develop final version of interactive media tool Banking on Fatherhood (BOF) CD-ROM

Aim 2: Conduct pilot testing with a sample of physicians in training and with a sample of men eligible to bank sperm before cancer treatment to see if viewing BOF can increase knowledge about sperm banking in physicians and patients; Get feedback on usability and acceptability of product. Get final feedback from panel of experts on prototype.

Aim 3: Conduct “natural history study” comparing rates of sperm banking, decisional conflict, and decisional satisfaction between men recruited over 3 months and given only a brochure and referral vs. men recruited over 6 months who view BOF and get a copy to take home. In between the 2 periods, physicians, nurses, and PA’s in target clinics get a copy of BOF with evaluation questionnaires.

Aim 4: Incorporate user feedback into a series of final products, obtain financial support to distribute product to healthcare professionals and cancer patients

Theory/Hypothesis

We intend to demonstrate, over the three phases of the project, that sperm banking is currently underutilized, even in the highest quality patient care centers; that both oncology health professionals and patients lack the knowledge to make fully informed decisions about sperm banking; and that our educational product can increase knowledge in patients and health professionals, increase their positive attitudes towards banking sperm, and actually affect rates of sperm banking in a large cancer center.

Experimental Design

In a “natural history study” comparing rates of sperm banking, decisional conflict, and decisional satisfaction between men recruited over 3 months and given only a brochure and referral vs. men recruited over 6 months who view final version of BOF and get a copy to take home. Questionnaires include a True/False test of knowledge, items on attitudes about sperm banking, items on the utility and ease of use of BOF, and standardized scales measuring decisional conflict and satisfaction. In between the 2 periods, physicians, nurses, and PA’s in target clinics get a copy of BOF with evaluation questionnaires.

A 30-item “Sperm Banking Thermometer” questionnaire for the male patients, intended as a decision aid, will be validated by comparing responses of men who do vs. do not choose to bank sperm. Psychometric analyses will be carried out of internal consistency.

Final Sample Size & Study Demographics

Men age 14 to 45 eligible to bank sperm before cancer treatment. Data not yet available. Also health care providers will participate. Data not yet available.

Data Collection Methods

BOF has been piloted tested in two small, randomized trials with 19 oncology fellows and with 20 cancer patients eligible to bank sperm. In each trial, half of subjects viewed BOF before completing a knowledge and attitude survey, and half viewed it afterwards. All participants then rated BOF on a number of relevant dimensions.



Outcome Measures

Knowledge test scores; Decisional conflict; Decisional satisfaction; Actual percentage of men who bank sperm.

Evaluation Methods

Paper and pencil questionnaires; Phone follow-up to ascertain whether patient banked sperm, reasons for decision, and decisional satisfaction.

Research Results

Physicians who viewed BOF scored significantly higher on a 20-item knowledge test (mean: 14.6 + 3.47) compared to those who had not yet seen BOF (mean: 10.8 + 1.55) ($P=0.0062$). The same comparison on the patient version of the knowledge test did not quite achieve significance (mean + SD: before 12.4 + 2.59 and after 13.7 + 2.54, $P=0.1361$). Viewing BOF did significantly decrease patients' decisional conflict about banking sperm, however, on a 12-item scale used in research on medical decision-making: (mean + SD: before: 32.70 + 6.04 and after 23.70 + 8.37, $P=0.0065$). Evaluations from both sets of participants suggested that BOF is easy to use and addresses relevant concerns. The videos and animations added to the value of the educational tool.

Physician pilot study results represent demographic data on the 19 physicians who participated in the pilot randomized trial. All were trainees at UT M. D. Anderson Cancer Center. The two randomized groups did not differ significantly in age, gender, rank, or oncology specialty area. The attitudes of these young physicians are quite similar to those of oncologists who answered our survey in 2002. Viewing the CD-ROM did not appear to have a big influence on attitudes about discussing cancer-related infertility or sperm-banking. However, physicians who viewed the CD-ROM before filling out questionnaires scored significantly higher on their True/False Knowledge Test. Those who had viewed BOF had a mean score of 14.6 (+ 3.47) out of 20 items, compared to 10.8 (+ 1.55) for those who had not seen the CD-ROM ($P < 0.00625$). Knowledge scores were not significantly influenced by physician age, rank, oncology specialty, or gender.

Patient pilot study results represent the demographic characteristics of 20 patients participating in the pilot randomized trial. The groups did not differ significantly. Tables 2 and 3 present the results comparing the two groups on the Knowledge Test, and on the Decisional Conflict Scale, using one-way ANOVA's. Men who viewed BOF after filling out questionnaires had a trend to increased knowledge and had significantly less conflict about the decision whether or not to bank sperm.

Barriers & Solutions

Product(s) Developed from This Research

Banking on Fatherhood After Cancer