

# LIFELINE

St. Jude for Life



Winter 2013-2014

## St. Jude LIFE Screening Study At A Glance

- The first 1713 survivors participated in the study evaluation between October 1, 2007 and October 31, 2012.
- Participants were from 18 to 60 years old. Half were under age 32.
- Many previously undiagnosed health problems were discovered as a result of the study evaluations.
- The most frequent types of conditions were heart and lung abnormalities, low hormone levels, and problems with memory, thinking skills, and hearing.
- Many of the participants had health problems that are usually found in much older people.
- The findings stress the importance of ongoing health monitoring for adult survivors of childhood cancer.

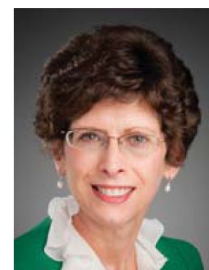
**St. Jude Life Study  
Toll-Free Number:  
1-800-775-2167**

St. Jude  
**LIFE**  
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Dear St. Jude Alumni,

The St. Jude LIFE Study is helping us learn more about the health of adults treated for cancer during childhood. The latest study findings were recently featured in an article in the Journal of the American Medical Association (JAMA). The article is called "Clinical Ascertainment of Health Outcomes among Adults Treated for Childhood Cancer."



The results published in this article are based on evaluations completed by more than 1700 survivors who returned to St. Jude to participate in St. Jude LIFE, 10 or more years after they were cured of cancer.

The study evaluations uncovered many previously undiagnosed health problems—problems that are typically found among older people than St. Jude LIFE Study participants. Heart and lung abnormalities and problems with memory, thinking skills, and hearing were among the most common conditions discovered by the testing. And these conditions were diagnosed before participants had any symptoms and before they would have been expected to develop as a result of normal aging.

Participants who were diagnosed with a health problem as a result of their study evaluation now have new information they can share with their local doctor to plan a course to improve their health. The take-home message is that participating in research offers opportunities to improve understanding about your health and ways to stay healthy. With that in mind, we are happy to provide details of many important research projects that are ongoing at St. Jude (please see the back page). If you're eligible, we hope you'll consider participating in one of these studies.

It is sobering to learn that survivors experience so many health problems. The good news is that this new information shows convincingly that risk-based screening for childhood cancer survivors can identify health conditions linked to childhood cancer treatments. The most important things you can do for your health are to know what health risks you face based on the treatments you received and to talk to your doctor about what actions you can take to stay healthy.

Sincerely,

Melissa M. Hudson, MD

*Principal Investigator, St. Jude Lifetime Cohort Study*

# Health conditions of St. Jude LIFE Study participants

The St. Jude LIFE Study is yielding important information about the health of cancer survivors. For the first time we are able to clearly see the extent of the health challenges survivors face. This is because the study tests every participant for every health problem they are at risk to develop, based on the specific treatments they received to cure their cancer. Not everyone is at risk for the same conditions. The health risks survivors face are closely linked to the treatments they received. That's why survivors should know the specific chemotherapy drugs and other therapies, like radiation dose and site, that were used in their treatment protocol. (The most common types of chemotherapy drugs are listed in the box below.)

**We already knew** that anthracycline chemotherapy drugs, for example, are toxic to the heart and that radiation may injure normal organs and tissues in the treatment field. Now we are learning that survivors develop health conditions at earlier ages

than do members of the general population. Even though the participants are still fairly young, many of the 1713 individuals who were included in the recent analysis showed findings common in much older people. Many of these conditions were first discovered as a result of the St. Jude LIFE evaluation. These are problems that might not have been detected until much later in life and at more advanced stages if not for the St. Jude LIFE evaluation.

**We also found** that the number of survivors with one or more chronic health conditions was extremely high. The most common conditions involved abnormalities of the lungs and heart, hormone problems, and problems with thinking skills and hearing. These conditions were detected in at least 20 percent of the study participants. The tables on the next page list details of the links between treatment exposures and some of the more common health conditions experienced by study participants.

## Chemotherapy Drug Types

### Alkylating agents

BCNU (Carmustine)  
Busulfan  
CCNU (Lomustine)  
Chlorambucil  
Cyclophosphamide (Cytoxan)  
Ifosfamide  
Melphalan  
Nitrogen Mustard  
Procarbazine  
Thiotepa

### Anthracyclines

Daunorubicin (Daunomycin)  
Doxorubicin (Adriamycin)  
Epirubicin  
Idarubicin  
Mitoxantrone

### Antimetabolites

Cytosine Arabinoside (Ara-C)  
Methotrexate

### Anti-tumor antibiotic

Bleomycin

### Corticosteroids

Dexamethasone  
Hydrocortisone  
Methylprednisone  
Prednisone

### Epipodophyllotoxins

VM-26 (Teniposide)  
VP-16 (Etoposide)

### Heavy metals

Carboplatin  
Cis-platinum

### Vinca alkaloids

Vinblastine  
Vincristine

**Second cancers.** 273 participants developed a second cancer, different from their childhood cancer. Of these, 73 were detected as a result of the study evaluation. (See the feature "Growing Up with St. Jude" in the Fall 2012 LIFELine to read about one participant who was diagnosed with colon cancer during her study evaluation. The newsletter is available on the St. Jude website.) In many cases these second cancers were linked to treatments for childhood cancer, especially radiation therapy. Some cancer treatments increase your risk of developing new cancers that are common in adults. For example, chest radiation may increase the risk of breast cancer and radiation involving the abdomen may increase the risk of colon cancer. If the treatment you received is linked to the possible development of a second cancer, you may need to be screened earlier than is usually recommended for adults in the general population. If a cancer does develop, early screening may detect it at more treatable stages.

**Two lessons** seem obvious as a result of these findings. The first is the vital importance of survivorship research for the health of survivors. The second is that it's crucial for survivors to know their treatment history and be screened for the health conditions they are at risk for, based on their treatment. All St. Jude alumni are given a survivorship care plan, with specific screening recommendations based on their cancer treatment, to share with their local doctors. Additional information about risk-based screening guidelines is available at:

<http://www.survivorshipguidelines.org/>

Complete information on our findings is available in the article: Clinical ascertainment of health outcomes among adults treated for childhood cancer. Hudson MM, Ness KK, Gurney JG, Mulrooney DA, Chemaitilly W, Krull KR, Green DM, Armstrong GT, Nottage KA, Jones KE, Sklar CA, Srivastava DK, Robison LL. *JAMA*. 2013;309(22):pp. 2371-8.



## Lung conditions

Problem	Treatment Exposures	Number exposed	Number who had the problem
Abnormal lung function	<ul style="list-style-type: none"> <li>• Busulfan, carmustine, lomustine, and bleomycin chemotherapy drugs</li> <li>• Radiation affecting the lungs</li> <li>• Surgery to the chest wall</li> </ul>	417	272

## Heart problems and risk factors for heart disease

Problem	Treatment Exposures	Number exposed	Number who had the problem
Heart muscle weakness	<ul style="list-style-type: none"> <li>• Anthracycline chemotherapy drugs</li> <li>• Radiation affecting the heart</li> </ul>	1214	76
Heart valve abnormalities (scarring, calcium deposits, leakiness)	<ul style="list-style-type: none"> <li>• Radiation affecting the heart</li> </ul>	501	284
High blood pressure	<ul style="list-style-type: none"> <li>• Ifosfamide, heavy metals, methotrexate chemotherapy drugs</li> <li>• Radiation affecting the kidney or the pituitary gland in the brain</li> <li>• Nephrectomy (removal of a kidney)</li> </ul>	1508	342
Blood lipid problems (such as high cholesterol)	<ul style="list-style-type: none"> <li>• Heavy metal chemotherapy drugs</li> <li>• Radiation affecting the pituitary gland in the brain</li> </ul>	807	491
Obesity	<ul style="list-style-type: none"> <li>• Radiation affecting the pituitary gland in the brain</li> </ul>	714	345

## Problems with memory, thinking, vision, and hearing

Problem	Treatment Exposures	Number exposed	Number who had the problem
Thinking or memory problem	<ul style="list-style-type: none"> <li>• Antimetabolite chemotherapy drugs</li> <li>• Radiation affecting the brain</li> <li>• Neurosurgery (surgery involving the brain)</li> </ul>	1062	509
Vision problems	<ul style="list-style-type: none"> <li>• Busulfan or corticosteroid chemotherapy drugs</li> <li>• Radiation affecting the eye</li> </ul>	1127	312
Hearing loss	<ul style="list-style-type: none"> <li>• Heavy metal chemotherapy drugs</li> <li>• Radiation affecting the ear</li> </ul>	251	156
Nerve disorder (neuropathy)	<ul style="list-style-type: none"> <li>• Heavy metal or vinca alkaloid chemotherapy drugs</li> </ul>	1422	312

## Problems with hormones or reproductive organs

Problem	Treatment Exposures	Number exposed	Number who had the problem
Primary ovarian failure in women or germ cell (sperm) dysfunction in men	<ul style="list-style-type: none"> <li>• Alkylating agent chemotherapy drugs</li> <li>• Radiation affecting the reproductive organs</li> </ul>	881 (553 women 328 men)	283 (65 women 218 men)
Diabetes	<ul style="list-style-type: none"> <li>• Radiation affecting the pituitary gland in the brain</li> </ul>	714	56

# Opportunities to participate in research at St. Jude

Our new findings published in JAMA highlight the benefits for survivors of participating in research. Your participation may help both yourself and others. Please contact us if you're interested in joining any of the studies described below.

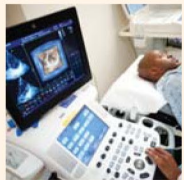


## The BRIGHT Study

### Brain Integrity in Hodgkin Lymphoma Survivors Treated with Chest Radiation

This study will help us to understand if the health of the heart, lungs, and blood vessels of survivors treated with chest radiation affects their brain health.

**Who's eligible?** Adult survivors of Hodgkin lymphoma who received radiation to the chest and were diagnosed at least 10 years ago.



## The Heart and Lung Study

### Longitudinal Cardiotoxicity in Adult Survivors

Survivors may be at risk for early heart problems as they age. This study will help us to learn which heart tests are most important for you to receive as a survivor of childhood cancer and how heart function changes as you age.

**Who's eligible?** St. Jude LIFE participants who received anthracycline chemotherapy drugs like doxorubicin and daunorubicin, or radiation affecting the heart. We are also enrolling survivors who did not receive these therapies as a comparison group for this study.



## The LDTAM Study

### Low-Dose Tamoxifen for Breast Cancer Risk Reduction

Tamoxifen is a drug that has been proven to reduce the risk of breast cancer in women who are at high risk for this disease. This study will help us learn if using low doses of tamoxifen is safe and helpful for women who were treated for childhood cancer with chest radiation.

**Who's eligible?** Female survivors age 25 or older who were treated with chest radiation before age 40 and have been cancer-free for at least two years. Participants must not have breast implants or currently be on hormones. This study is being done in multiple centers across the country.



## The MIND Study

### Melatonin Treatment in Adult Survivors of Childhood Cancer

Melatonin is a natural hormone that helps control your sleep and wake cycles. This study will help us learn if melatonin treatment might be helpful for survivors who have problems with memory, attention and/or falling asleep.

**Who's eligible?** Adult survivors of childhood cancer who received treatments, such as antimetabolite chemotherapy drugs like methotrexate, or radiation affecting the brain, and who have problems with memory, attention, or falling asleep.



## The PREVENT Study

### Prevent Congestive Heart Failure Risk in Survivors

Congestive heart failure (CHF) is a condition where the heart becomes unable to pump enough oxygen-rich blood out to the rest of the body. This study will help us to learn if low doses of a drug called carvedilol are well tolerated and can reduce survivors' risk of CHF.

**Who's eligible?** Childhood cancer survivors who are age 16 or older who were treated with high doses of anthracycline chemotherapy drugs like doxorubicin and daunorubicin and have been cancer-free for at least two years.

## Community Controls

Do you have a friend or relative who has always wanted to personally contribute to the lifesaving work of St. Jude Children's Research Hospital? We are now offering an exciting opportunity for family and/or friends of former and current St. Jude patients to participate in research by volunteering to be a research control. Controls complete the same assessments as survivors and will serve as a comparison for our studies.

**Who's eligible?** Friends and family members of people treated at St. Jude (except close relatives like parents, siblings, and children) who are at least 18 years old and are not pregnant or breastfeeding.

There are many other research opportunities available at St. Jude in addition to these studies, and more studies are always being planned. If you'd like to participate in one of these studies or find out about others, please contact us.

The St. Jude LIFE Study toll-free number is:

**1-800-775-2167**

Our email address is: [sjlif@stjude.org](mailto:sjlif@stjude.org)

The study website is: [www.stjude.org/sjlif](http://www.stjude.org/sjlif)

Thank you for participating in survivor research!

## LIFELine

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