

Good evening. I am honored to address this distinguished group and call upon the World Health Organization to designate childhood cancer a top global health priority. I was selected to speak tonight to serve as a tangible example of the human potential that is lost when a child dies from cancer and to communicate a message of enduring hope.

I am a pediatric oncologist and physician scientist. Every day, I witness the tragic human toll of childhood cancer. Every three minutes a child is diagnosed with cancer somewhere in the world, which equates to over 250,000 new cases of childhood cancer each year. Most importantly, in every country in the world, cancer is the leading cause of death in children by non-communicable disease. And for reasons that we do not fully understand, global rates of childhood cancer are rising. Childhood cancer is unrelenting and demoralizing. It devastates families financially and emotionally. These facts are not in dispute.

But equally indisputable is the fact that curing childhood cancer is now possible for approximately 80% of newly diagnosed patients. I should know, for tonight I stand before you as 25-year survivor of childhood cancer. When I was sixteen years old, I was diagnosed with Hodgkin's disease, a form of cancer that affects the lymphatic system. For me, battling cancer has been a lifelong challenge, but also the greatest blessing God has provided me. Cancer treatments are physically and mentally punishing. I endured radiation, multiple surgeries, and received 8 different chemotherapy drugs. I experienced intense vomiting, often for several days and went months without being able to eat. I lost my hair and had my life turned upside down. While these experiences are now over two decades in the past, not a day goes by where I do not recall some aspect of my battle with cancer. Furthermore, I have continued to encounter health problems caused by my cancer treatment and at age 35 I had to undergo lifesaving open-heart surgery to replace a valve in my heart and bypass three blocked arteries in my heart. These heart problems were the direct result of the radiation and chemotherapy that I received to cure my cancer as a teen.

So you now may be wondering how any of that can be a blessing . . . let me explain. At a young age I learned the true value of life. Unlike many of the children treated around me, I survived. Let me repeat... I SURVIVED. I was given the opportunity to pursue my dreams. I have grown up, married an amazing woman, and now have four incredible children. I have been given countless opportunities to draw upon my own experiences as I provide care for children with cancer. In the lab, I am engaged in vitally important research. And most importantly, my life can provide hope for patients and families. I can inspire. None of what I have accomplished in my life would have been possible without acknowledging the simplest fact. I am here because I was born in a country that has the resources to treat childhood cancer. In the United States and other developed countries, survival rates have steadily climbed since the 1960's. But in low income and underdeveloped parts of the world, cancer remains a death sentence for far too many children.

The world loses more than a life when a child dies from cancer. Countries are deprived of future citizens that approach life and see the world from a unique perspective. Studies have shown that survivors of childhood cancer have greater empathy and approach life differently. Spend time in any childhood cancer ward and you are likely to encounter individuals like me – childhood cancer survivors that are giving back by practicing as physicians, nurses, social workers, psychologists, and serving in other capacities. Survivors are altruistic and resilient. Losing a child to cancer not only devastates families, it deprives the world of an individual that has endured a unique life experience that propels them to live a life giving back. By not doing absolutely everything we can to save

children afflicted with cancer, we may be depriving the world of our next great leader, philosopher, doctor, scientist, or artist.

It is also important to point out that the worldwide problem of childhood cancer is not limited to the inability to provide effective treatments in low-income and low-resource countries. In countries where the vast majority of childhood cancer patients have access to care, we have realized the devastating long-term health complications of successful childhood cancer therapy. Five-year survival rates have soared to almost 80%, but these statistics provide no indication of quality of life. My experience with late heart disease is an all-too-common outcome. In fact, 75% of long-term survivors suffer from at least one chronic condition that is directly related to their previous cancer therapies. Even more alarming, up to 1/3 of long-term survivors are faced with a life-threatening health complication. Survivors are faced with elevated risks of heart disease, stroke, secondary cancers, and lung problems. Thus, a major aspect of the worldwide battle against childhood cancer is developing new treatments that specifically target cancers and result in less toxic side effects.

The long-term ramifications of successful childhood cancer therapy are alarming, but we are at a unique point in the history of pediatric cancer research. I recently participated in a workshop at the National Cancer Institute that was focused on applying precision medicine to pediatric cancer patients. In the coming decades it will be possible to better target a child's tumor and spare normal tissues. Undoubtedly, this will lead to less toxic treatments and improved quality of life. Therefore, we must utilize these burgeoning technologic capacities to develop and improve therapies, while simultaneously working to bring modern cancer treatment to every child in the world.

Childhood cancer is indeed a problem that ultimately affects every nation across the globe. Therefore, we must work collaboratively to make changes that will end suffering and death from childhood cancer in our lifetime. While this is a lofty goal, we have the knowledge and technological capacity to do so. We can make great strides by addressing four major problems. **Inequity of Survival Rates.** There is a major inequity in survival rates between wealthy and poorer nations. Working to identify the factors that drive this difference is key to equalizing survival rates. **Poor access to affordable medicines.** For a majority of childhood cancers curative treatment strategies are established. Bringing these treatments to children all over the world can dramatically improve global survival rates. **Inadequate focus on developing targeted therapies.** Childhood cancer is understudied and underfunded. We must work together to bring a unified focus on developing new strategies for childhood cancers which are genetically and biologically different than adult cancers. **Late health effects.** Children treated for cancer are also going through growth and development. We must first understand the dynamic interaction between our treatments and childhood development and then identify new treatments that target cancer while facilitating normal aging.

I would like to end my time tonight by discussing for a moment the concept of hope. A British author wrote the following about the power of hope:

*"There is no medicine like hope, no incentive so great, and no tonic so powerful as expectation of something tomorrow."*

My personal journey is a testament to the hope that we can offer all children and families impacted by childhood cancer. Never before have children with cancer faced a tomorrow with a medicine as powerful as the hope that we can instill by coming together as a global community to address this problem. We can do better. We must do better. It is in fact our duty. Thank you.