

ALEXANDRIA SUMMIT KEYNOTE ADDRESS**JUNE 26, 2013****NEW YORK, NY****NANCY GOODMAN
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KIDS V CANCER**

It is an honor to be here. I am here today because four and a half years ago, my son, Jacob, died of a pediatric brain cancer, medulloblastoma. Or, more exactly, I am here today because I believe we must change the way we treat pediatric cancer, or live with the consequences of our inaction. They are considerable.

Before he was diagnosed, Jacob was a beautiful eight year-old boy with red hair and a brilliant, kind smile. A loud, precocious kid who loved to play any sport with a ball, though he was more enthusiastic than athletic. He loved to sing. He loved to spend time with his little brother. After he was diagnosed -- and subjected to treatment -- Jacob became a boy in a wheelchair. A boy with serious cognitive impairments ... who at times couldn't talk or move... who could neither eat nor control his basic bodily functions. A child who spent 9 of the next 23 months of his life in hospitals and much of the rest in clinics. Jacob carried his burden with a smile and good humor. He was so brave and had such wisdom. He touched many lives before he died at the age of 10 and a half.

Today, Jacob would have been 15. I imagine he would have been tall and skinny. He probably would have been going to summer camp or playing in a rock band like his younger brother, Ben. Maybe he would have had a first date. And I would have had a chance to watch all this, not speculate about it ... if there had been more effective drugs to treat Jacob.

Two weeks after Jacob's diagnosis and only days after a partial resection of his widely metastasized brain tumors, Jacob's doctors started the standard protocol of radiation and chemotherapy. He went through all the standard protocols, high dose treatments and palliative care. Jacob's medical team knew pretty early on that the drugs and radiation were unlikely to work. Yet they continued on course because there were no alternatives. In fact, there had been no significant changes in the protocol for decades. Why is that, exactly?

Pediatric cancers are thought by some to be obscure, low-impact cancers. Let me say this: nothing could be farther from the truth. It may surprise you to learn that no disease claims more young lives in this country than cancer – with thousands of kids dying, every year. And the lucky ones – the hundreds of thousands of survivors of these cancers – face relapses, secondary cancers, and life threatening impairments.

Measured in years of life lost, and loss of quality of life and health for survivors, the impact of pediatric cancer rivals that of breast cancer. Measured in human terms? We can't, really, because those costs are incalculable. But the death of even one child has a tremendous impact on families and communities. If you've ever known a child who has died – it just sticks with you.

As a nation, we rightly mourn the tragic loss of the children of Sandy Hook Elementary School. But every week, year after year, an entire classroom of kids dies from pediatric cancer. I call that high-impact.

As Jacob suffered through one protocol after another, not improving, I contacted clinicians and researchers in 36 hospitals around the world, seeking new ideas for treatment. What I learned was that over the past 20 years, there has been only one drug that merited initial FDA approval for a pediatric cancer.

Jacob died on a Friday night. Saturday, I opened up my laptop on the dining room table and founded Kids v Cancer. My goal has been to change the landscape of pediatric cancer so that one day, children diagnosed with cancer do not share Jacob's fate. And I'm here today to tell ask you to join me in this effort. Because unless we do something, it is unlikely that any new drugs will be developed for pediatric cancers in the future.

The United States is home to many of the world's leading researchers and scientists – some are here with us today. Yet, very little of that talent is directed toward the development of drugs for our children. And though we are at an inflection point in cancer research, we have seen precious little progress and in pediatric cancer drug development. There are several reasons why this is so – and Kids v Cancer has set out to deal with those obstacles, one after another. I'd like to address them in turn.

The primary reason why pediatric drug development gets short shrift is because there is little market incentive to develop drugs for kids. The numbers are relatively small -- even if the impact is large.

So, our first order of business was to create a market incentive. We started with the United States Congress, drafting a bill we called Creating Hope Act. I had never lobbied Capitol Hill before, but I went office to office, perhaps 500 meetings, we garnered 172 cosponsors on both sides of the aisle, hosted lobby days, generated thousands of emails and phone calls, and attracted a lot of positive press coverage.

I'm very happy to tell you that the Creating Hope Act passed and was signed into law last summer, as part of the 2012 FDA Safety and Innovation Act. The best lobbyists we had? Jacob's friends and his little brother, Ben. They could make the case for action like no one else. I can't tell you how many meetings ended with tears and hugs from cynical staffers and case-hardened Senators.

But this isn't about sympathy -- and it is more assuredly not about pity. It's about hard-headed economics -- making doing the right thing profitable by any measure.

Under the Creating Hope Act, a company that achieves FDA approval for a pediatric rare disease drug it has developed is awarded a voucher, fully transferable, which entitles the company to priority review of another drug. This would enable a company with a large-market adult drug, for example, to get to market more quickly than it would under the standard review procedure. I'm sure most of you today understand just how significant an advantage that creates -- and thus, what a potentially powerful market incentive it could be to develop pediatric drugs.

This is an exciting concept. No one knows for sure at this point what the value of a voucher is. Analysts and economists have generated estimates from tens of millions of dollars on up. But whatever its magnitude, the value of a voucher would fall almost entirely to a company's bottom line, as the cost of pursuing a voucher is minimal. It could help fund research into new lines of drugs or help a company mitigate risk while diversifying its offerings. And it could help demonstrate that investment in pediatric rare disease drugs can be justified purely on financial returns.

Right now, we are now working with companies and research institutions with drugs that could qualify for vouchers. Two applications for Creating Hope Act designations have been filed. We

look forward to timely determinations by the FDA and ultimately to the issuance and monetization of vouchers. We also look forward to the FDA's publication of designation application forms to expedite this process.

I hope some of you in this room have candidate drugs that could lead to a designation and a voucher. I would welcome the opportunity to work with you, and I would be happy to discuss in greater detail how the Creating Hope Act works. I have materials here for those of you who are interested in following up.

The Creating Hope Act is just the first step. I'm pleased that the FDA has taken an innovative position with respect to trial designs for pediatric cancer drugs. Specifically, in 2004, the FDA gave Accelerated Approval to Clofarabine for pediatric ALL on a single arm trial with response rates as endpoints. There were only 40 children on trial. Thank you. I hope that will encourage more companies to develop drugs for kids with cancer. We look forward to working with the FDA towards the acceptance of response rates as primary endpoints children's cancer trials of solid tumors.

FDA acceptance of response rates as endpoints for pediatric cancer trials is critically important because at this time, most pediatric cancer protocols are outside the purview of the FDA. Instead, children with cancer are generally treated off label. Why is that? Cost of trials and a reluctance on the part of parents to put their children on trials with control arms.

FDA acceptance of progression free survival for solid tumor pediatric trials would drive down trial costs and make it easier to have trial designs without control arms. It would bring pediatric cancer treatment within the purview of the FDA. On a personal note, I would like to add that for Jacob, life after progression was marked by pain, increased confusion, paralysis below the waist, incontinence, IV nutrition instead of food, and profound fatigue. It was marked with less school and fewer playdates. PFS as an endpoint would have resonated with me as a mother.

The Creating Hope Act and the FDA adoption of innovative trials designs are two mechanisms to create incentives for drug development expressly for children with cancer. I want to also talk about hand-me-down drugs – adult cancer drugs that might have efficacy in children. The good news is that this is an exciting time given the proliferation of adult cancer therapies developed for an increasing number of targets, many of which are shared by a pediatric cancer. There

have been major breakthroughs in scientific understanding of genetic mutations of different cancers and the pediatric cancer community has invested substantial resources in identifying the few somatic mutations that appear to be present in pediatric cancers. But drugs being developed for adult indications are not making their way easily into pediatric cancer research. Of the approximately 100 unapproved agents sponsored by PhRMA member companies in phase 2 or 3 trials being developed right now for adult cancers, 80% have never been studied in any children's cancer trial. Moreover, in the last 10 years, the FDA has approved over 60 new agents for adult cancer treatment. Of these APPROVED drugs, 30% have still never been studied in children. Why is that?

Is one of the reasons due to the lack of information about what research is being done and how it might be relevant to pediatric cancer? To address this information problem, Kids v Cancer has built a database of the pipeline of adult cancer drugs by mechanism of action and target, by whether they are in phase 1,2 or 3, and by whether they have been tested in a pediatric cancer.

Is another reason that the academic pediatric cancer community and the pharmaceutical/biotech community don't know each other? I can't tell you how many people from either community have asked me to introduce them to the other. I would welcome an opportunity to meet with any and all pharmaceutical companies and biotechs ... to come back to your companies and understand better how you view the challenge of pediatric cancer drug development ... and to help create opportunities for you and pediatric cancer researchers to meet and work with each other.

But even when pediatric researchers identify a promising agent and reach a pharmaceutical or biotech executive, they still have a difficult time gaining access to the drugs. As it stands, most companies wait until the drug is approved or near approval, many years after adult cancer patients have had the opportunity to benefit from these drugs. This is heartbreaking for the families of sick kids who need the drugs now. I can attest to this from personal experience. When Jacob had finished his upfront therapy, metronomic therapy and high dose therapy, I approached eight drug companies requesting access to their investigational drugs. None of them consented.

I want to touch upon a sensitive point here. Is the reluctance of drug companies to share drugs with pediatric researchers in fact a fear that a child on their drug will die or experience a new

toxicity? Safety analysis needs to be reconsidered in the face of terminal illness. I was willing to bear the risk of toxicities given Jacob's grim prognosis.

Pediatric cancer researchers and FDA officials I have spoken to point out that the fear of finding a near toxicity in a child that holds up an adult trial is largely a myth, given the level of tolerance for toxicities by children and the flexibility of the FDA. So we welcome FDA leadership in dispelling this myth and working in partnership with pharmaceutical companies and biotechs to resolve this challenge.

Do we need additional market incentives to promote access by pediatric researchers to investigational adult cancer drugs? Last year, we worked with the FDA on a new interpretation of the Best Pharmaceuticals for Children Act, which provides an extra six months pediatric exclusivity to drug companies who voluntarily undertake certain pediatric studies. Under this new interpretation, at the company's initiative, or upon the request of the FDA or a pediatric researcher, a company could undertake the pediatric studies leading to pediatric exclusivity even before approval. In this case, pediatric exclusivity would be awarded at the time of approval. The FDA has accepted this interpretation and is now implementing it.

Are the requirements on pharmaceutical companies to undertake pediatric drug studies in certain cases appropriately tailored? We look forward to working with the FDA on possible modifications to the Pediatric Research and Equity Act and possible ways to harmonize with the European Union Pediatric Investigational Plan or PIP program. In addition, I would like to note that if a drug goes to the FDA for approval first for a pediatric cancer indication, then it could qualify for a Creating Hope Act voucher.

Let me end where we began. We are at a critical inflection point in pediatric drug development. We are building market incentives, such as the Creating Hope Act. We have an explosion of research about targeted therapies. We have new tools for translating the progress being made on adult cancers to pediatric cancers, and to increasing access to promising drugs for pediatric cancer researchers. There is a well-organized pediatric research consortia ready and willing to conduct low-cost trials with quick uptake of approved drugs. There is an equally well-organized patient advocate community, forged by social media, ready to populate well-designed trials.

KIDS CANCER

Changing the landscape of pediatric research

The time has come. For pharmaceutical and biotech companies, and for the right set of investors and philanthropists, this is an opportunity to demonstrate that good, risk-adjusted returns can be made by investing in pediatric drug development. In other words, that you can do well -- and do good -- at the same time.

Thank you for inviting me here today to share my thoughts with you. We have the opportunity to change the landscape of pediatric cancer drug development, removing one obstacle after another. I look forward to working with all of you to make this a reality.

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