

Financial Hardship in Adult Survivors of Childhood Cancer



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Overview

- Define financial hardship
- Summarize research findings in adult cancer survivors
- Discuss emerging research in adult survivors of childhood cancer

Patient Experiences with Financial Hardship due to Illness

“I am still paying for debts accrued from co-payments or hospital bills not covered by my insurance.. and paying credit card debt that was accrued during my time out of work.”

“We had to let our home go back to the bank...after 20 years of home ownership we had to file bankruptcy.”

Patient Experiences with Financial Hardship

“I paid most of my costs out-of-pocket. My savings were wiped out...now I struggle and am ashamed by my lack of funds. I don't know that I will ever recover financially. It is a considerable stress...”

“I stayed with a company that provides excellent health benefits rather than seek higher paying jobs where the benefits might not be as good.”

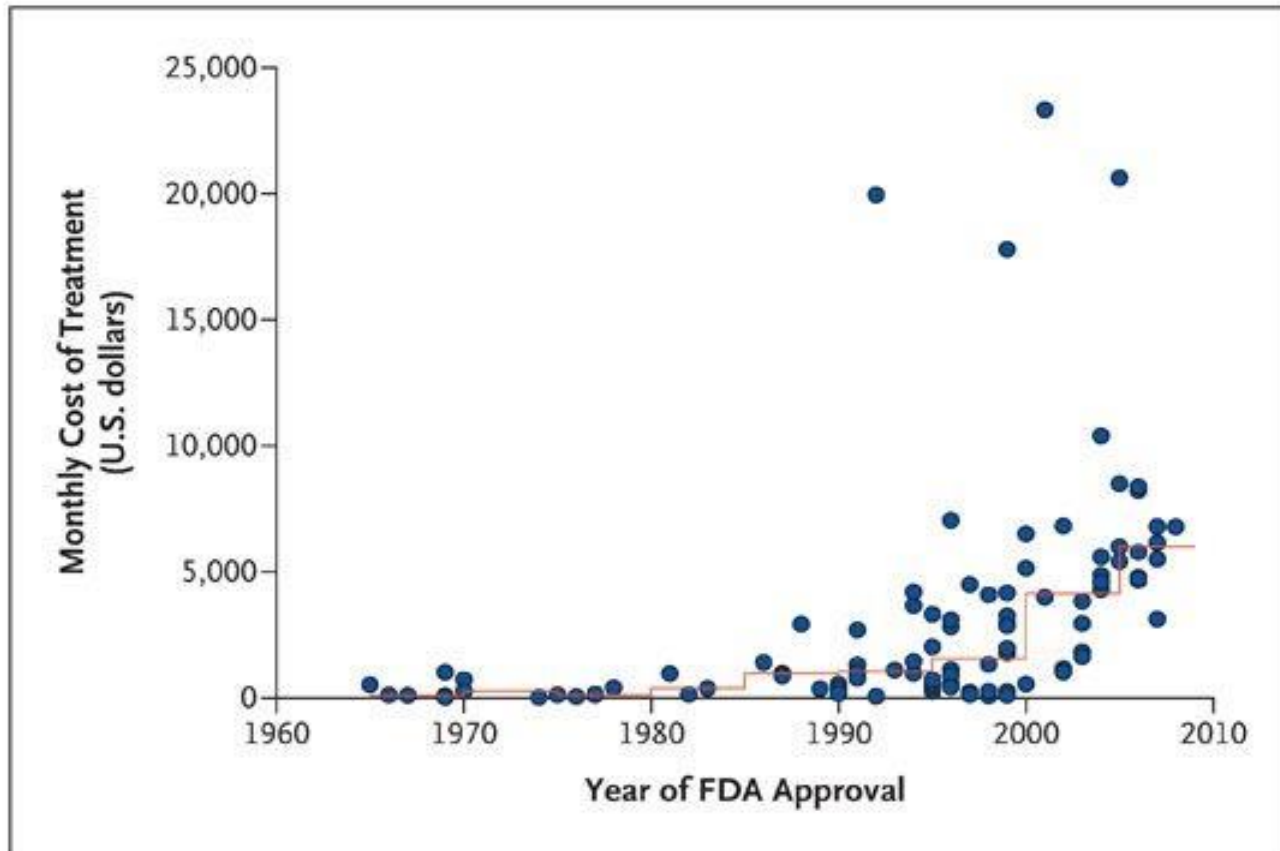
Cancer Survivorship

- Increasing prevalence of cancer survivorship
- Cancer survivors can experience lasting effects of disease and its treatment
- Compared to individuals without a cancer history, cancer survivors have greater
 - Risk for additional cancers and chronic conditions
 - Healthcare expenditures, including out-of-pocket spending
 - Limitations in amount or kind of work

Trends Affecting Financial Hardship

- In United States
 - Increased prevalence of high deductible health insurance plans
 - Increased patient cost-sharing (among the insured)
 - Recent increases in numbers of uninsured
- Changes in treatment patterns
- Increasing cost of treatment for cancer and other conditions

Dramatic Increases in Monthly Price of Cancer Drugs



Shown are costs for 1 month of cancer treatment for a person who weighs 70 kg or has a body-surface area of 1.7 m². Prices have been adjusted to 2007 dollars and reflect the total price for the drug at the time of approval, including both the amount of Medicare reimbursement and the amount paid by the patient or by a secondary payer.

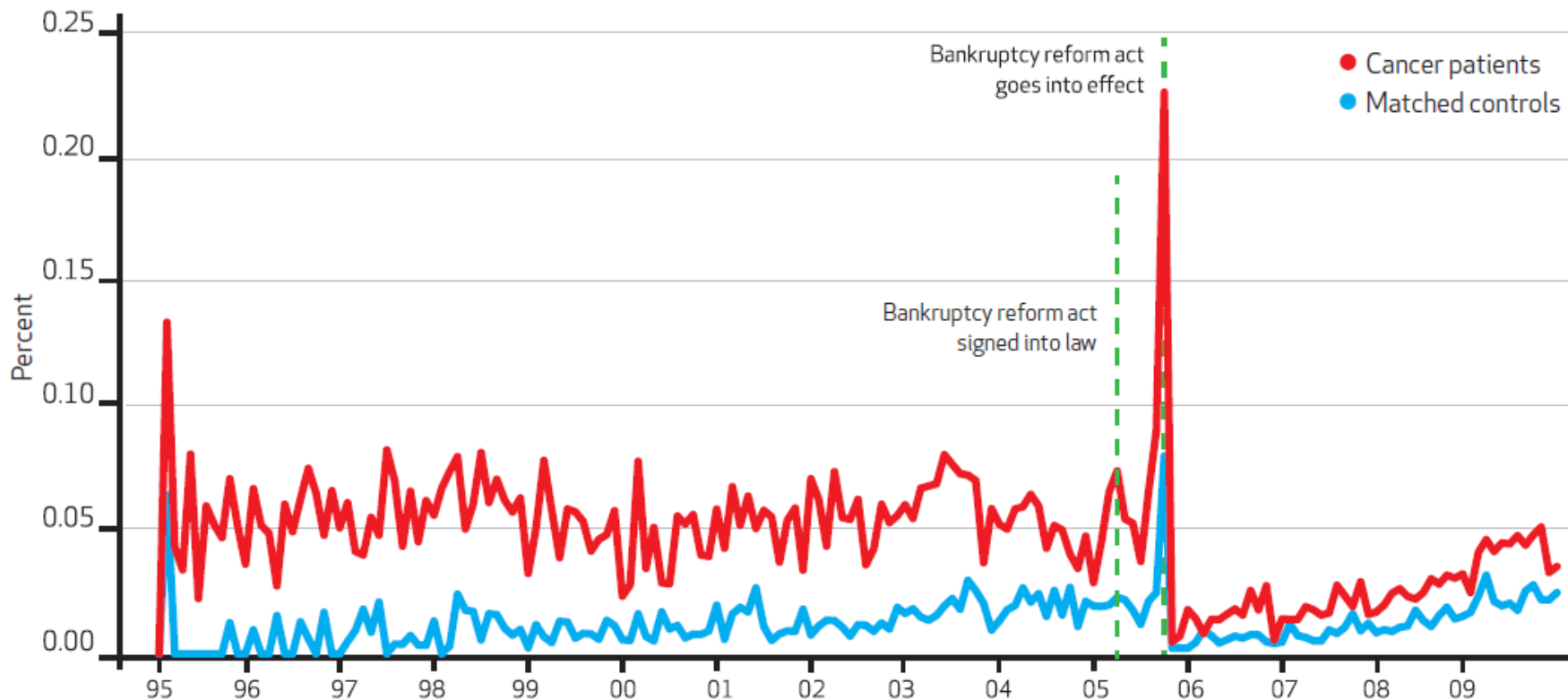
Source: Bach PB. Limits on Medicare's ability to control rising spending on cancer drugs. *N Engl J Med* 2009; 360:626-633.

By Scott Ramsey, David Blough, Anne Kirchoff, Karma Kreizenbeck, Catherine Fedorenko, Kyle Snell, Polly Newcomb, William Hollingworth, and Karen Overstreet

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Washington State Cancer Patients Found To Be At Greater Risk For Bankruptcy Than People Without A Cancer Diagnosis

Monthly Rate Of Bankruptcies For Cancer Patients And Matched Group Without Cancer, Western Washington State, 1995-2009



Bankruptcy Associated with Increased Mortality Risk

- Among cancer survivors in Western Washington State
 - Bankruptcy associated with increased mortality risk (HR= 1.79 (95% CI:1.64 to 1.96)) in adjusted analyses
 - Findings robust in sensitivity analyses
- Hypothesized mechanism(s)
 - Lower quality of life/overall wellbeing
 - Increased stress
 - Decreased treatment adherence or access to care

Source: Ramsey SD, Bansal A, Fedorenko CR, Blough DK, Overstreet KA, Shankaran V, Newcomb P. Financial insolvency as a risk factor for early mortality among patients with cancer. *J Clin Oncol* 2016;34(9):980-6.

Zafar SY. Financial toxicity of cancer care: it's time to intervene. *J Natl Cancer Inst* 2015;108(5).

Financial Hardship Framework



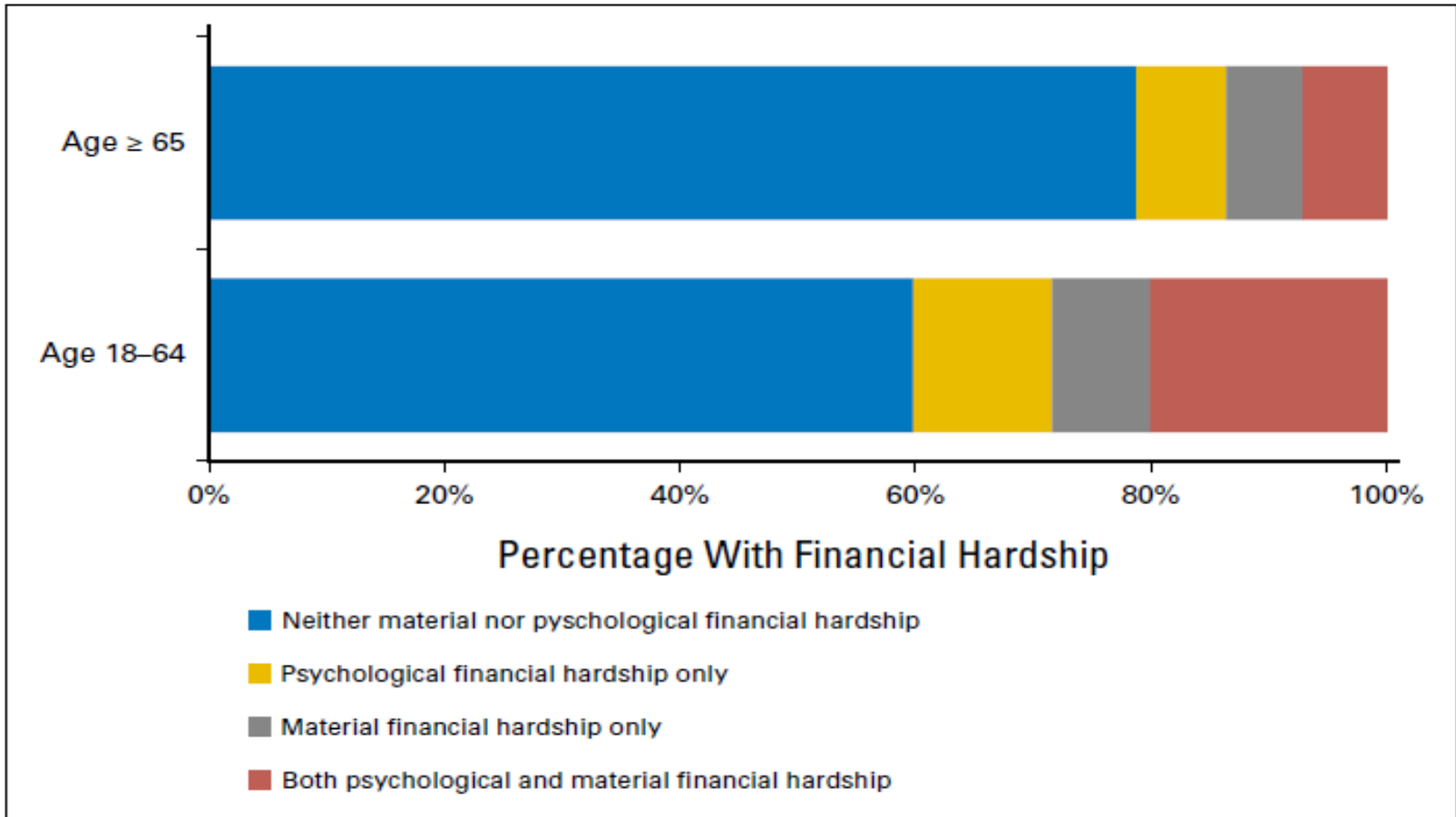
Source: Tucker-Seeley R, Yabroff KR. Minimizing the “financial toxicity” associated with cancer care: advancing the research agenda. *J Natl Cancer Inst* 2015; 108(5). Altice CK, Banegas MP, Tucker-Seeley RD, Yabroff KR. Financial hardships experienced by cancer survivors: a systematic review. *J Natl Cancer Inst* 2017; 109(2).

Financial Hardship in Adult Cancer Survivors: National Estimates from 2011 MEPS *Experiences with Cancer Survey*

	Weighted % (95% CI)
Had to borrow money or go into debt	7.1 (5.7 - 8.9)
Filed for bankruptcy	1.7 (1.0 - 2.8)
Unable to cover share of the costs of medical care	11.9 (9.8 - 14.3)
Other financial sacrifices	9.4 (7.6 - 11.5)
Any material financial hardship	20.4 (17.7-23.4)
Any psychological financial hardship	22.5 (19.6 - 25.7)

Source: Yabroff KR, Dowling EC, Guy Jr GP, Banegas M, Davidoff A, Han X, Virgo KS, McNeel T, Chawla N, Blanch-Hartigan D, Kent EE, Li C, Rodriguez J, de Moor JS, Zheng Z, Jemal A, Ekwueme DU. Financial hardship associated with cancer in the United States: findings from a population-based sample of adult cancer survivors. *J Clin Oncol* 2016; 34(3):259-67.

Material and Psychological Financial Hardship



Source: Yabroff KR, Dowling EC, Guy Jr GP, Banegas M, Davidoff A, Han X, Virgo KS, McNeel T, Chawla N, Blanch-Hartigan D, Kent EE, Li C, Rodriguez J, de Moor JS, Zheng Z, Jemal A, Ekwueme DU. Financial hardship associated with cancer in the United States: findings from a population-based sample of adult cancer survivors. *J Clin Oncol* 2016; 34(3):259-67.

Financial Hardship in Cancer Survivors Ages 18-64: 2012 LIVESTRONG *Experiences with Cancer* Survey

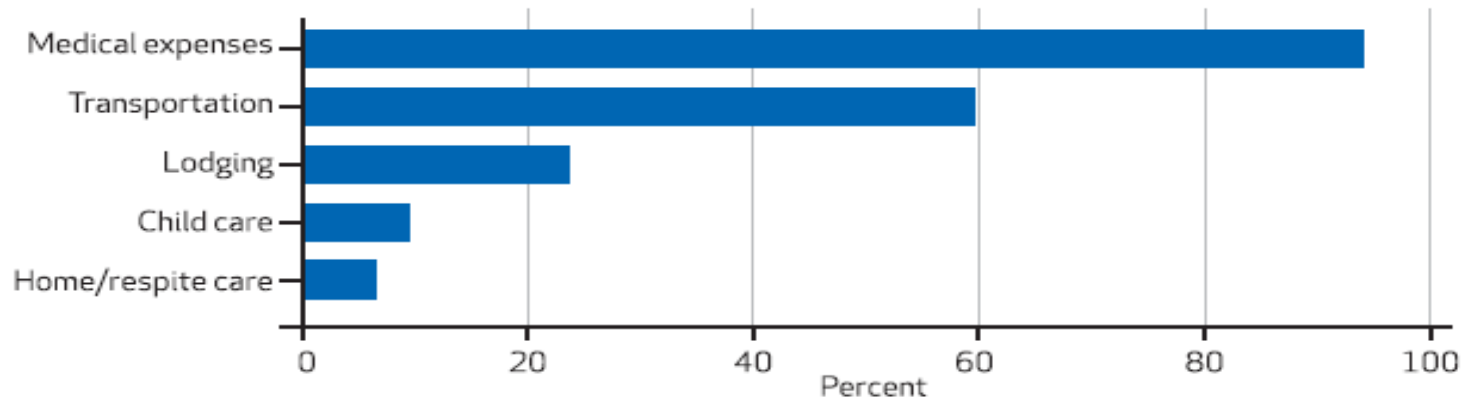
	Full sample (%)	Among those with Debt (%)
Material hardship		
Borrow money or go into debt	33.6	-
Filed for bankruptcy	3.1	9.1
Other sacrifices	39.7	68.0
Psychological hardship		
Worried about medical bills	63.8	86.6

Source: Yabroff KR, Dowling EC, Guy Jr GP, Banegas M, Davidoff A, Han X, Virgo KS, McNeel T, Chawla N, Blanch-Hartigan D, Kent EE, Li C, Rodriguez J, de Moor JS, Zheng Z, Jemal A, Ekwueme DU. Financial hardship associated with cancer in the United States: findings from a population-based sample of adult cancer survivors. *J Clin Oncol* 2016; 34(3):259-67.

Out-of-Pocket Spending among Cancer Survivors who Reported Borrowing Money or Medical Debt

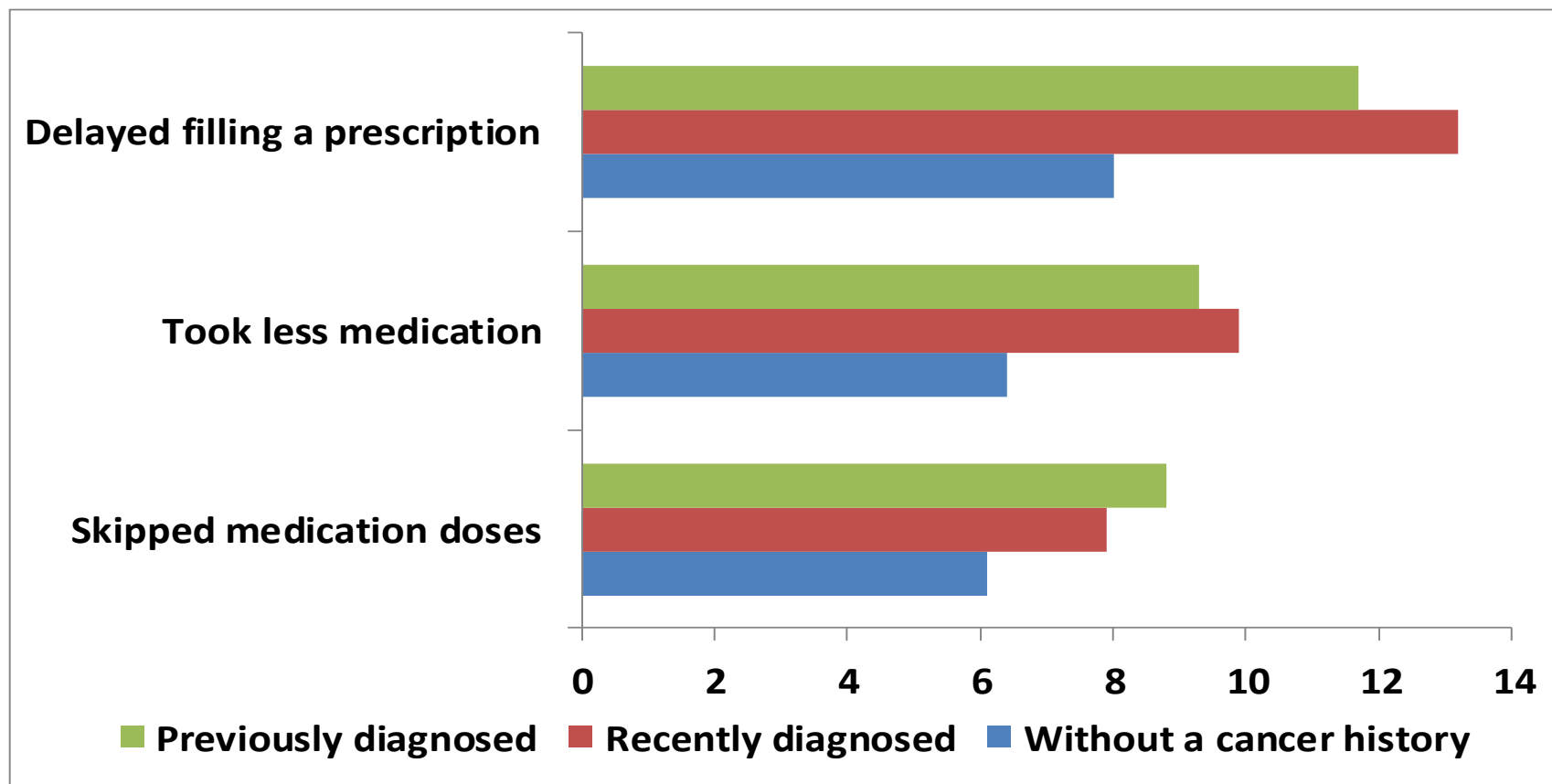
EXHIBIT 3

Types Of Out-Of-Pocket Spending Among Working-Age Cancer Survivors Who Reported Borrowing Money Or Going Into Debt Because Of Cancer, 2012



SOURCE Authors' analysis of data from the LIVESTRONG 2012 survey. **NOTES** The percentages presented are those of the 1,583 participants who responded yes to the question, "Have you or has anyone in your family had to borrow money or go into debt because of your cancer, its treatment, or the lasting effects of that treatment?" and who had valid responses to the question, "Because of your cancer, its treatment, or the lasting effects of that treatment, did you have any out-of-pocket costs in the following categories?" Categories are not mutually exclusive. "Medical expenses" include physician copayments, medications, and durable medical equipment.

Cancer History and Behavioral Financial Hardship in Adults Ages 18-64 Years



Predicted marginals from multivariable logistic regressions controlling for the effects of age, race/ethnicity, sex, educational attainment, marital status, number of comorbidity conditions, health insurance coverage, and geographic region

Source: Zheng Z, Han X, Guy GP Jr, Davidoff AJ, Li C, Banegas MP, Ekwueme DU, Yabroff KR, Jemal A. Do cancer survivors change their prescription drug use for financial reasons? Findings from a nationally representative sample in the United States. *Cancer* 2017; 123(8):1453-1463.

Patient Characteristics Associated with Risk of Financial Hardship

- Younger age
- Female
- Minority race and/or ethnicity
- Lower household income
- Unemployed/Changed employment because of cancer
- Uninsured/underinsured
- Cancer type
- More recent diagnosis and/or treatment

Summary of Findings in Adult Cancer Survivors

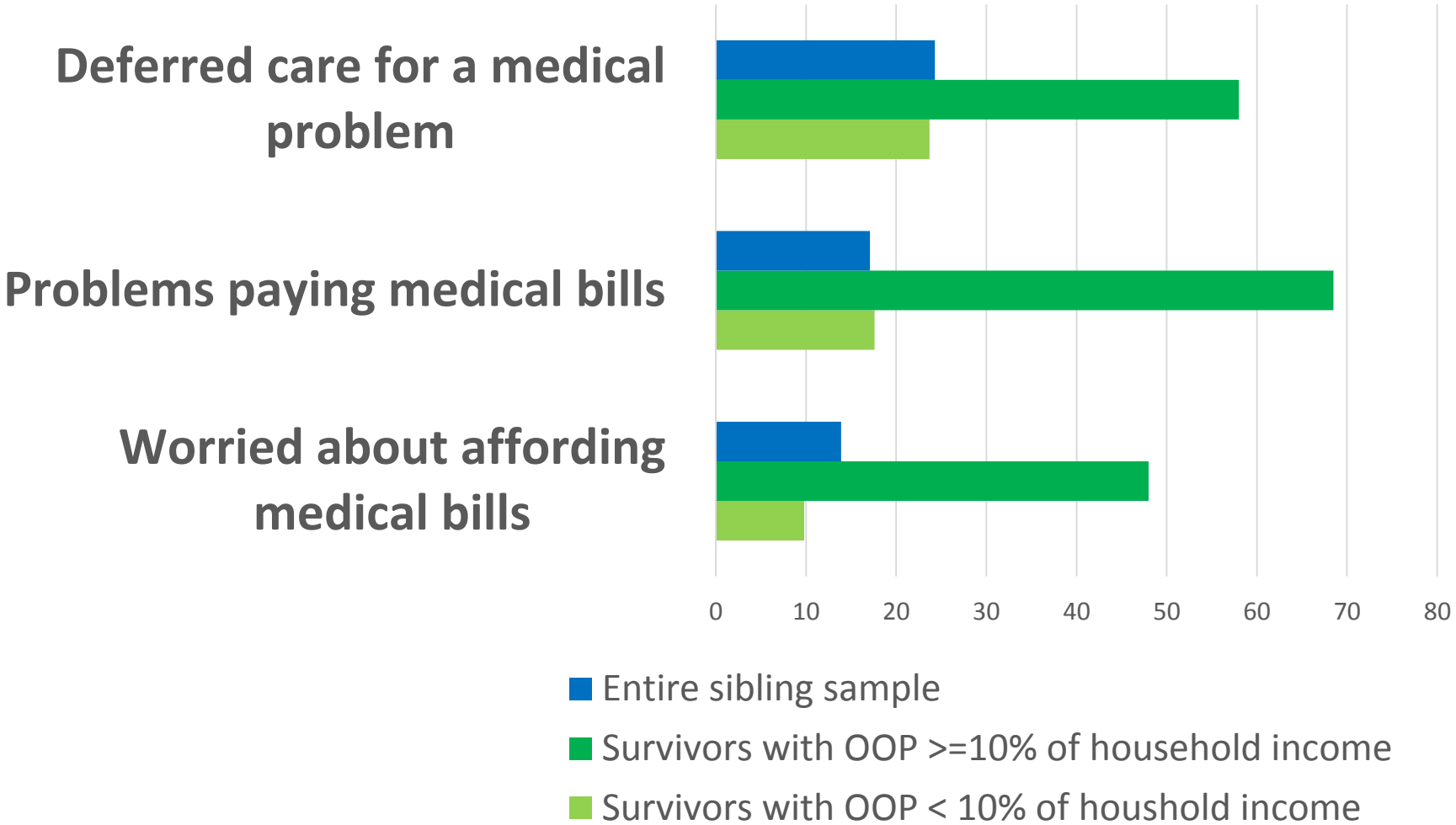
- Different aspects of financial hardship: material, psychological, behavioral
- Financial hardship relatively common, even many years following cancer diagnosis and treatment
- Out-of-pocket spending for more than medical care
- Consistent evidence about risk factors

- Potential for widening disparities in outcomes for cancer survivors

Adult Survivors of Childhood Cancers

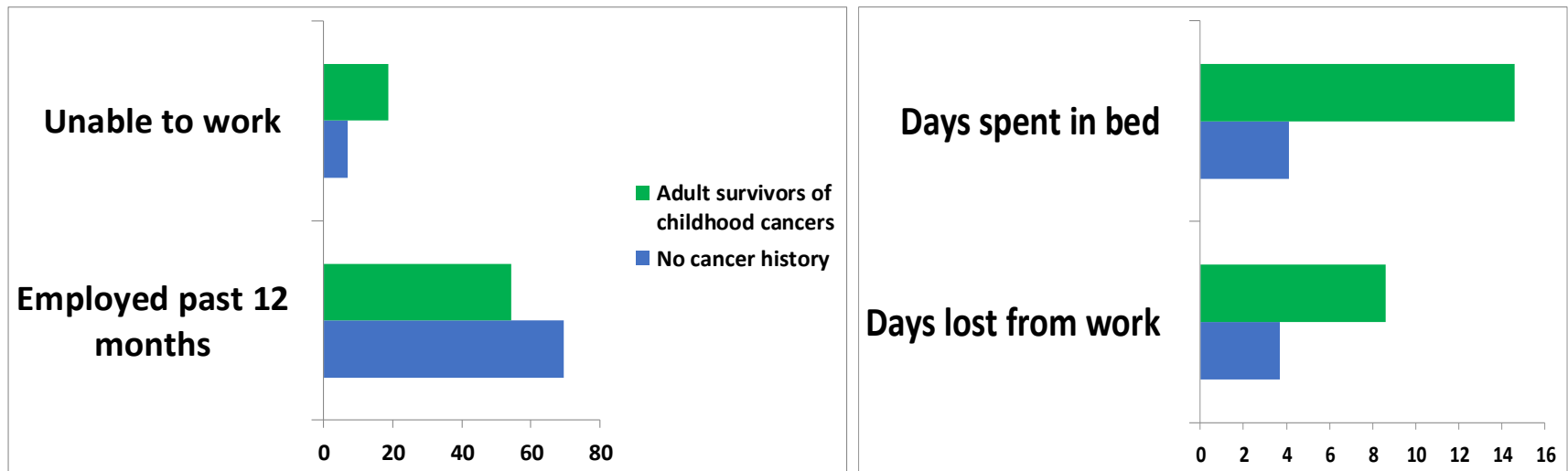
- Survivors of childhood cancers at especially high risk of
 - Chronic health conditions
 - Functional limitations and inability to work because of health
 - Challenges in obtaining health insurance, life insurance
 - Hospitalizations
 - High medical out of pocket costs
- Limited information about financial hardship

Financial Hardship in Adult Survivors of Childhood Cancer: Childhood Cancer Survivor Study



Source: Nipp RD et al. Financial burden in survivors of childhood cancer: A report from the Childhood Cancer Survivor Study. J Clin Oncol 2017;35(30):3474-3481.

Productivity Losses Among Adult Survivors of Childhood Cancers



Estimates adjusted for the effects of age, sex, race/ethnicity, comorbid conditions other than cancer, and educational attainment. Source: Guy GP Jr, Berkowitz Z, Ekwueme DU, Rim SH, Yabroff KR. Annual economic burden of productivity losses among adult Survivors of childhood cancers. *Pediatrics* 2016; 138:s1.

Productivity Losses Among Adult Survivors of Childhood Cancers

	Adult survivors of childhood cancers		Adults without a cancer history	
	Adjusted estimate (\$)	95% CI	Adjusted estimate (\$)	95% CI
Total per capita productivity loss	8169	4789-11575	3083	3032-3133
Type of productivity loss				
Employment disability	6646	4620-8707	2523	2488-2559
Missed work days	880	72-1678	379	368-389
Household productivity	643	97-1190	181	176-185

Estimates adjusted for the effects of age, sex, race/ethnicity, comorbid conditions other than cancer, and educational attainment. Source: Guy GP Jr, Berkowitz Z, Ekwueme DU, Rim SH, Yabroff KR. Annual economic burden of productivity losses among adult Survivors of childhood cancers. *Pediatrics* 2016; 138:s1.

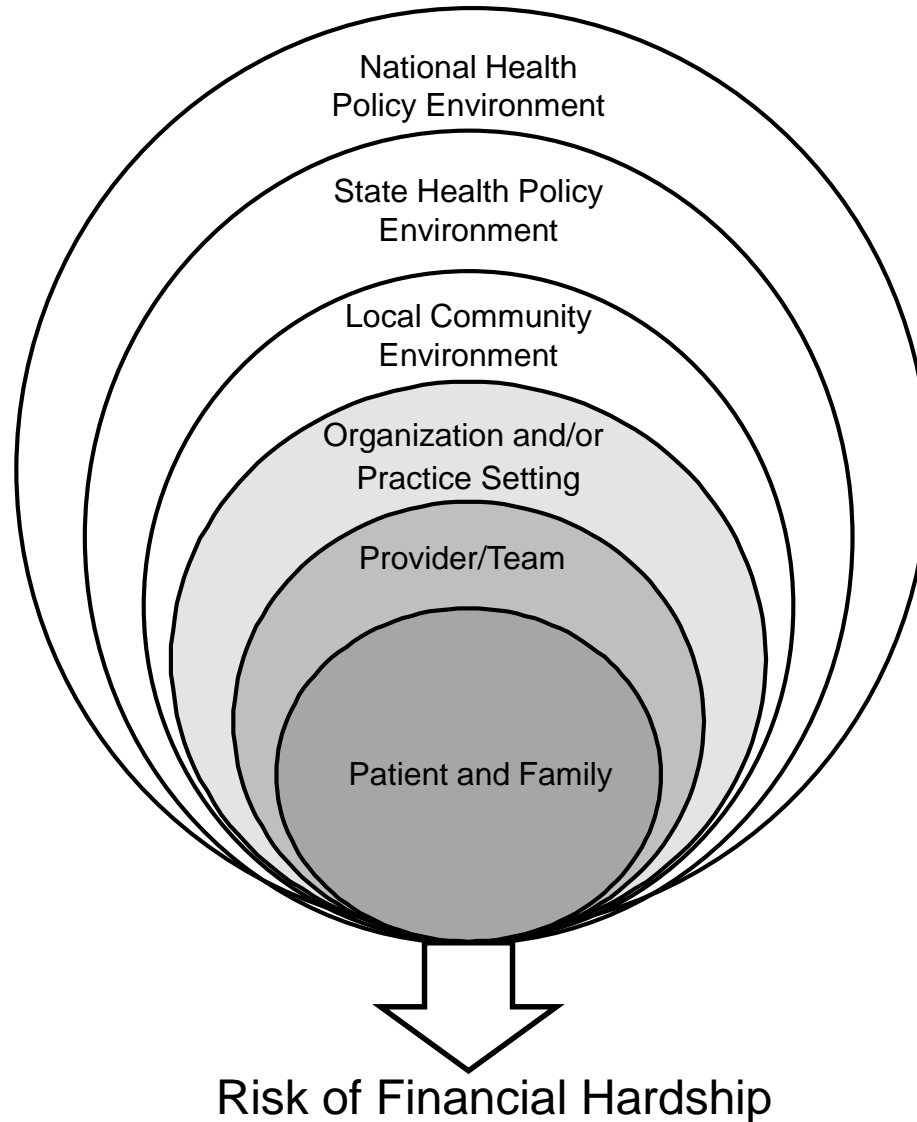
Summary

- Material, psychological, and behavioral aspects of financial hardship
- Net effects in adult survivors of childhood cancer especially large
- Little known about cumulative hardship associated with childhood cancers on survivors and family
 - Career trajectory, lifetime earnings
 - Asset depletion and accumulation
 - Healthcare use
 - Health outcomes
 - Levers for intervention

Developing a Research Agenda to Address Financial Hardship

- Measurement
- Data infrastructure
- Descriptive epidemiology
- Associations between financial hardship and health outcomes
- Interventions to reduce financial hardship

Factors at Multiple Levels Associated with Financial Hardship





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